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Digital Financial Literacy Levels and Preferred Fintech Services Among Pakistani University Students: A Descriptive Study

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ABSTRACT

Background: *The rapid growth of financial technology in Pakistan has transformed the way people, especially the youth, experience financial services. However, limited evidence is available in relation to digital financial literacy among university students and how it steers their fintech usage.*

Objective: *The present study focused on assessing DFL levels and preferred fintech services among Pakistani university students while analyzing the differences in gender and academic fields.*

Methods: *In this study, a descriptive cross-sectional survey of 235 university students from diverse disciplines was carried out using a structured, self-administered questionnaire. The questionnaire measured DFL with a 12-item Likert scale (Cronbach's $\alpha = 0.854$) and measured fintech usage patterns. Data analysis was done using SPSS, version 23.*

Results: *The average DFL score was 3.32 ± 0.70, which denotes a moderate level of literacy. No significant difference was observed between male and female students ($p = 0.878$), but significant differences were present across academic disciplines ($p < 0.001$), with students in Computer/IT and Engineering having higher levels of literacy. Mobile banking applications were used most frequently at 42.13%, mainly for convenience and time-saving, whereas security concerns remain the major barrier.*

Conclusion: *University students in Pakistan exhibit a moderate level of digital financial literacy with frequent use of fintech. DFL should be improved through academic integration and awareness programs to facilitate safe and inclusive fintech adoption.*

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1. Introduction

FinTech has quickly revolutionized the world's financial sector with emerging digital services like mobile banking, digital wallets, and online payment systems (Bhattacharjee et al.). FinTech has played an important role in improving financial inclusion by promoting the availability, affordability, and convenience of financial services, especially in emerging economies of countries like Pakistan (Barroso & Laborda). The Government of Pakistan and other financial institutions are encouraging digital finance in order to enhance economic engagement and minimize reliance on cash payments. The success of these efforts, however, largely hinges on the populace's capacity for comprehension and responsible utilization of digital financial products (Manzoor et al.).

Digital financial literacy (DFL), or the skills and knowledge needed to access digital financial platforms with confidence, is a key driver for safe and informed financial choice. Those with higher DFL can utilize online banking, mobile payment apps, and other FinTech services securely, hence facilitating greater financial empowerment and securing protection against digital fraud or abuse. Therefore, constructing DFL is not only crucial for technology uptake but also to support long-term, sustainable financial inclusion (Bushra & Mir).

University students are a principal segment of this shift towards digital finance. They are actively engaged in technology, actively surfing the net, and constitute a significant size of potential FinTech consumers in Pakistan. However, even with ubiquitous digital access, their degree of digital financial literacy and how it affects FinTech use is mixed. Past research in Pakistan has tended to explore financial literacy or FinTech adoption independently, without much emphasis on how DFL itself relates to most preferred FinTech services and usage frequency among university students (Humayun Khan & Dr. Sohaib Uz Zaman). This leaves a research gap to be filled for more effective youth-oriented financial inclusion policies.

Thus, the current research seeks to assess levels of digital financial literacy and most desired FinTech services among students in Pakistani universities. The particular objectives are: (1) to determine the extent of DFL among university students; (2) to ascertain most sought-after FinTech services; (3) to determine the relationship between DFL and frequency of FinTech usage; and (4) to examine FinTech service preferences across genders.

On the basis of these objectives, the research sets the following hypotheses:

H1: Individuals with greater digital financial literacy make greater use of FinTech services.

H2: Gender is strongly related to preferred FinTech services.

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This study will inform educators, policymakers, and FinTech providers how to better design initiatives that enhance digital financial awareness and reinforce financial inclusion initiatives aimed at young adults in Pakistan.

2. Literature Review

2.1 Digital Financial Literacy: definition, elements and significance

Digital financial literacy (DFL) is the system of knowledge, skills and attitudes that allow individuals to access, assess and utilize digital financial products and services securely and efficiently. Contemporary definitions emphasize not just fundamental financial concepts (saving, budgeting, interest) but also digital skills (accessing mobile applications, safeguarding personal information, identifying fraud) and assessment skills (online financial product comparison and terms comprehension). Empirical research demonstrates that DFL is linked to better financial behaviours, increased adoption of digital financial services, and better protection from online fraud — positioning it as a key driver of substantiable financial inclusion as opposed to just access (Gulati, 2024).

Those key elements most commonly employed in measurement are: (a) functional competencies (capacity to operate apps and make transactions), (b) awareness of risk and cybersecurity conventions, (c) cognitive financial competencies tailored to digital environments, and (d) decision-making/exploratory competencies (opting between digital goods). These multi-faceted measures enable researchers to connect levels of literacy to both adoption and quality of use.

2.2 Fintech services in Pakistan: platforms and scale

Pakistan's digital finance ecosystem has grown exponentially in the past five years, and branchless banking and mobile wallets have dominated it. Mobile banking app customers totaled ~21 million in 2024 (up 7%), and e-money and branchless banking wallet users likewise increased significantly; together, digital channels carried out ~1,450 million transactions valued at PKR 24 trillion in the most recent reporting period — illustrating both breadth and depth of adoption (Ismail Dilawar, 2025). Key consumer-facing platforms are Easypaisa and JazzCash, both market leaders in e-wallet/branchless banking, together with new entrants (e.g., SadaPay, NayaPay) growing services like student wallets and SME lending (Naseer, 2025). Industry reports also see e-wallet user bases increasing from around 20 million in early 2023 to larger numbers by end-2023/2024, illustrating momentum in mobile money take-up (Priya Das, 2025).

2.3 Youth and fintech uptake patterns: trust, usability and technology acceptance

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Younger age groups—particularly college students—are typically early migrants to digital financial services through greater digital ability and regular use of the mobile/internet. Technology acceptance model (TAM/UTAUT) based studies in Pakistani and similar settings reveal perceived usefulness, ease of use, trust, and digital/financial literacy as recurring determinants of uptake (Muhammad Ahmar Jamshaid & Saleem, 2024). Platform security and open customer support are consistently emphasized as critical for ongoing use, with usability (low friction and intuitive UI) being key to students' preference development (Nizam et al., 2024). Empirical evidence also indicates that even tech-savvy youth can lack certain DFL skills (e.g., fee knowledge or vectors for fraud), which influences the way they utilize fintech functionality (straight payments versus added-value services) (Golden & Cordie, 2022).

2.4 Global and local studies evidence

Global research connects higher DFL with increased use and more advanced use of fintech (e.g., saving, investing, credit apps). Locally, Pakistani studies on university students and general consumers show that financial literacy, digital literacy and self-efficacy predict fintech adoption; for instance, a 2024 study of Pakistani students found that self-assessed financial services knowledge significantly influenced fintech uptake, with trust mediating this relationship (Ali et al., 2024). Another Pakistan study explicitly measured digital financial literacy among students and reported associations with financial management behaviours (Raza et al., 2024). These findings collectively support the plausibility of **H1** (DFL positively related to usage frequency) and suggest mechanisms (trust, self-efficacy) that could explain gendered differences in preferences (H2).

2.5 Research gap and rationale

Despite the growing literature on fintech adoption and separate studies on financial or digital literacy, there is limited empirical research in Pakistan that **combines measured DFL with explicit assessment of preferred fintech services and usage frequency within the university student population**. Many local studies either focus on adoption determinants using latent models (SEM) or evaluate financial literacy in isolation; few provide descriptive mappings of which fintech services students prefer and how those preferences vary by DFL level and gender. Given Pakistan’s accelerating digital transactions (detailed above) and the policy interest in youth financial inclusion, a descriptive study that measures DFL, ranks service preferences (wallets, mobile banking, lending, savings/investment apps), and tests simple associations by gender will fill an important practical and academic gap — offering actionable insights for educators, fintech firms and policymakers seeking to target interventions for young adults.

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3. Methodology

This study is a cross-sectional, descriptive survey designed to measure digital financial literacy (DFL) levels and preferred fintech services among Pakistani university students. Data will be collected using a structured online questionnaire. The target population is students currently enrolled in Pakistani universities/degree-awarding institutions. According to Pakistan's official education statistics, overall university enrolment in higher education institutions was approximately **2.23 million** in 2021–22 (projected ~2.3 million for 2022–23), which is used as the population size (N) for finite population correction (International Trade Administration, 2022). Sample size was calculated using Cochran's formula for proportions (95% confidence, p = 0.5). To achieve a margin of error of ±7% the required sample was 196; allowing 20% for nonresponse yields a target sample of **~235 respondents**. Given the national higher-education enrolment (~2.23 million), finite population correction was negligible. The 7% margin of error was chosen as acceptable for an exploratory undergraduate survey.

4.1 Data Collection Tool

A structured, self-administered questionnaire served as the primary data collection instrument for this study. The tool was designed to obtain both demographic and behavioral information from university students regarding their levels of digital financial literacy (DFL) and preferences for fintech services. The questionnaire was developed in English, as it is the primary medium of instruction in most Pakistani universities, ensuring comprehension across diverse disciplines and regions. The instrument comprised three main sections: demographics, digital financial literacy items, and fintech usage frequency and preferences.

Section A: Demographic Information

This part of the questionnaire included basic sociodemographic characteristics of the respondents to enable subgroup analyses. The variables included age, gender, field of study, and type of institution: public or private university. Optional items like average monthly allowance or self-reported income were also asked in order to check whether financial background may play a role in fintech usage. Collecting this information helped in understanding whether or not digital financial literacy and fintech adoption varied among different student categories.

Section B: Digital Financial Literacy Scale

The second part measured students' levels of digital financial literacy using a multi-item Likert-type scale adapted from previously validated frameworks. Items were drawn from the OECD/INFE guidelines for measuring financial literacy and the models proposed by Morgan et

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al. and Atkinson & Messy. The measurement scale was comprised of 12 statements that addressed four major domains:

(1) knowledge and awareness about concepts of digital finance like online banking, mobile wallets, and QR payments;

(2) operational and technical skills associated with conducting secure digital transactions;

(3) security awareness, including the ability to recognize and avoid fraud or phishing; and

(4) evaluative and decision-making skills in fintech tool selection.

Each statement was evaluated on a 5-point Likert scale, from “strongly disagree” (1) to “strongly agree” (5), where higher mean scores represented higher DFL levels. The reliability of the scale was checked with Cronbach’s alpha (α); it was considered acceptable when $\alpha \geq 0.70$. All low-loading items in the pilot test were revised or deleted to enhance the internal validity of this scale.

Section C: Fintech Usage Frequency and Preferences

The final section is dedicated to assessing respondents' fintech usage behavior and the specific services they prefer. Participants responded to a five-point scale that identified how frequently they used each of these fintech applications, ranging from “never” to “always.” Additionally, they specified which specific fintech services they used and would prefer, such as mobile wallets like Easypaisa or JazzCash; mobile banking apps such as HBL, Meezan, and Allied Bank; peer-to-peer money transfers; online lending or microfinance platforms; investment applications or savings apps; and cryptocurrency tools. A pilot study was conducted with about 30 students in order to examine this questionnaire on clarity, coherence, and cultural relevance before full data collection.

4.2 Data Collection Procedure

Data collection occurred via both online and physical approaches in order to make the process as accessible as possible. The online distribution used the questionnaire in Google Form format, which allowed for a wide spread and tracking of responses efficiently. The link for the survey was distributed via university social media groups on Facebook, WhatsApp, and Telegram, from student society pages, and through academic forums.

Where there was intermittent internet service or when face-to-face access was not an issue, an in-person strategy for data collection was used. This involved researcher- or student volunteer-

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distributed paper versions of the same questionnaire. Completed forms were entered by hand into an electronic spreadsheet to provide consistency and ease of analyses.

The responses of all respondents were recorded automatically on the researcher's secured Google Drive folder, to which only the principal investigator had access. Incomplete surveys were defined as those with more than 30% of missing data, and duplicate submissions were also removed. Data collection lasted approximately four to six weeks. Periodic reminders were sent once a week to student groups in order to increase participation. All participants were informed about the study's purpose, voluntary nature, and data confidentiality before completing the questionnaire, and their consent was implied through participation.

SPSS software version 23 was used to perform data analysis. Descriptive statistics (means, standard deviations, and frequencies) were used to summarize participants' demographic characteristics and responses to the DFL items. Independent-sample t-tests compared mean DFL scores across genders, and one-way ANOVA was used to compare differences among various academic disciplines. The level of statistical significance for all analyses was set at a p-value of less than 0.05.

5. Results

The internal consistency of the 12-item DFL scale was checked using a reliability analysis. The Cronbach's alpha coefficient turned out to be 0.854, reflecting good reliability ($\alpha > 0.8$). This would, therefore, mean that all items are measuring a consistent underlying construct of digital financial literacy among the respondents. The mean age of the participants was 25.38 ± 1.99 years, including 137 males (58.29%) and 98 females (41.70%). There were 56 participants (23.83%) in the business group, 55 participants (23.40%) in computer science/IT, 43 participants (18.29%) in engineering and natural sciences, 48 participants (20.43%) in health sciences and medicine, and 33 participants (14.04%) in social sciences.

Table 1 depicts participants' responses to each of the 12 DFL items. The majority of the responses were in agreement or strongly in agreement with statements that expressed basic understanding and usage of digital financial tools, reflecting a generally moderate-to-high level of literacy. However, items related to complex fintech services and digital lending received more neutral or disagreeing responses, suggesting limited familiarity with advanced financial technologies. Table 2 summarizes the mean DFL scores across gender and academic disciplines. No significant difference was observed between males and females ($p = 0.878$). However, significant variation was observed across fields of study ($p < 0.001$), whereby students from Computer/IT and Engineering streams showed the highest levels of DFL, while students from Health Sciences and Social Sciences had comparatively lower scores.

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Table 3 presents the distribution of responses related to students' frequency of fintech application use, preferred fintech services, and reasons for usage or non-usage. Most respondents reported using fintech services "often" (35.32%) or "always" (23.40%), with mobile banking apps being the most frequently used service (42.13%). Convenience and time-saving were the top motivations for fintech usage, whereas security concerns and lack of knowledge were the primary barriers among non-users.

Table 1. Distribution of Responses to Digital Financial Literacy (DFL) Scale Items Among University Students

#	Questions	Responses				
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I understand what a mobile wallet (e.g., Easypaisa, JazzCash) is and how it works	17 (7.23%)	37 (15.74%)	83 (35.32%)	85 (36.17%)	13 (5.53%)
2	I know the difference between a traditional bank account and a mobile banking app	6 (2.55%)	45 (19.15%)	86 (36.60%)	60 (25.53%)	38 (16.17%)
3	I can successfully complete a digital payment transaction (mobile wallet or bank app) without assistance	12 (5.11%)	35 (14.89%)	88 (37.45%)	52 (22.13%)	48 (20.43%)
4	I am aware of the risks of phishing or fraudulent messages when using digital financial services	8 (3.40%)	50 (21.28%)	79 (33.62%)	68 (28.94%)	30 (12.77%)
5	When choosing a fintech service (wallet or app), I compare fees,	14 (5.96%)	59 (25.11%)	54 (22.98%)	75 (31.91%)	33 (14.04%)

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	features and terms before signing up					
6	I understand how digital lending (via fintech apps) works, including interest, repayment and penalties	17 (7.23%)	60 (25.53%)	57 (24.26%)	70 (29.79%)	31 (12.19%)
7	I feel confident using new digital financial services (e.g., mobile banking, fintech apps)	19 (8.09%)	46 (19.57%)	58 (24.68%)	65 (27.66%)	47 (20%)
8	I regularly monitor my digital financial transactions for errors or unauthorized activity	15 (6.38%)	40 (17.02%)	71 (30.21%)	61 (25.96%)	48 (20.43%)
9	I use features such as biometric login or two-factor authentication when using fintech apps	10 (4.26%)	46 (19.57%)	72 (30.64%)	57 (24.26%)	50 (21.28%)
10	I know how to uninstall or deactivate a fintech service if I no longer wish to use it	7 (2.98%)	44 (18.72%)	70 (29.79%)	62 (26.38%)	52 (22.13%)
11	I use complex fintech services (e.g., investment, savings or peer-to-peer lending) rather than just payments	16 (6.81%)	37 (15.74%)	91 (38.72%)	57 (24.26%)	34 (14.47%)
12	If I receive a	11 (4.68%)	38	66	75	45

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	message asking for my account login or password, I will not respond and will change my password immediately		(16.17%)	(28.08%)	(31.91%)	(19.15%)

Table 2. Comparison of Mean Digital Financial Literacy (DFL) Scores Across Demographic and Academic Variables

Variable	Categories	Mean DFL Score	p - value
Gender	Male	3.32 ± 0.68	0.878*
	Female	3.31 ± 0.72	
Field of study	Business	3.51 ± 0.61	<0.001**
	Computer/IT	3.88 ± 0.39	
	Health Sciences and Medicine	2.52 ± 0.31	
	Social Sciences	2.69 ± 0.37	
	Engineering and Natural Sciences	3.69 ± 0.37	

* Independent-sample t-test

** One-way ANOVA

Table 3. Fintech Usage Behavior and Preferences Among University Students

Questions	Categories	n (%)
How often do you use fintech applications (e.g., Easypaisa, JazzCash, mobile banking apps)?	Always	55 (23.40%)
	Sometimes	55 (23.40%)
	Often	83 (35.32%)
	Rarely	28 (11.91%)
	Never	14 (5.96%)
Which fintech services do you use most frequently?	Mobile banking apps	99 (42.13%)
	Peer-to-peer transfers	45 (19.15%)
	Investment or savings apps	50 (21.28%)
	Online lending/microfinance	10 (4.26%)
	Cryptocurrency platforms	31 (13.19%)

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What is your main reason for using fintech applications?	Convenience	85 (36.17%)
	Time-saving	81 (34.47%)
	Safety	52 (22.13%)
	Peer influence	17 (7.23%)
What is your main reason for not using fintech applications?	Lack of knowledge	60 (25.53%)
	Lack of trust	57 (24.26%)
	Security concerns	77 (32.77%)
	Technical issues	41 (17.45%)

6. Discussion

This study examined digital financial literacy (DFL) levels and preferred fintech service usage among Pakistani university students. The overall mean DFL score (~3.3) suggests a moderate level of literacy: students demonstrated familiarity with basic digital financial tools but less comfort with advanced services such as digital lending or investment apps. This pattern aligns with prior evidence in Pakistan where university students showed moderate DFL and that literacy influenced their use of digital banking services.

First, the high proportion of participants who agreed or strongly agreed with items like “I understand what a mobile wallet is” confirms that basic awareness of digital finance is widespread among students. However, lower agreement for items related to digital lending and complex fintech services indicates that exposure and deeper competence are less common. This gap suggests that while basic digital financial access has been achieved, the deeper literacy required for more advanced fintech use remains under-developed. Literature supports the notion that DFL is multi-dimensional: knowledge, skills, decision-making and security awareness (Kumar et al.; Choung et al.; Yadav & Banerji).

Second, the study of DFL by academic field also showed significant differences ($p < 0.001$), when students from Computer/IT and Engineering scored higher compared to their peers in Health Sciences and Social Sciences. This is in line with the line of thought that digital competence provides support for DFL, or in other words, technically oriented students may gain an advantage in fintech literacy (Doctor & Mamekwa Katlego Kekana). Alternatively, fields that are less technology- or financially-intensive may leave students less prepared for fintech adoption (Chhillar et al.). This finding highlights the importance of taking context into consideration, with regard to academic discipline in particular, as one interprets literacy and fintech adoption.

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Thirdly, contrary to some expectations, no significant difference was found in mean DFL between male and female students (p = 0.878). Although some studies in Pakistan document a gender gap in digital finance or inclusion, such as literacy or access among female entrepreneurs, this might reflect more equitable access across younger university populations. This implies that at the student level, the gender differences in DFL could be narrowing, especially in urban/connected environments.

Fourth, regarding fintech usage behavior, a majority of the students reported using fintech services "frequently" or "always", and mobile banking apps were the most used service. The main drivers for use were convenience and saving time, while security concerns and lack of knowledge were major deterrents. This result comes in resonance with the Pakistani context, where perceived usefulness, ease of use, and trust are major drivers of fintech adoption, whereas a lack of trust or security keeps people away from using it (Noor & Siddiqui).

Students with a higher digital financial literacy make more frequent use of fintech services. This hypothesis is supported by the positive usage behavior among the technologically literate students. Though we have not reported the correlation coefficients here, the descriptive findings-which are higher DFL among technology-oriented fields and higher usage-support this hypothesis. Gender shows a significant association with preferred fintech services. We did not find a significant difference in DFL by gender. However, we have not done an in-depth analysis of service preference by gender; it remains a point for further investigation. This finding suggests that though DFL may be similar between genders, service preference or usage intensity might still differ and deserves further study.

Particularly for non-technical disciplines, the moderate DFL among students suggests the need for workshops and curriculum improvement centered on fintech, digital security, and advanced financial services. Convenience and time-saving are major motivators, and mobile banking apps dominate usage, so businesses should keep creating user-friendly interfaces and emphasizing these advantages. Fintech companies should, however, also make investments in instructional materials and trust-building strategies (e.g., transparent fees, robust authentication) in light of the obstacles (security, knowledge). Although the gender gap is closing at the student level, more comprehensive gender inclusion is still necessary. Youth security awareness and digital finance literacy should be included in national financial education programs. Supporting DFL helps achieve national inclusion goals because research in Pakistan indicates it contributes to financial inclusion and well-being (Sajid).

7. Limitations

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A number of limitations should be mentioned. First, the study's generalizability to the larger youth or population was limited due to its use of convenience sampling of college students. Second, causal inferences cannot be made because a descriptive design was used; experimental or longitudinal designs should be used in future research. Third, although usage frequency and preference were measured in the study, deeper behavioral outcomes (like fintech investment or savings) were not. Future studies could include non-student youth or respondents from rural areas and examine mediators like trust, self-efficacy, or digital skills.

8. Conclusion

Overall, this study highlights that while university students in Pakistan are increasingly engaged with fintech and hold moderate digital financial literacy, significant gaps remain in deeper literacy and advanced fintech service usage. Targeted efforts in education, fintech design, and policy are required to translate fintech access into effective, inclusive financial behaviour.

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