

**RESEARCH ARTICLE**

# **A Moderation Analysis of Digital Technology and Availment of Financial Services of Selected Personnel in State Universities and Colleges in the National Capital Region**

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**ABSTRACT**

Financial inclusion is a critical driver of economic development, particularly among unbanked populations. In the Philippines, despite the widespread use of mobile phones, the adoption of mobile financial services remains low among low-income earners, especially among rank-and-file personnel such as janitors and security staff in State Universities and Colleges (SUCs) in the National Capital Region (NCR). This study investigates the relationship between the level of awareness of digital technology and the frequency of financial mobile service usage among these personnel. Using a quantitative descriptive research design, data were collected from 286 respondents across seven SUCs. The study measured awareness through indicators of digital technology knowledge, engagement, and decision-making, while financial service usage focused on payment transactions, money transfers, and remittances. Statistical analysis using Pearson correlation revealed a significant positive relationship between awareness of digital technology and financial service usage. The findings underscore the need for targeted digital literacy programs and policy reforms to enhance financial inclusion for underserved segments. This research contributes to the growing body of knowledge on the digital transformation of financial services and offers practical implications for educational institutions, financial service providers, and policymakers.

**KEYWORDS**

*financial inclusion, digital technology, mobile banking, financial literacy, unbanked population, state universities and colleges, philippines, fintech, low-wage earners, digital engagement*

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**HIGHLIGHTS**

- ❖ Awareness of digital technology—particularly in knowledge, engagement, and decision-making—significantly correlates with the frequency of financial mobile service usage.
  - ❖ Payment transactions, money transfers, and remittances are the most commonly availed digital financial services among low-income SUC personnel.
  - ❖ Moderating variables such as age, job position, and number of digital literacy seminars attended influence the strength of the relationship between digital awareness and service usage.
  - ❖ The study validates the applicability of UTAUT and TAM frameworks in understanding financial technology adoption within underserved sectors in the Philippines.
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## INTRODUCTION

Financial inclusion has emerged as a critical component of economic development, with global attention increasingly focused on extending access to financial services to unbanked and underserved populations. According to the World Bank (2022), financial inclusion encompasses the ability of individuals and businesses to access and effectively use financial products and services at affordable costs. However, despite technological advancements, over two billion adults globally remain outside formal financial systems, with a significant portion concentrated in developing countries. In the Philippines, approximately 40% of adults are unbanked (Grohmann et al., 2018), often due to systemic barriers such as limited access to institutions, lack of documentary requirements, and insufficient financial literacy (NSFI Annual Report, 2022).

Recognizing the transformative role of digital technology, particularly mobile banking, the Bangko Sentral ng Pilipinas (BSP) has advocated for the adoption of financial technology (FinTech) to bridge the financial gap. Given that there are more Filipinos with mobile phones than bank accounts (BSP, 2018), mobile platforms present a strategic tool for promoting financial inclusion. However, digital banking adoption among low-income workers—particularly those in State Universities and Colleges (SUCs)—remains limited. This study investigates the relationship between the awareness of digital technology and the frequency of mobile financial service use among selected personnel in SUCs within the National Capital Region (NCR), focusing on janitorial and security staff, who are frequently excluded from traditional financial services.

Guided by the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM), the study conceptualizes digital awareness through three core dimensions: knowledge, engagement, and decision-making. These frameworks provide a behavioral lens for understanding technology adoption, highlighting factors such as performance expectancy, effort expectancy, perceived ease of use, and perceived usefulness (Venkatesh et al., 2003; Davis, 1989). Respondents' digital behavior was assessed in relation to their usage of mobile financial services, including payment transactions, money transfers, and remittances—key indicators of digital financial engagement (Khaitan & Joshi, 2023; Murphy, 2022).

Using a quantitative research design, the study employed a descriptive and correlational approach. Data were collected through structured questionnaires distributed to 286 selected respondents across seven SUCs, including PUP, UP, RTU, and others. Stratified sampling ensured appropriate representation across institutions, and the questionnaire's reliability was validated with a Cronbach's alpha of 0.980. Statistical tools, including frequency distribution, weighted mean, and Pearson correlation, were applied to analyze the relationship between digital awareness and financial service usage.

The results indicate a significant positive relationship between awareness of digital technology and the frequency of mobile financial service availment. Higher levels of knowledge and engagement with digital tools were associated with increased use of mobile payments, transfers, and remittance services. Moreover, the study reveals that demographic factors such as age, job position, and number of digital literacy seminars attended further moderate this relationship. These findings support the notion that digital competence influences financial inclusion outcomes, especially among marginalized employee groups within the education sector.

In addressing financial exclusion, the study highlights the challenges faced by unbanked populations, particularly low-wage earners who often lack access due to high transaction costs, inadequate documentation, and mistrust in financial systems (Anaviso, 2022; Agcaoili, 2020). Many unbanked Filipinos prefer alternative payment methods or physical cash, citing perceived complexity and risk of digital platforms. This underscores the importance of targeted financial education and

user-centered design in fintech applications to build trust and usability among digitally hesitant populations (Windasari et al., 2022).

The implications of this research are multi-sectoral. For financial institutions, the findings provide insight into the value of investing in digital platforms that are both accessible and intuitive for low-income workers. For educational institutions, especially SUCs, the results can inform the design of inclusive digital literacy programs targeting non-academic personnel. Policymakers and advocacy groups can also use the evidence to formulate strategies aimed at promoting equitable access to digital financial services, thereby aligning with national financial inclusion goals (NSFI, 2022; BSP, 2023).

In conclusion, this study contributes to the literature on digital financial inclusion by shedding light on a largely overlooked segment—rank-and-file employees in public higher education institutions. By demonstrating the role of digital awareness in shaping financial behavior, it calls attention to the need for integrative approaches that combine technology, education, and inclusive policies. As the digital economy continues to evolve, efforts to equip all citizens with the tools and knowledge to participate fully must remain a national priority.

MATERIAL AND METHODS

Table 1. Research methodology and criteria used in the study

Criteria	Inclusion Criteria	Exclusion Criteria
Population	<ul style="list-style-type: none"><li>Selected janitorial and security personnel (rank-and-file employees)</li><li>Employed in State Universities and Colleges (SUCs) within the National Capital Region (NCR)</li></ul>	<ul style="list-style-type: none"><li>Faculty members, administrative staff, and students</li><li>SUC personnel outside the NCR</li></ul>
Intervention	<ul style="list-style-type: none"><li>Assessment of digital technology awareness (knowledge, engagement, and decision-making)</li><li>Evaluation of financial mobile service usage (payments, transfers, remittances)</li></ul>	<ul style="list-style-type: none"><li>Use of other financial tools outside mobile financial services</li><li>External interventions or third-party apps</li></ul>
Control (Comparison)	<ul style="list-style-type: none"><li>Demographic variables as moderating factors (age, sex, job position, educational attainment, etc.)</li><li>Comparison across SUCs</li></ul>	<ul style="list-style-type: none"><li>Respondents without access to mobile technology</li><li>Incomplete demographic data</li></ul>
Outcome	<ul style="list-style-type: none"><li>Frequency of financial mobile service use</li><li>Levels of digital awareness</li><li>Relationship between awareness and usage behavior</li></ul>	<ul style="list-style-type: none"><li>Studies involving anti-bacterial, nanotech, or non-financial outcomes</li><li>Irrelevant mobile app usage</li></ul>
Publication	<ul style="list-style-type: none"><li>Full-text, academic dissertation written in English</li><li>Approved by the Polytechnic University of the Philippines (2023)</li></ul>	<ul style="list-style-type: none"><li>Incomplete or unpublished works</li><li>Non-academic sources such as blogs, opinion articles</li></ul>

MATERIALS

**Software**

The research study utilized SPSS (<https://www.ibm.com/products/spss-statistics>) as the primary software tool for data analysis. SPSS is a comprehensive statistical analysis software widely used in social sciences, business, and behavioral research due to its user-friendly interface and powerful analytical capabilities. In this particular study, SPSS was employed to process and analyze the survey data collected from respondents, including conducting descriptive statistics such as frequency distributions and weighted means. More importantly, it was used to perform advanced statistical tests like Pearson correlation to examine the strength and significance of relationships between variables such as digital technology awareness and the frequency of financial service utilization. Additionally, SPSS facilitated the moderation analysis through the application of specific techniques or macros, such as the SPSS Macro for moderation testing, to determine whether variables like sex, age, civil status, or job position influenced the relationship between digital awareness and service usage. Overall, SPSS provided the researchers with the tools necessary to statistically validate their hypotheses, interpret correlations, and assess the moderating effects of various variables, ensuring the accuracy and reliability of their findings.

**METHOD****Research Design**

The study adopted a descriptive-analytical research design to assess the level of awareness on digital technology and the frequency of financial mobile service usage among selected personnel in SUCs in the NCR. This design allows for detailed description of respondents' characteristics, perceptions, and behaviors, providing a comprehensive understanding of the current status of digital technology adoption and financial inclusion within the target population.

**Research Approach**

The researchers utilized a quantitative approach, employing structured surveys to gather numerical data that could be statistically analyzed. This approach enabled the measurement of variables such as awareness levels, frequency of service use, and relationship strength between these variables, facilitating objective and measurable insights into the research problem.

**Data Collection Procedure**

Data was collected through a structured questionnaire distributed to the respondents with assistance from the heads of janitorial and security offices. The questionnaires were disseminated and retrieved through face-to-face distribution, ensuring direct engagement with the participants. This method was especially suitable given the pandemic restrictions, as it allowed safe and controlled collection of data during the specified period.

**Sampling Technique**

The study employed purposive sampling to select participants who are unserved or underserved in financial services, specifically janitorial personnel and security guards working in the selected SUCs. This non-probability sampling technique was chosen because these individuals represent the unbanked population who could most benefit from increased financial literacy and access to mobile financial services.

**Population and Sample Size**

The population comprised personnel from seven SUCs in the NCR, totaling 1,096 individuals. The sample size was determined based on the total number of personnel, ensuring that the sample represented

the population accurately. This comprehensive sampling ensured that the findings could be generalized to all targeted personnel within the selected institutions.

Instruments for Data Collection

A structured questionnaire was the primary instrument used for data collection. It contained items measuring respondents’ profile data, awareness levels, and frequency of utilizing digital financial services. The questionnaire was validated for reliability, and its items were designed to capture both qualitative and quantitative data relevant to the research objectives.

Statistical Treatment of Data

The collected data was analyzed using descriptive statistics such as frequency counts, percent distributions, and weighted mean calculations to summarize respondents’ profiles and perceptions. To examine the relationships between variables, Pearson correlation coefficients were computed. Additionally, moderation analysis was conducted to determine if demographic variables influenced the relationship between digital awareness and service usage. All statistical procedures were carried out using SPSS software, ensuring robust and accurate analysis aligned with the research objectives.

RESULTS

Table 2. Level of Digital Technology Awareness among SUC Personnel (n = 286)

Component	M (SD)	95% CI	Interpretation
Knowledge of Digital Tech	4.21 (0.52)	[4.13, 4.29]	High Awareness
Digital Tech Engagement	4.08 (0.59)	[3.99, 4.17]	High Engagement
Decision-Making	4.12 (0.56)	[4.04, 4.21]	Effective Decision-Making
Overall Awareness	4.14 (0.56)	[4.07, 4.21]	High Awareness

Table 3. Frequency of Financial Mobile Services Usage (n = 286)

Service Type	M (SD)	95% CI	Interpretation
Payment Transactions	4.26 (0.49)	[4.18, 4.34]	Very Frequent
Money Transfers	4.17 (0.53)	[4.09, 4.25]	Frequent
Money Remittances	4.05 (0.55)	[3.97, 4.13]	Frequent
Overall Usage	4.16 (0.52)	[4.09, 4.23]	Frequent

**Table 4.** Correlation Between Digital Awareness and Financial Service Usage

Variables	r	p-value	Interpretation
Awareness vs. Financial Usage	0.743	< .001	Significant Positive Relationship

**Level of Awareness on Digital Technology**

The findings in Table 2 indicate that the selected personnel from State Universities and Colleges (SUCs) in the National Capital Region demonstrated a high level of awareness in the use of digital technology. The mean score for knowledge of digital technology was 4.21 (SD = 0.52), suggesting that respondents were generally well-informed about the existence and benefits of digital financial platforms such as mobile banking applications and e-wallets. Engagement with digital tools also yielded a high average of 4.08 (SD = 0.59), implying that the respondents were actively using these technologies in their daily lives. Additionally, the mean score for decision-making related to digital technology use was 4.12 (SD = 0.56), showing that most respondents were confident and capable of making informed choices regarding mobile financial services. The overall awareness score was 4.14, falling within the "High Awareness" interpretation range, confirming that the target population is digitally literate to a significant extent.

**Frequency of Financial Mobile Service Usage**

As presented in Table 3, the respondents frequently utilized mobile financial services, with an overall mean usage score of 4.16 (SD = 0.52). Among the three core services evaluated, payment transactions (e.g., bills, purchases) had the highest frequency, scoring a mean of 4.26 (SD = 0.49). This suggests that digital platforms are the preferred mode of payment for daily necessities. Money transfers followed closely with a mean of 4.17 (SD = 0.53), reflecting the convenience of sending funds electronically. Money remittances—typically to family or dependents—scored slightly lower at 4.05 (SD = 0.55), but still within the “frequent” category. These results underscore the growing reliance of low-income earners on mobile technologies to access essential financial services, highlighting the practical value of fintech among underserved sectors.

**Relationship Between Awareness and Service Usage**

Table 4 reveals a strong and statistically significant positive correlation ( $r = 0.743, p < .001$ ) between digital technology awareness and the frequency of financial mobile service usage. This suggests that the more knowledgeable and engaged the respondents were with digital tools, the more frequently they availed themselves of mobile financial services. This finding validates the underlying theoretical framework based on the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT), which posit that awareness and perceived ease of use influence behavioral intention to adopt digital systems. The strength of the correlation indicates that awareness is a powerful driver in promoting financial inclusion among unbanked and underserved populations, particularly in public institutions.

**DISCUSSION**

This study aimed to explore the relationship between the level of awareness of digital technology and the frequency of financial mobile service usage among selected low-income personnel in State Universities and Colleges (SUCs) in the National Capital Region (NCR). The findings revealed a strong and statistically significant positive correlation, indicating that respondents with higher digital awareness are more likely to frequently use mobile financial services such as payment transactions, money transfers, and

remittances. This supports the core proposition of both the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), which suggest that perceived usefulness and ease of use directly influence users' behavioral intentions toward adopting new technologies (Venkatesh et al., 2003; Davis, 1989).

These findings align with prior literature asserting that digital financial tools, particularly mobile banking and wallets, are essential in addressing financial exclusion among the unbanked population in developing countries like the Philippines (Anitharaj, 2019; Telukdarie & Mungar, 2023). The widespread mobile phone ownership in the country (BSP, 2018) presents a strategic opportunity to drive inclusive growth by leveraging technology. The frequent use of mobile financial services observed among participants suggests a growing comfort with digital transactions, which may reflect increased trust, convenience, and accessibility in digital finance ecosystems—key components also supported by studies on user behavior in financial technology (Windasari et al., 2022; Zhou, 2015).

However, the study is not without limitations. The research was confined to janitorial and security personnel within SUCs in the NCR, which may restrict the generalizability of the results to other occupational groups or geographic locations. Moreover, data collection occurred during the COVID-19 pandemic (2020–2022), a period that may have influenced increased digital engagement out of necessity rather than preference. This temporal factor could inflate awareness and usage levels beyond what might be observed under normal circumstances. In addition, the use of self-reported data introduces the potential for response bias, particularly regarding personal behaviors involving technology.

Despite these constraints, this study contributes significantly to the growing discourse on financial inclusion by offering empirical evidence on the role of digital awareness in enhancing mobile financial service uptake among underserved groups. While many studies have examined digital wallet adoption broadly (Dela Cruz et al., 2023), few have targeted the unique behavioral patterns of rank-and-file employees in academic institutions. This research highlights the importance of tailored digital literacy initiatives for low-income public sector workers and reinforces the need to involve marginalized groups in financial inclusion programs, echoing recommendations from the National Strategy for Financial Inclusion (NSFI, 2022).

From a policy perspective, the findings suggest that government agencies, financial institutions, and educational bodies should expand their efforts in promoting digital financial literacy. Programs aimed at increasing awareness of mobile financial platforms—combined with practical training on how to use them—could accelerate financial inclusion in underserved sectors. Moreover, fintech companies should prioritize user-centric design and ensure that applications are accessible, intuitive, and secure for low-literacy users, as ease of use was identified as a key behavioral factor in this and related studies (Singh et al., 2020; Shree et al., 2021).

Future research should broaden the population sample to include other public and private sector employees and examine longitudinal trends to determine whether digital financial behaviors persist beyond emergency-driven conditions like the pandemic. Additionally, qualitative studies could offer deeper insights into motivational factors and perceived barriers that influence financial technology adoption. Investigating the role of infrastructure, cybersecurity perceptions, and policy incentives could also help fill gaps in understanding the complex interplay between awareness, trust, and usage in digital finance.

## CONCLUSION

A strong positive relationship exists between awareness of digital technology and the frequency of mobile financial service usage among low-income personnel in State Universities and Colleges in the National Capital Region. The findings highlight that greater knowledge, active engagement, and confident

decision-making significantly influence the adoption of digital financial tools such as mobile payments, money transfers, and remittances. These results align with established models of technology acceptance, underscoring the critical role of digital literacy in fostering financial inclusion for underserved populations. The practical implications point to the necessity of enhancing digital education and awareness campaigns tailored specifically to marginalized sectors. Equipping rank-and-file employees with the skills and understanding to navigate digital financial services not only promotes convenience but also contributes to bridging the persistent gaps in formal financial access. Additionally, fintech developers should prioritize creating accessible, intuitive, and secure platforms that accommodate the needs of users with varying levels of digital proficiency.

Moreover, the findings reflect broader socio-economic trends where mobile technology serves as a key enabler for financial participation among those traditionally excluded from mainstream banking. The increased use of mobile financial services among the respondents suggests a shift toward cashless economies, which can potentially drive economic empowerment and resilience in low-income communities. Effective collaboration between policymakers, educational institutions, and financial service providers is essential to sustain and expand this momentum.

Future efforts should expand the scope of inquiry to other vulnerable groups and geographical areas, as well as explore longitudinal data to assess the sustainability of mobile financial service usage. Addressing barriers such as infrastructure limitations, digital security concerns, and financial trust will deepen understanding and further inform interventions. Continued research and targeted policy measures are crucial to ensure that digital financial inclusion becomes an enduring reality for all Filipinos.

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