

Exploring the Influence of Digital Financial Literacy on Sustainable Tourism Practices among College Students

¹H. Bella Josepha, ²G. John

¹Research scholar, ²Associate professor

^{1&2} PG and Research Department of Commerce,

St. Joseph's College (Autonomous), Affiliated to Bharathidasan University,

Tiruchirappalli-620002, Tamil Nadu, India

Abstract

In the digital age, Digital Financial Literacy (DFL) is prerequisite skill for individuals, particularly college students, to effectively manage their financial resources, especially in the context of travel-related expenses. As travel becomes increasingly integral to both academic and personal development, mastery of digital financial tools and various financial applications empowers students to make informed financial decisions. This study investigates the influence of DFL on sustainable tourism practices among college students, focusing on Digital knowledge, financial knowledge, awareness of digital financial services and also risk management. A structured survey was administered to assess the DFL of 418 students in the Tiruchirappalli District. The findings reveal a strong positive correlation between sustainable tourism behaviors and DFL, showing that higher levels of digital financial literacy students are more likely to make environmentally responsible, socially conscious, and financially sustainable travel choices. These results highlight the significance of incorporating digital financial literacy into Higher education institutions, especially for students pursuing tourism, as it provides prerequisite skills for managing finances responsibly. This study underscores that financial literacy not only contributes to personal economic stability but also promotes travel behaviors that benefit local communities, enhance environmental conservation, and protect cultural heritage.

Keywords: Digital Financial Literacy, Sustainable Tourism, Financial Literacy, Travel Behavior.

1. Introduction

Digital financial literacy (DFL) has emerged as a pivotal competency for college students navigating the complexities of today's digital, cashless economy. The Alliance for Financial Inclusion (AFI) defines DFL as the acquisition of critical knowledge, skills, confidence, and capabilities required to securely engage with digital financial services, thereby enabling individuals to make well-informed, financially sound decisions (Alliance for Financial Inclusion, 2021). DFL is a comprehensive framework that combines financial literacy, digital literacy, and the use of digital financial tools (Lyons & Kass-Hanna, 2021). The COVID-19 pandemic has greatly expedited and leads to a higher reliance on the services for everyday transactions and managing finances using digital financial platforms (S & Kumar, 2024). Empirical studies suggest a positive correlation between higher levels of DFL and the propensity for responsible financial behaviors, as well as enhanced utilization of digital financial instruments, such as mobile banking, e-wallets, and fintech solutions (Marjorie et al., 2024). Moreover, students with advanced DFL exhibit improved cybersecurity hygiene and a heightened aversion to financial risks (Li & Fisher, 2022). Studies have repeatedly identified gaps in students' understanding of digital financial services, emphasizing the need for specialized financial literacy programs and digital education efforts (Marjorie et al., 2024; S & Kumar, 2024). As the gig economy expands, there is an increasing need for individuals to manage their finances autonomously, demanding a sophisticated understanding of fintech tools and risk mitigation strategies to

avoid digital fraud and scams (Morgan & Trinh, 2020). Incorporating DFL into academic curricula and providing specialized workshops focused on financial technology and digital risk management can reinforce students' financial acumen in the digital age. Critical factors influencing the uptake of mobile banking among students include the user interface design, encryption protocols, transaction transparency, and overall user experience, with financial literacy and technological fluency being pivotal determinants (Sharma & Singhal, 2023).

For students engaged in sustainable tourism, mastering DFL tools is integral to making informed and responsible travel decisions, optimizing financial management, and contributing to the sustainability of the tourism sector. Sustainable tourism focuses on minimizing environmental, social, and economic impacts while fostering ethical travel behaviors. Proficiency in digital financial practices enables students to make travel choices that align with these sustainability objectives. Given the financial constraints typical among students, digital financial tools can enhance their travel experiences by enabling efficient budgeting, facilitating cost-effective decision-making, and promoting eco-conscious travel alternatives. These tools allow students to manage travel expenses, prioritize sustainable options like low-carbon transportation, eco-certifiable accommodations, and locally-driven cultural activities. Furthermore, real-time financial tracking through mobile applications allows students to monitor expenditures and optimize their budgets, while simultaneously leveraging loyalty programs, promotions, and discounts that support sustainable enterprises. Mobile payment systems and digital banking applications enhance transactional security and provide greater financial transparency, reducing susceptibility to fraud and encouraging ethical expenditure that aligns with sustainable tourism objectives.

Globally, policymakers are increasingly recognizing the importance of sustainable tourism, implementing regulatory frameworks that balance economic development with environmental conservation and cultural heritage preservation. Certification programs such as Green Key and EarthCheck incentivize responsible tourism by certifying eco-friendly accommodations and travel services. Financial mechanisms, such as tax breaks and subsidies for sustainable travel practices, help alleviate the cost burden for students opting for eco-conscious travel options. Additionally, local tourism promotion campaigns are prioritizing sustainability, which supports community-based tourism initiatives and boosts the local economy. Investments in green infrastructure—such as electric public transit systems, bike-sharing networks, and smart mobility solutions—are further enhancing the accessibility and feasibility of sustainable travel for students. Partnerships between governments, NGOs, and academic institutions provide critical resources and educational programs aimed at enhancing both sustainable travel practices and digital financial literacy.

Tourism represents a vital sector in the global economy, driving economic growth through job creation, infrastructure development, and cultural exchange. According to the United Nations World Tourism Organization (UNWTO), Tourism contributes approximately 10% to global GDP and is one of the largest employment sectors worldwide (World Tourism Organization and United Nations Development Programme, 2017). The integration of financial technologies has streamlined operational processes in the tourism industry, including booking systems, digital payment solutions, and personalized travel experiences. For students, DFL is essential for effectively managing travel expenditures, currency conversions, and securing travel insurance. It also promotes financial inclusion, enabling students to participate in the sharing economy by using services such as ride-hailing, short-term rentals, and peer-to-peer payments. Tourism is intricately linked to several United Nations Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), which highlights the tourism sector's significance in fostering economic growth and sustaining local businesses; SDG 12 (Responsible Consumption and Production), which highlights the role of financial literacy in guiding consumption choices that support sustainable tourism; SDG 9 (Industry, Innovation, and Infrastructure), which advocates for the role of fintech in enabling the digital transformation and financial inclusion of the tourism industry; and SDG 4 (Quality Education), which underscores digital financial literacy as a critical competency for enhancing travel experiences and fostering economic resilience (Makhdoom, 2024). The Sustainable Development Goals (SDGs), introduced by the United Nations in 2015, comprise 17 interrelated global targets designed to tackle critical challenges, including poverty, inequality, and climate change, with the goal of achieving sustainable development by 2030 (Dawson, 2021; Wadhvani & Malpani, 2023). The Chengdu Declaration on Tourism and Sustainable

Development Goals, adopted in 2017, further reinforces the importance of sustainable tourism development (Canton, 2021).

Thus, digital financial literacy is not only crucial for managing personal finances but also for advancing sustainability within the tourism sector. By adopting responsible financial practices, students can optimize their travel opportunities, support local economies, and align their travel decisions with the broader sustainability objectives outlined in the United Nations' SDGs. This study examines the relationship between DFL and sustainable tourism practices among students, focusing on their financial behaviors, utilization of digital financial tools, and the challenges they encounter during travel. The results will offer valuable insights to students, educators, policymakers, and key stakeholders in the tourism and fintech sectors.

1.1 Objectives

1. To assess the prevailing levels of digital financial literacy among college students.
2. To examine the influence of digital financial literacy on the adoption of sustainable tourism practices and experiences.

2. Review of literature

2.1 Digital Financial Literacy and Its Importance

Digital Financial Literacy (DFL) encompasses the knowledge, skills, and competencies necessary to access, comprehend, and efficiently utilize digital financial tools and services within the dynamic landscape of the digital economy. As the global financial landscape continues to shift towards digital platforms, DFL has become an essential competence for individuals, particularly in contexts like education, business, and personal finance management. With the advent of digital banking, mobile payments, cryptocurrencies, and other fintech innovations, having a solid grasp of digital financial concepts and tools is crucial for making informed financial decisions.

DFL involves a combination of traditional financial literacy—such as understanding budgeting, saving, investing, and debt management—and digital literacy, which includes proficiency in using online financial platforms, digital wallets, e-banking, and the ability to assess the security and risks associated with online financial transactions (Prykaziuk & Khodakivska, 2023). It is a diverse skill set that equips individuals with the ability to navigate the complexities of contemporary financial services, make informed spending and investment choices, and safeguard against financial fraud.

The importance of DFL is particularly evident in today's cashless society, where digital financial transactions are increasingly the norm. In the context of students, especially college students, DFL is indispensable as they manage their personal finances while balancing academic responsibilities. As students engage more with digital tools for managing daily expenses, saving for future needs, and engaging in the gig economy, a higher level of DFL is linked to better financial behavior and improved financial outcomes (Choung et al., 2023). For instance, students with strong Digital Financial Literacy (DFL) are more likely to practice responsible budgeting, efficiently utilize mobile banking applications, and conduct secure online transactions, all of which enhance their financial stability and security.

Furthermore, DFL plays a crucial role in financial well-being. Studies indicate that individuals with higher levels of digital financial literacy exhibit stronger financial management skills and are better equipped to navigate economic uncertainties, such as unexpected expenses or investment risks (Golden & Cordie, 2022). In this sense, DFL not only helps individuals make day-to-day financial decisions but also supports long-term financial objectives, such as saving for retirement or purchasing a home.

Recognizing its increasing significance, experts advocate for integrating digital financial literacy into educational curricula, particularly for vulnerable and underserved populations (Morgan & Trinh, 2020). While traditional financial education focuses on the theoretical aspects of personal finance, DFL emphasizes practical, real-world

applications of digital tools, preparing students and individuals for the demands of an increasingly digital economy. Programs aimed at enhancing DFL have been shown to lead to higher adoption rates of mobile payment platforms, increased use of digital wallets, and a more informed consumer base (Abdi et al., 2024).

2.2. National Literacy Rates and Financial Literacy Levels

India's literacy rate has experienced considerable progress since independence, increasing from approximately 12-14% in 1947 to 74.04% in 2011 (MAHADEB, 2024). Recent data indicates a further rise to 77.70% in 2022, with male literacy at 84.70% and female literacy at 70.30% (Swargiary & Roy, 2022). Despite these advancements, India's literacy rate remains below that of several other countries, including China (Murthi & Kapur, 2009). Gender-based disparities in literacy persist, with female literacy continuing to lag behind male literacy rates and the slower rate of progress in female literacy is a critical issue, affecting both social development and gender equality (Katiyar, 2016). Addressing these literacy gaps is essential for India's broader developmental objectives and its competitiveness in the global arena.

Financial literacy, defined as the capacity to comprehend and apply economic principles for making informed financial decisions, is increasingly critical in navigating today's complex financial ecosystem (Amirtha, 2024; Lusardi & Mitchell, 2014). It involves competencies in areas such as budgeting, saving, investing, debt management, and retirement planning (Amirtha, 2024). Evaluating financial literacy is a crucial element in determining the efficacy of financial education programs and identifying the barriers that impede sound financial decision-making (Huston, 2012). Research indicates that a lack of financial literacy is associated with suboptimal financial outcomes, including insufficient retirement savings and inefficient borrowing practices (Lusardi & Mitchell, 2014). Financial literacy is a fundamental prerequisite for attaining financial stability, independence, and overall economic well-being, all of which are integral to fostering resilience and sustainable growth within the broader economy (Amirtha, 2024). Moreover, financial literacy plays a vital role in fostering financial inclusion, enhancing stability, and providing economic opportunities to both marginalized and mainstream populations (Subha & Priya, 2014). Given its critical importance, there is an increasing call for comprehensive financial education programs and policies designed to bridge knowledge gaps and empower individuals to make informed financial decisions (Amirtha, 2024).

2.3 Digital Financial Tools in the Context of Student Travel

Recent studies underscore the notable impact of digital financial literacy (DFL) on enhancing tourism experiences and driving sectoral growth. Digital financial services have revolutionized payment systems and financial offerings at tourist destinations, improving visitor satisfaction and revitalizing iconic locations like Putuo Mountain (Fang, 2023). Digital financial inclusion has been identified as a catalyst for tourism growth by increasing participation in financial markets, fostering entrepreneurial initiatives, and boosting overall tourism expenditures (Luo et al., 2023). For small and medium-sized enterprises (SMEs) within the tourism sector, DFL plays a critical part in augmenting financial performance, with financial behaviors serving as key mediators (Awwaliyah et al., 2023). This dynamic enables tourism-related businesses to adapt to and thrive within the evolving digital economy. Furthermore, initiatives focused on enhancing digital financial literacy and the management of digital finance tools for tourism entrepreneurs have yielded positive results, including higher adoption rates of digital wallets and e-marketing solutions (Abdi et al., 2024). These findings emphasize the essential role of DFL in enriching student travel experiences while simultaneously contributing to the sustainable growth of the tourism sector.

2.4. Tourism Students' Experiences

College students' involvement in tourism, particularly educational tourism, offers substantial benefits for both personal development and destination promotion. Study tours not only support academic objectives but also foster positive perceptions of destinations, increasing students' likelihood of revisiting (Xu & Ho, 2021). Transformative tourism experiences have been shown to promote prosocial behaviors, with feelings of awe and social connectivity serving as key mediating factors (Li et al., 2022). Wanderlust, typically initiated through early travel experiences, persists through college and influences students' future travel patterns and financial decision-making (Shields,

2011). Educational tourism, which merges academic learning with travel, provides opportunities for cultural enrichment and skill acquisition in unfamiliar environments and Universities play an instrumental role in fostering relationships between international students—often considered educational tourists—and local communities, thereby enriching learning experiences and contributing to local economic sustainability (Tomasi et al., 2020). These findings highlight the multifaceted benefits of tourism for students, encompassing personal growth, social responsibility, and the potential for enhancing destination marketing.

2.5. Sustainable Tourism

Sustainable tourism is designed to minimize environmental impact while maximizing economic and social benefits for local communities. It encourages responsible travel behaviors, safeguards natural resources, and preserves cultural heritage (Popescu, 2018; Vachhani, 2024). Recent research suggests that sustainable tourism practices lead to significant reductions in carbon emissions, water consumption, and enhanced biodiversity conservation, the Destinations with established sustainability certifications report increased per capita tourist spending and higher rates of job creation (Xing, 2024). Social media and e-commerce platforms are playing a pivotal role in promoting sustainable tourism by facilitating effective storytelling, audience engagement, and collaboration among key stakeholders (Kumari & Thakur, 2023). When managed appropriately, sustainable tourism can improve livelihoods, conserve cultural heritage, and protect natural resources (Twining-Ward et al., 2017). Emerging technologies, including artificial intelligence, blockchain, the Internet of Things (IoT), and virtual reality (VR), present new opportunities to advance sustainability across tourism operations, supply chains, and visitor engagement (Rane et al., 2023). Overall, sustainable tourism is increasingly recognized as integral to achieving the United Nations' Sustainable Development Goals (SDGs) (Twining-Ward et al., 2017).

2.6. Emerging Trends in the Tourism Industry

The tourism industry is undergoing continuous transformation, with emerging trends in sustainable tourism, digital innovation, and experiential travel. As highlighted by Gössling et al., (2020), sustainable tourism has gained substantial traction, driven by an increasing demand for eco-friendly destinations and low-impact travel options. Concurrently, digital technologies are reshaping the tourist experience by offering enhanced personalization, accessibility, and immersion. Artificial intelligence (AI) and machine learning (ML) algorithms are being leveraged to provide tailored recommendations and multilingual support, while virtual and augmented reality (VR/AR) technologies offer highly immersive experiences (Ma, 2024). These trends are especially influential for students, as they are integral to shaping their travel decisions, financial planning, and engagement in a more digital and environmentally conscious tourism environment.

The current literature emphasizes the critical role of digital financial literacy for students, particularly in the realm of travel. While digital financial tools offer numerous advantages, they also introduce challenges, such as financial mismanagement and cybersecurity vulnerabilities. Addressing these challenges through focused financial education and awareness initiatives will help students make informed financial decisions, engage in responsible travel, and contribute positively to the tourism economy. This review highlights the significance for further research to explore the intersection of digital financial literacy, student travel behaviors, and economic sustainability, providing a foundation for future studies aimed at enhancing financial management in the digital era.

2.7 Research Gap

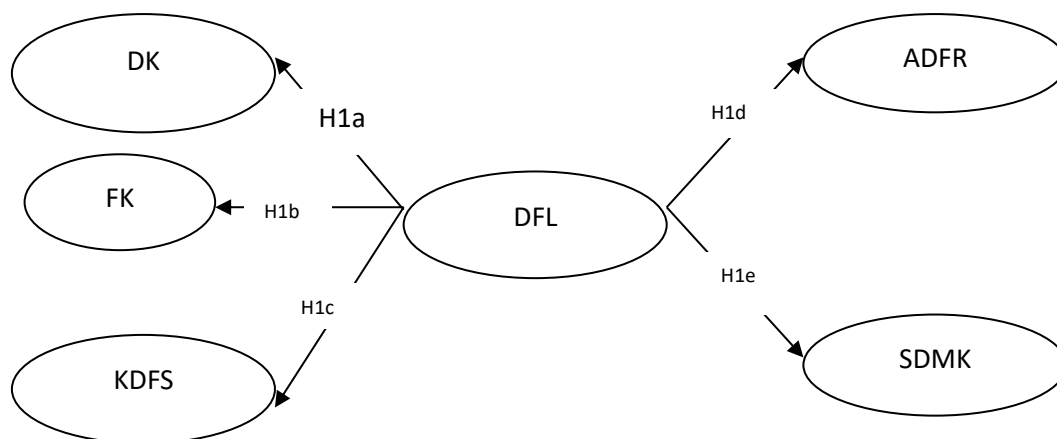
Although digital financial literacy (DFL) has been extensively explored in general financial management and decision-making, its specific role in enhancing sustainable tourism experiences among college students remains underexplored. Most existing literature primarily focuses on traditional financial literacy, often neglecting the digital facets that are crucial for tourism-related financial decision-making. Furthermore, existing research on youth travel tends to emphasize motivations, cultural interactions, and challenges, without adequately addressing the critical aspect of financial preparedness and literacy in shaping travel behaviors. Studies investigating the application of digital financial tools in tourism usually focus on broader population segments or industry perspectives, overlooking the distinct challenges and opportunities that college students face. The limited

incorporation of financial literacy modules in tourism curricula may impede students' financial preparedness and affect their future employability within the tourism industry. This study seeks to address this gap by examining the influence of digital financial literacy (DFL) on college students' capacity to plan, budget, and manage their travel activities, along with the financial implications of their travel experiences. Additionally, it seeks to identify the barriers to DFL adoption and propose strategies for equipping students with the tools needed to maximize tourism-related opportunities. By exploring this relationship, the research enhances the existing literature on digital financial literacy and sustainable tourism, providing practical insights for educators, policymakers, and industry stakeholders.

2.8 Operationalization of Variables and Hypothesis Development

The dimensions of digital financial literacy in this research model were selected through an exhaustive review of existing literature and empirical studies. Prior research has identified these dimensions as critical factors addressing the unique challenges faced by various populations across diverse socio-economic contexts. Building upon the theoretical framework articulated by Ravikumar et al., (2022), this study recognizes the following core components as essential determinants of digital financial literacy: Digital Knowledge, Financial Knowledge, knowledge of Digital Financial Services, Awareness of Digital Financial Risks, and the Self-determined application of Financial Knowledge and Skills. The hypotheses and conceptual model (Figure 1) based on prior findings are as follows:

1. *H1a: Digital Knowledge is a significant determinant of digital financial literacy.*
2. *H1b: Financial Knowledge is a significant determinant of digital financial literacy.*
3. *H1c: Knowledge of Digital Financial Services is a significant determinant of digital financial literacy.*
4. *H1d: Awareness of Digital Financial Risks is a significant determinant of digital financial literacy.*
5. *H1e: Self-determination to apply Knowledge and Skills is a significant determinant of digital financial literacy.*
6. *H2a: There is a positive and significant relationship between digital financial literacy and Sustainable Tourism Experience.*



Source: From Existing Source

*DK= Digital Knowledge, *FK= Financial Knowledge, *KDFS= Knowledge of Digital Financial Services, *ADFR= Awareness of Digital Finance Risk, *DFL= Digital Financial Literacy, *SDMK= Self-determination to use the Knowledge and Skill

Figure 1. Conceptual Model for Digital Financial Literacy

3. Methodology

3.1 Research Design and Analytical Approach

This study employs a descriptive research design to systematically analyze and enhance the understanding of the target population. A stratified random sampling method was employed to ensure a representative sample, consisting of 418 college students from the Tiruchirappalli District. Data collection was conducted between June and September 2024, utilizing a structured questionnaire comprising 42 items. The questionnaire included both demographic variables and statements related to digital financial literacy, specifically in the context of travel. Measurement scale was adapted from Ravikumar et al., (2022) to effectively examine digital financial literacy within the travel domain. The study framework also aligns with the methodological principles outlined by the United Nations World Tourism Organization (UNWTO) (“Indicators of Sustainable Development for Tourism Destinations A Guidebook (English Version),” 2004).

3.1.1 Survey Instrument

The initial four questions of the questionnaire collected demographic information, including: Age (in years), Gender, Education Level, and Monthly Income. A five-point Likert scale was employed to capture responses, where 1 indicated "strongly disagree" and 5 signified "strongly agree." The core constructs and related items were as follows: Digital Knowledge (DK): DK1: I am proficient in researching travel destinations and related details using my digital devices (Smartphone/PC/Laptop), DK2: I am capable of independently making online travel bookings (e.g., flight or hotel reservations), DK3: I purchase travel-related items (e.g., souvenirs, accessories) via e-commerce platforms, DK4: I utilize mobile banking or websites for processing payments related to travel bookings (e.g., flights or hotels), Financial Knowledge (FK): FK1: I develop a financial plan to budget for my travel expenditures prior to any trip, FK2: When planning my trips, I prioritize immediate travel expenses over long-term financial savings, FK3: I avoid making impulsive purchases when planning my travels, FK4: For example, if I borrow Rs 1000 for my trip at an annual interest rate of 12%, I am aware that the monthly interest to be paid is Rs 10, Knowledge of Digital Financial Services (KDFS): KDFS1: I am familiar with digital payment platforms (e.g., PhonePe, GPay, Amazon Pay, UPI) that facilitate travel-related bookings, KDFS2: I understand how to purchase tour packages online from travel agencies or digital platforms, KDFS3: I am aware that travel-related insurance can be purchased online, Awareness of Digital Financial Risks (ADFR): ADFR1: I am cognizant of online risks such as phishing, spyware, and fraud when making digital payments or bookings for travel, ADFR2: I understand the necessary precautions to mitigate risks such as phishing, spyware, and other online threats when booking travel services, ADFR3: I do not share my travel booking details (e.g., usernames, passwords, or PINs) with anyone to ensure my online security, Self-determination to Apply Knowledge and Skills (SDMK): SDMK1: I take pride in digitally handling my travel bookings and payments, as it streamlines the process. SDMK2: I prefer using digital payment methods for travel transactions due to their added benefits (e.g., rewards, discounts, or cashback). SDMK3: I use digital financial services for travel, as it is viewed positively by my social circles and peers. Other core construct on Sustainable Tourism Indicators (STIs), This study also adopts the Sustainable Tourism Indicators (STIs) framework, developed by the United Nations World Tourism Organization (“Indicators of Sustainable Development for Tourism Destinations A Guidebook (English Version),” 2004; Manning, 2004) , to evaluate the tourism experiences of college students. The STI framework consists of three primary dimensions: environmental, economic, and socio-cultural indicators, each encompassing multiple sub-indicators. Environmental Indicators (EN): EN1: I actively seek eco-friendly travel alternatives (e.g., public transportation, biking, walking) during my trips, EN2: I make a concerted effort to reduce my carbon footprint by opting for sustainable travel options (e.g., avoiding flights), EN3: I minimize waste during travel by using reusable products (e.g., water bottles, shopping bags), EN4: I support businesses that are committed to reducing their environmental impact (e.g., eco-friendly hotels, sustainable tour operators), EN5: I participate in environmental conservation efforts (e.g., volunteering for clean-up drives, nature preservation activities) while traveling, Economic Indicators (EC): EC1: I prefer staying at locally-owned accommodations (e.g., guesthouses, boutique hotels) rather than large hotel chains, EC2: I make an intentional effort to spend my travel budget on local products, services, and experiences to support the local economy, EC3: I consider the economic impact of my travel decisions and choose

sustainable tourism businesses that offer fair wages and benefits to local workers, EC4: I prefer participating in tours and activities that benefit local communities rather than those operated by multinational corporations, EC5: I ensure that my spending contributes positively to the sustainable development of the local community, Socio-Cultural Indicators (SC): SC1: I actively respect the cultural customs and traditions of the places I visit, SC2: I make an effort to learn about the local culture and heritage before and during my trips to avoid cultural misunderstandings, SC3: I engage in cultural exchange with locals in a mutually respectful and beneficial manner, SC4: I avoid engaging in tourism activities that exploit or harm local communities or their traditions, SC5: I believe that sustainable tourism should benefit both tourists and the host community, fostering mutual respect and understanding, Feedback Questions (FB):FB1: I find it challenging to make sustainable travel decisions due to insufficient information on eco-friendly options, FB2: I believe that sustainable tourism education should be integrated into college curricula to better inform students on responsible travel, FB3: I would be willing to pay extra for more sustainable travel options, such as eco-friendly accommodations or green transportation, FB4: I would recommend that my peers opt for sustainable tourism choices and practice responsible travel,

3.1.2 Data Analysis

Upon the completion of data collection through the structured questionnaire, the dataset was subjected to factor analysis and Structural Equation Modeling (SEM) using SPSS 21 and AMOS 21 software. These advanced statistical techniques were employed to examine the relationships among the variables and to test the proposed hypotheses.

3.2 Factor Analysis

This study employed a two-stage approach within the Structural Equation Modeling (SEM) Model. The First stage involved evaluating the "measurement model" to assess the "reliability and validity of latent constructs" through Confirmatory Factor Analysis (CFA). The subsequent stage applied SEM to test the hypothesized relationships among the latent variables in the proposed research model.

3.2.1 Measurement Model Fit Indices

To ensure robust composite reliability (CR) of the constructs, a factor loading threshold of 0.70 was considered as the acceptable minimum (Anderson, 2014). All latent variables in the model demonstrated factor loadings exceeding this threshold (Figure 2). The measurement model demonstrated a chi-square statistic of 239.153 with 109 degrees of freedom, which was statistically significant at $p < 0.001$. The chi-square to degrees of freedom ratio (CMIN/df) was 2.194, remaining below the recommended threshold of 3, indicating a well-fitting model.

Several additional fit indices were assessed to evaluate model adequacy. The Goodness of Fit Index (GFI) was 0.940, while the Adjusted Goodness of Fit Index (AGFI) was 0.916, both exceeding the commonly accepted cutoff values. Furthermore, the Comparative Fit Index (CFI) was 0.986, demonstrating a strong model fit. The Root Mean Square Error of Approximation (RMSEA) was 0.054, which falls within the acceptable range of 0.05 to 0.08, further confirming a good fit between the measurement model and the data. Based on these statistical indicators, the measurement model was determined to exhibit a satisfactory fit, providing robust evidence that it accurately represents the underlying data structure.

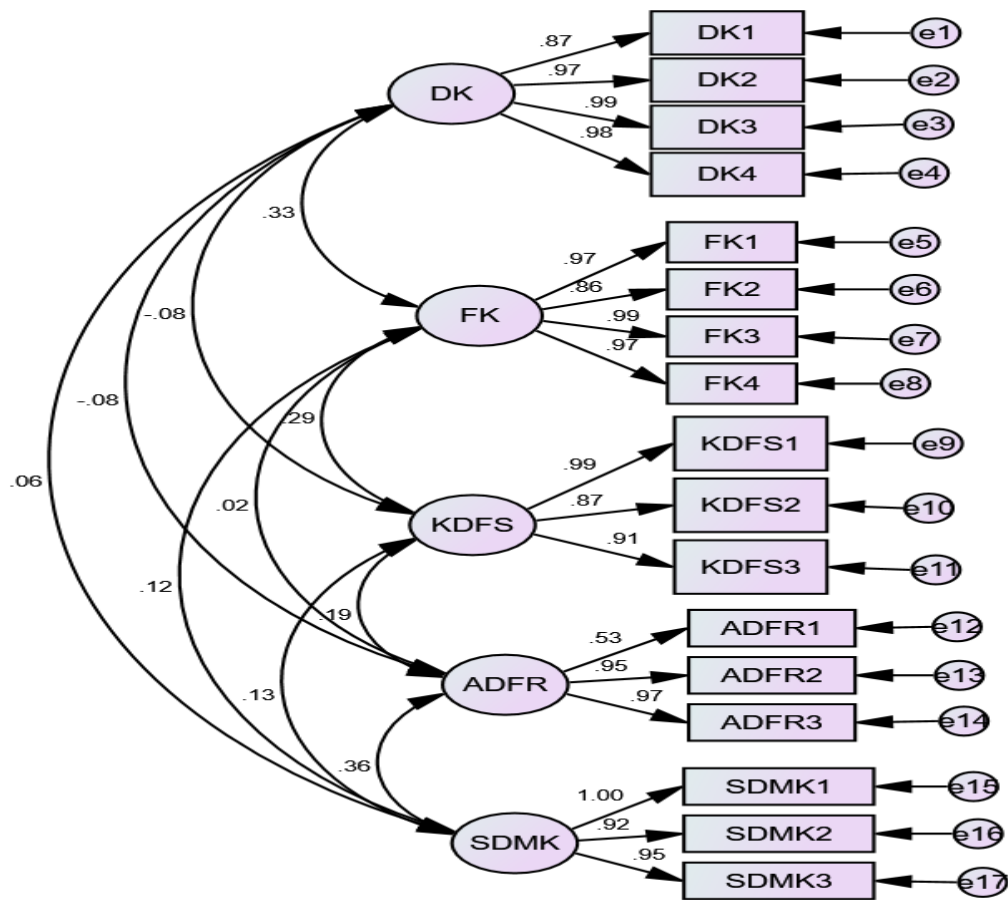


Figure 2. Measurement Model : Constructs of Digital Financial Literacy Factors

Table .1 Reliability and validity of the measurement model						
Variables Name	Item Label	Results of CFA			Test value for validity and reliability	
		Factor Loading (standardized)	t-value (critical ratio)	P value	CR	Average Variance Extracted
Digital Knowledge					0.974	0.904
	DK1	.867	-----			
	DK2	.966	32.026	***		
	DK3	.990	34.244	***		
	DK4	.975	32.863	***		

Financial Knowledge					0.972	0.897
	FK1	.966	-----			
	FK2	.865	31.651	***		
	FK3	.987	63.036	***		
	FK4	.966	53.242	***		
Knowledge of Digital Financial Services					0.946	0.854
	KDFS1	.988	-----			
	KDFS2	.868	31.557	***		
	KDFS3	.912	37.673	***		
Awareness of Digital Finance Risk					0.871	0.706
	ADFR1	.525	-----			
	ADFR2	.949	12.022	***		
	ADFR3	.970	11.953	***		
Self-determination to use the Knowledge and Skill					0.970	0.915
	SDMK1	.801	-----			
	SDMK2	.837	44.052	***		
	SDMK3	.773	58.268	***		

3.2.2 Evaluation of Discriminant Validity in the Measurement Model

As shown in Table 2, the correlation coefficients for all construct pairs were lower than their respective Average Variance Extracted (AVE) values. Additionally, to evaluate inter-construct correlations, the square root of the AVE was compared against the correlation values between constructs. Discriminant validity is considered adequate when the square root of the AVE surpasses the inter-construct correlation values, reinforcing the distinctiveness of each construct. This finding confirms that the constructs are sufficiently independent of one another, thereby ensuring the reliability and validity of the measurement model.

Table .2. The Discriminant Validity

	DK	FK	KDFS	ADFR	SDMK
DK	0.951				
FK	0.326***	0.947			
KDFS	-0.078	0.289***	0.924		
ADFR	-0.079	0.017	0.188***	0.840	
SDMK	0.060	0.124*	0.128*	0.362***	0.957

*DK= Digital Knowledge, *FK= Financial Knowledge, *KDFS= Knowledge of Digital Financial Services, *ADFR= Awareness of Digital Finance Risk, *DFL= Digital Financial Literacy, *SDMK= Self-determination to use the Knowledge and Skill

Note: The off-diagonal values represent inter-construct correlations, while the bold values indicate the square root of the average variance extracted (AVE).

3.2.3 SEM Analysis and Hypothesis Testing

To assess the validity of the hypothesized relationships between the variables the Structural Equation Modeling (SEM) was utilized. Upon validation of the measurement model, SEM was employed to test these proposed relationships (Anderson, 2014). The model fit was evaluated using a set of fit indices that mirrored those applied during the Confirmatory Factor Analysis (CFA).

Figure 3 presents the comprehensive structural model. The statistical assessment of the model demonstrates that the chi-square value meets the acceptable fit criteria. Specifically, the chi-square statistic is 262.292, with 106 degrees of freedom, and is statistically significant ($p < 0.001$). The chi-square to degrees of freedom ratio (CMIN/df) is 2.571, which falls within the recommended threshold of 3, indicating an acceptable model fit. Additionally, all other model fit indices align with established benchmarks, including Absolute Fit Measures (RMSEA = 0.061, AGFI = 0.904, GFI = 0.928) and Incremental Fit Measures (TLI = 0.980, CFI = 0.983, NFI = 0.938, IFI = 0.983). These values surpass the minimum cutoffs suggested by standard guidelines in Structural Equation Modeling (SEM) methodology, confirming the model's reliability.

3.2.4 Standardized Path Coefficients for the Hypothesized Structural Model

After confirming the validity of both the measurement model and the structural model, a comprehensive analysis of the structural model was performed to explore the relationships among the latent variables in greater detail. The SEM Model employed in this study incorporates 17 observed variables distributed across five latent constructs: Digital Knowledge (DK), Financial Knowledge (FK), Knowledge of Digital Financial Services (KDFS), Awareness of Digital Finance Risk (ADFR), and Self-Determination to Use Knowledge and Skills (SDMK). The standardized regression path coefficients for the structural model are displayed in Figure 3. All factor loadings exceed the threshold of 0.70, signifying that each indicator demonstrates strong measurement reliability for its respective construct. This provides further validation of the model's robustness and establishes its reliability for drawing conclusions about the hypothesized relationships.

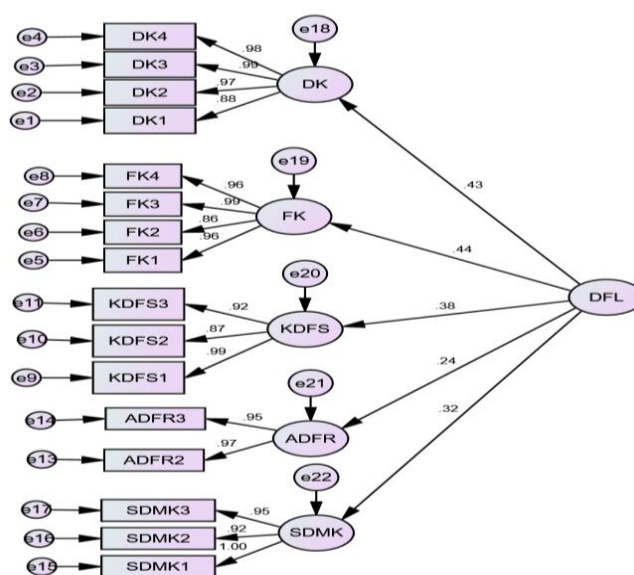


Figure 3. The Structural Model of Digital Financial Literacy

3.2.5 Results of Hypothesis Testing

After validating both the Confirmatory Factor Analysis (CFA) and structural models, the hypothesized relationships were tested. The findings confirm that all five latent variables and their respective path coefficients were statistically significant at $p < 0.001$, with t-values (critical ratios) exceeding ± 1.96 . Consequently, all proposed hypotheses (H1a, H1b, H1c, H1d, and H1e) were supported, demonstrating statistical significance at the $p < 0.001$ level.

The study established that Digital Knowledge, Financial Knowledge, Knowledge of Digital Financial Services, Awareness of Digital Finance Risks, and Self-Determination to Apply Knowledge and Skills are significant contributors to Digital Financial Literacy (DFL), particularly among college students. Specifically, Digital Knowledge exhibited a significant influence on DFL ($p < 0.001$, $\beta = 0.427$), while Financial Knowledge emerged as a key determinant ($p < 0.001$, $\beta = 0.444$). Similarly, Knowledge of Digital Financial Services demonstrated a substantial influence ($p < 0.001$, $\beta = 0.382$), and Awareness of Digital Finance Risks was identified as a critical factor ($p < 0.001$, $\beta = 0.238$). Additionally, Self-Determination to Apply Knowledge and Skills significantly contributed to DFL ($p < 0.001$, $\beta = 0.318$).

These results highlight the multifaceted nature of Digital Financial Literacy in shaping college students' understanding of digital finance and their ability to apply this knowledge effectively in real-world contexts, including travel planning and digital transactions.

Table 4. Variables significant relationship with digital financial literacy

Constructs	Code	Hypothesized Relationship	Standardized Regression Weight	(t-value) Critical ratio	Sig.	Result on Hypothesis outcome
Digital Knowledge	DK	DK <----- DFL	.427	4.022	***	Accepted
Financial Knowledge	FK	FK <----- DFL	.444	3.983	***	Accepted
Knowledge of Digital Financial Services	KDFS	KDFS <----- DFL	.382	4.429	***	Accepted
Awareness of Digital Finance Risk	ADFR	ADFR <----- DFL	.238	4.438	***	Accepted
Self-determination to use the Knowledge and Skill	SDMK	SDMK <----- DFL	.318	4.217	***	Accepted

Note: *** denotes statistical significance at $p < 0.001$.

3.3. Influence Of Digital Financial Literacy on Sustainable Tourism Experience

Table 5: Regression Analysis Results for influence on sustainable Tourism Experience

Variable	Unstandardized Coefficients (Beta)	Standard Error	Standardized Coefficients (Beta)	t-value	p-value
Intercept (DFL)	.884	.018		49.888	.000
Tourism	.479	.072	.926	6.684	.000
R-squared (R ²)	.857				
Adjusted R-square	.856				
F-statistic	2488.857				
p-value(F-statistic)	.000				
N (Sample Size)	418				

3.3.1 Regression Analysis Results

The regression analysis identifies a statistically significant positive association between Sustainable Tourism Experience and Digital Financial Literacy (DFL). The regression analysis reveals a statistically significant positive. The intercept value (B = 0.884, p < 0.001) indicates a baseline level of DFL even in the absence of any tourism experience. The unstandardized coefficient for Tourism Experience (B = 0.479) suggests that for every unit increase in Tourism Experience, DFL increases by 0.479 units. The standardized coefficient (Beta = 0.926) emphasizes the strong and impactful influence of Tourism Experience on DFL. The t-value of 6.684, along with a highly significant p-value (0.000), reinforces the strength and reliability of this association.

The model demonstrates substantial explanatory power, with an R-squared value of 0.857, indicating that 85.7% of the variation in DFL is accounted for by Tourism Experience. The adjusted R-squared value of 0.856 affirms the model’s accuracy and the suitability of the predictor variables. Additionally, the F-statistic (2488.857) and its p-value (0.000) confirm the overall statistical significance of the model. Given the sample size of 418, the findings are considered robust and generalizable. Thus, the results suggest a substantial positive influence of Sustainable Tourism Experience on Digital Financial Literacy, indicating that greater engagement in tourism activities contributes to enhanced financial knowledge and proficiency in utilizing digital financial tools.

4.Results and Discussion

The structural equation modeling (SEM) results indicate that Financial Knowledge is the most influential predictor among the five dimensions of digital financial literacy (DFL), followed by Digital Knowledge, Knowledge of Digital Financial Services, Self-Efficacy in Using Knowledge and Skills, and Awareness of Digital Finance Risks. Moreover, the analysis reveals a positive relationship between digital financial literacy and sustainable tourism experiences, suggesting that an individual's financial literacy can significantly enhance their engagement in responsible tourism practices.

To leverage the potential of digital financial literacy in enriching the tourism experience for college students, it is essential to incorporate this topic within academic programs. Higher education institutions should offer specialized courses or workshops that focus on areas such as budget management, secure online transactions, and responsible financial practices, particularly in the context of tourism. These educational initiatives should emphasize the importance of travel budgeting, selecting cost-effective travel options, and using financial tools such as digital wallets, credit cards, and international banking services. Such programs would equip students with

the necessary knowledge to make well-informed financial decisions, alleviating financial stress during their travels. Collaboration between Higher education institutions, tourism organizations, and financial experts could further enhance students' preparedness for sustainable tourism. Initiatives such as guest lectures, case studies, and practical training sessions could offer students valuable insights into responsible financial management in the tourism sector.

In addition, partnerships between higher education institutions, tourism boards, and financial institutions are crucial for launching awareness campaigns aimed at promoting sustainable tourism spending. These initiatives could educate students on eco-friendly payment methods, ethical spending practices, and budget-friendly travel strategies, thus encouraging responsible financial and environmental decision-making. Financial institutions and fintech companies could also develop student-targeted digital tools, such as budgeting applications, mobile banking features, and secure payment platforms tailored specifically for travel. Features such as expense tracking, currency conversion, and fraud protection alerts would enable students to manage their finances more effectively. Moreover, encouraging the adoption of cashless payment systems, including contactless cards and digital wallets, would further enhance the security and convenience of financial transactions during travel. Raising students' awareness of cybersecurity risks related to online financial transactions is also essential. Educational institutions should offer workshops that cover topics like fraud detection, secure Wi-Fi usage, and password management, while promoting best practices such as two-factor authentication (2FA) and regular monitoring of financial accounts to identify unauthorized transactions. Policymakers should actively support financial well-being among students, encouraging financial institutions to offer discounts, cashback programs, and travel insurance plans that align with sustainable tourism practices. Governments and tourism organizations should collaborate to develop policies that promote digital financial literacy, ensuring that students are well-prepared with the necessary knowledge and skills for responsible tourism. Additionally, financial support programs, such as interest-free travel loans for educational or volunteer tourism, could further assist students in making responsible financial decisions. By adopting these strategies, students can strengthen their digital financial literacy capabilities, which will not only contribute to their academic success but also foster more responsible, sustainable travel behavior.

5. Conclusion

This study underscores the pivotal role of digital financial literacy (DFL) in shaping college students' participation in sustainable tourism practices. Among the various factors influencing DFL, financial knowledge was identified as the most significant determinant, followed by digital literacy and knowledge of digital financial services. The findings indicate that students with higher levels of DFL are more inclined to make travel decisions that reflect the principles of sustainable tourism, such as supporting local economies, minimizing environmental impacts, and respecting cultural heritage. These results underscore the importance of fostering digital financial literacy among college students, as it not only enhances their personal financial management skills but also encourages more responsible and environmentally conscious travel behaviors. Therefore, it is essential for educators and policymakers to prioritize the integration of digital financial literacy into academic curricula, ensuring that students acquire the necessary competencies to thrive in an increasingly digital and sustainable tourism landscape.

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