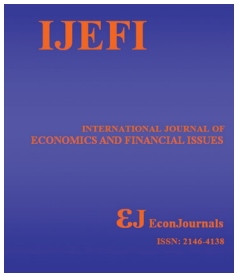

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How Financial Literacy Impacts Financial Well-Being: The Influence of Financial and Technical Efficacy

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ABSTRACT

The fundamental human resource that influences financial well-being is financial literacy. People are more likely to save and invest if they understand the time value of money, credit, insurance, and investments. Having a sound financial understanding lessens stress and increases financial well-being. This study used a structured survey questionnaire and back-translated it into Bangla to ease readability for the respondents. Four hundred thirty-five invitations were sent mainly to the Dhaka city dwellers' and only 253 complete responses were retained for analysis. Partial least squares structural equation modeling (PLS-SEM) is used to assess the intercorrelations and validate the measurement model among the constructs (financial attitude, behavior, knowledge, self-efficacy, technological self-efficacy, and financial well-being) using SmartPLS version 4. The result found a full mediation effect among financial behavior, financial self-efficacy, and financial well-being. Partial mediation effects are found among financial attitudes toward financial self-efficacy, technological self-efficacy, and financial well-being.

Keywords: Financial Literacy, Financial Well-being, Technical Efficacy, Financial Self-efficacy
JEL Classifications: G4, G51, G53

1. INTRODUCTION

The capacity to comprehend and evaluate financial possibilities, make plans, and react appropriately to events is known as financial literacy. Financial literacy thus encompasses the information and abilities people possess to use their income properly for both spending, saving, and investing (Andarsari and Mega, 2019; Tamara et al., 2019). Financial well-being depends on financial knowledge, which is crucial for prudent financial choices. Financial wellness, often known as financial well-being, is an important topic that impacts people at all stages of life (Parcia and Estimo, 2017; Prendergast et al., 2018). When someone is in a state of financial wellness, they can meet their present and future financial obligations, be prepared for unforeseen life events, and secure the future (Shankar et al., 2022).

Financial literacy fuels higher economic growth and greater financial planning among younger people. Making wise financial decisions necessitates making educated financial decisions, which results in planned financial behaviour (Lusardi and Mitchell, 2014). Several nations and economies now consider financial literacy a long-term policy objective. It is considered crucial to prudential regulation, financial inclusion, and market conduct. More than 70 nations and economies were creating or implementing national financial literacy programs as of May 2020 (OECD, 2022). As a part of long-term policy issues, the Bangladesh Securities and Exchange Commission (BSEC) also takes the initiative to educate the general people. The 10-year capital market master plan was created by BSEC in 2012. To be effective, financial education should begin at the school level, according to the 10-Year Master Plan of the BSEC. Bangladesh

Bank (BB) has also issued a 'financial literacy and financial education initiatives as important core objectives as a strategic plan for 2020-2024 for banks and financial institutions as a part of sustainable development goals (SDG Goal 4 ensuring financial literacy for all). BB has emphasized achieving financial literacy skills to face the challenges of SDG by 2030 (Bangladesh Bank, 2021). As an emerging country, Bangladesh has the potential to foreign investors worldwide. According to the world's top research companies, Bangladesh is one of the next 11 high-potential economies, according to Goldman Sachs, PWC, Forbes, HSBC, and Citi. PWC predicts Bangladesh will be the 23rd largest economy by 2050 (LightCastle Partners, 2019). Bangladesh still has a very low level of financial literacy and people lack of access to financial resources (LightCastle Partners, 2019; Hasan et al., 2021). For emerging nations that are working hard to lower poverty levels, this research of financial literacy and financial well-being is becoming more and more crucial. Due to the lack of financial education and lack of the necessary skills, individuals suffer the most. One of the causes of financial problems is a lack of knowledge or understanding of how to manage, save, and invest money. Lack of financial literacy causes potential negative impacts on a person's physical health, psychological state, and personal life (Shankar et al., 2022).

Bangladesh has a solid chance to gain from the demographic dividend because more than 50% of the population is under 35 (BBS, 2022). If the educational system can teach the younger generation the fundamentals of finance, they are equipped with the necessary understanding of the financial system and financial matters; they can contribute to the nation's inclusive economic growth and sustainable development. Also, poverty level reduction can be achieved through boosting financial well-being. According to Nayebmohseni et al. (2022), behavioral finance addresses this type of emotional upheaval and its detrimental effects on Financial Decision Making (FDM), which lowers Financial Well Being (FWB) (Khalily, 2016; Hasan, et al. 2021; Berry, et al. 2018. Frisancho, 2019, Lusardi et al., 2019; Pangestu and Karnadi, 2020; Jain, 2022). Several attempts were made to study financial well-being earlier, but there is still room for more research in this field because there isn't a suitable framework or research environment (Kabadayi and O'Connor, 2019).

Due to the significant attention that financial services knowledge is receiving from researchers, government officials, educators, and policymakers, this study reflects the need for financial literacy, financial efficacy, and technological efficacy on financial well-being in an emerging country like Bangladesh. This essay focuses on the individual viewpoint and how emotions may influence financial judgment. Additionally, we contend that people must possess strong financial self-efficacy to engage in beneficial financial behaviors that enhance financial well-being. Several works have been found showing the indirect relationship between financial self-efficacy and technological efficacy on financial well-being (Farrell, et al. 2016; Serido, et al. 2013; Vosloo, et al. 2014). The current study contributes to this body of information by showing that technical and financial self-efficacy modulate the relationship between financial well-being and financial literacy.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The concepts of financial capacity, financial literacy, and financial well-being are equally highly confusing. Financial capacity and financial literacy are not the same thing as financial well-being (Mahendru, 2020). Financial well-being is the condition of being completely able to meet one's current obligations, able to feel safe about one's financial future, and able to choose what will make one enjoy life (Mahendru, 2020; Kempson et al., 2017). On the other hand, financial literacy is a skill that has been developed to enable people to make choices that will result in good money management through the use of proper short-term and long-term planning (Mahendru, 2020; Scott, 2010).

The term "financial literacy" can be used in a broad or specific sense, and it can be used in conjunction with other words like "financial education," "financial competence," "financial awareness," and other concepts. By introducing a distinctive and extensive program, the Organization for Economic Co-operation and Development (OECD) governments formally acknowledged the need for financial literacy in 2002. The International Network on Financial Education (INFE), which was established in 2008, substantially improved the program. High-level representatives from more than 270 governmental institutions, including central banks, finance ministries, and ministries of education, in more than 120 countries make up the OECD/INFE. Two times a year, members gather to debate strategic priorities, exchange country and member experiences, and develop policy solutions (IOSCO and OECD (2019). It is the capacity to make wise financial decisions through knowledge of financial goods, risk assessment, and redressal mechanisms.

Financial literacy is the ability of investors and consumers to understand financial risks and opportunities, as well as financial products and concepts, in order to make educated decisions, know where to turn for assistance, and take additional effective steps to improve their financial welfare (Miller et al., 2009). OECD (2015) defines financial literacy as "a combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial wellbeing". Financial inclusion has been shown to be improved by financial literacy (Grohmann et al., 2017). It is identified that financial literacy is not a simple concept that is easily measured. Its measurement is done by three dimensions: financial attitude, financial behavior, and financial knowledge (Pangestu and Karnadi, 2020). Financial attitude means having a positive state of view and judgment on a person's economic beliefs. When carried out, this develops into a financial behavior or the manner in which an individual behaves and manages their finances. A person with financial understanding, however, would be able to understand certain fundamental financial ideas (OECD, 2013; Pangestu and Karnadi, 2020).

Better knowledge of finances is associated with better saving habits, better retirement fund planning, and lighter debt load (French and McKillop, 2016; Lusardi and Tufano, 2015), and greater wealth accumulation (Behrman et al., 2012; Van Rooij

et al., 2012). Financial well-being is boosted by wise financial behavior (Gutter and Copur, 2011; Henager and Mauldin, 2015). Financial behavior includes all of a person's actions connected to managing money, including spending, saving, and borrowing. It encompasses a range of issues, including spending, saving, borrowing, and investment behavior for both short- and long-term goals (Xiao, et al. 2014). According to Xiao, et al. (2014), routine money management of cash, savings, and credit is more important to people's bottom lines. This study conceptualizes financial behavior using this definition. Financial behavior directly affects one's financial well-being (Brüggen et al., 2017; Osman et al., 2020). On the other hand, financial knowledge and skills have an impact on financial behavior (Xiao and Porto 2017).

Bandura (1977, 1997) first put forth the idea of self-efficacy. It is the belief that a person has in their own ability to carry out a task or achieve a goal (Dare et al., 2023). Self-efficacious people usually perceive complex jobs as challenges to be overcome and have a strong passion for their work. Financial self-efficacy likewise Bandura's self-efficacy theory, is the belief in one's ability to execute financial tasks and achieve financial objectives (Lapp, 2010). Although self-efficacy has been utilized directly in certain research, it is not a notion that can be measured on a broad scale because abilities are domain-specific. In a wide range of research contexts, domain-specific self-efficacy has been established – financial self-efficacy, internet self-efficacy, investment self-efficacy, and technological self-efficacy (Chen and Tutwiler, 2017; Seredio, et al., 2013; Yesilyurt et al., 2016; Forbes and Kara, 2010).

Financial self-efficacy is the degree of assurance a person has in his or her capacity to obtain, use, and make financial decisions. Individuals are more driven to overcome financial issues the higher their financial self-efficacy (Noor et al., 2020; Ghosh and Vinod, 2017). As a result, this may encourage beneficial financial practices like working toward financial objectives and, as a result, raise financial well-being. People who have higher levels of technological self-efficacy are more likely than those who have lower levels to adopt new technologies (Compeau and Higgins, 1995). Technological self-efficacy is the people's adoption of technology more effectively (Fagan et al., 2004). Users with strong technological self-efficacy are more likely to believe they can download and use wealth management apps (Hong et al., 2014). Users' opinions of smartphones are a major factor in technical self-efficacy. Users can manage their wealth via mobile banking or smartphone apps on a P2P platform (Alalwan et al., 2016). Users with strong financial self-efficacy can experience improved financial performance for wealth management via fintech. Similarly, one's confidence in their ability to use smartphones and fintech-based wealth management software can have a favorable impact (Shiau et al., 2020).

Before research showed that financial well-being is more than income, the concepts of "financial well-being" and "financial wellness" were frequently conflated. Financial wellness is a more general term that includes financial well-being (Mahendru, 2020). From an individual's perspective, financial well-being is crucial, and research has shown that it has a strong and positive relation to total well-being. According to Hojman et al. (2016), people who have been consistently over-indebted exhibit more depressed symptoms. In addition, studies have demonstrated that the personal stress brought on by unwise spending and saving habits has an impact not just on the individual but also on their families and societies (leading, for instance, in weakened job performance or diminished physical health). When unforeseen financial problems strike, having a little cash reserve can be very challenging and may cause people to experience financial hardship (Brüggen et al., 2017). According to Brüggen et al. (2017), financial conduct is influenced by several financial interventions, such as financial education, and this behavior in turn is influenced by financial well-being. FWB results from continually doing responsibly and having the financial means to support oneself, accomplish personal objectives, and lead a respectable lifestyle (Xiao et al., 2008). The notion can also include prudent retirement planning, sufficient wealth building, and resistance to financial disasters (Xiao, et al. 2022).

Financial well-being (FWB) is a multidimensional concept that includes financial contentment, the objective condition of one's financial situation, financial attitudes, and financial behavior that cannot be measured in a single way (Iramania and Lufti, 2021). Financial well-being was initially studied at the national level without taking into account people's perspectives, and it was seen as being synonymous with tangible resources (such as money). While Easterlin (1974) discovered the significance of subjective views of financial well-being. But nowadays, FWB can be defined as a good and positive financial condition that has both an objective and a subjective side. The objective well-being is linked to tangible resources like money and possessions (for example, home, vehicle). Subjective financial well-being is correlated with emotional well-being and cognitive assessment of his or her financial situation, his or her subjective assessment of knowledge about that circumstance (Sorgente and Lanz, 2017).

FWB has been quantified in numerous ways across research, making it difficult to compare the findings and ambiguity around its conceptualization (Aubrey et al., 2022). None of these definitions considered an individual's actual financial situation (i.e., financial status, wealth, etc.) as the only factor in FWB. Instead, they highlighted the cognitive and affective elements of FWB (Sorgente and Lanz, 2017; 2019). Based on the synthesis of the most acceptable research by Aubrey et al. (2022), FWB is a positive psychological state of mind combining a sense of satisfaction and a positive perception of financial conditions as being able to meet both the current and future needs and aspirations. According to Netemeyer et al. (2018), the Perceived Financial Well-Being Scale (PFWBS) concentrates on two aspects of FWB (money stress management and financial security). In another study by Sorgente and Lanz (2019) identified five aspects of financial well-being (FWB) - general subjective financial well-being, money management, peer comparison, having money, and financial future (Aubrey et al., 2022). This study considers five aspects of financial well-being following Sorgente and Lanz (2019).

Since financially intelligent people are more likely to handle their finances responsibly, financial literacy is seen to significantly impact people's financial well-being (Lone and Bhatt, 2022).

Financially literate individuals are more likely to manage their finances, create effective saving and investment strategies, and gain wealth over the years (Nejad and Javid 2018). As people grow more financially literate, they tend to save and invest more and may even become better at making daily financial decisions. They finally experience greater financial well-being as a result of achieving financial self-efficacy (Shekinah, et al. 2023, Lone and Bhat, 2022; Netemeyer et al. 2018, Lusardi and Mitchell, 2007).

Based on the above discussion, this study is designed to empirically test the following hypotheses –

H_1: Financial literacy (i.e., knowledge) has a significant influence on financial self-efficacy.

H_2: Financial literacy (i.e., knowledge) has a significant influence on technological self-efficacy.

H_3: Financial literacy (i.e., knowledge) has a significant influence on financial well-being.

H_4: Financial Literacy (i.e., attitude) has a significant influence on financial self-efficacy.

H_5: Financial Literacy (i.e., attitude) has a significant influence on technological self-efficacy.

H_6: Financial Literacy (i.e., attitude) has a significant influence on financial well-being.

H_7: Financial Literacy (i.e., behavior) has a significant influence on financial self-efficacy.

H_8: Financial Literacy (i.e., behavior) has a significant influence on technological self-efficacy.

H_9: Financial Literacy (i.e., behavior) has a significant influence on financial well-being.

H_{10}: Technological self-efficacy has a s significant impact on Financial self-efficacy.

H_{11}: Technological self-efficacy has a significant influence on financial well-being.

H_{12}: Financial self-efficacy has a significant influence on financial well-being.

3. RESEARCH DESIGN AND MEASUREMENT INSTRUMENTS

A questionnaire was created to assess financial literacy using the principles from (OECD, 2015), Potrich and Vieiera (2018), Pangestu and Karnadi (2020), (Forbes and Kara 2010), (Montford and Goldsmith (2016), (Hong et al., 2014). This scale covers all three dimensions: financial attitude (15 items), financial behavior (13 items), and financial knowledge (10 questions of increasing difficulty). Financial efficacy is measured using 5 items following Forbes and Kara (2010). Technological self-efficacy is measured using 4items following Hong et al. (2014). The instruments and measuring items used in this research were derived from prior literature. Figure 1 is the conceptual framework of this study. The variables - financial knowledge (FK), financial behavior (FB), financial attitude (FA), financial self-efficacy (FSE), technological self-efficacy (TSE), and financial well-being (FWB) are the constructs used in this study with a point Likert scale.

To execute this study, data were extracted from university students, academicians, and accountants of the financial institutions of Bangladesh. The purposive sampling technique was employed to get an appropriate model fit. The purposive sampling method is more appropriate than convenience sampling when the nature of the population is unknown (Saunders et al., 2007; Sarstedt et al., 2017). Figure 2 illustrates the in-depth research process. A structured survey questionnaire was formulated and also back-translated into Bengla language to ease readability for the respondents (Brislin, 1976; Al Amin et al., 2021). A total of 435 invitations were sent, resulting in 270 received feedback, and only 253 complete responses were retained for analysis.

4. ANALYSIS OF FINDINGS AND DISCUSSION

Structural equation modeling (SEM) was employed to analyze the complex measurement model with a series of a large number of dependent variables to show the causal relationships, and multivariate analysis (Al Amin et al., 2022). This study entails the degree to which endogenous constructs are influenced by exogenous constraints. Partial least square structural equation modeling (PLS-SEM) is used to assess the intercorrelations and validate the measurement model among the various constructs using SmartPLS version 4 (Al Amin et al., 2022; Al Amin, 2022; Becker et al., 2023). This research adopts two-stage techniques - measurement model and structural model (Hair et al., 2019).

4.1. Reliability Analysis

The assessment of construct's reliability was performed using three parameters such as Cronbach's alpha, composite reliability (CR), and rho_A. According to the study of (Sarstedt et al., 2017), an acceptable model requires CR, Cronbach's alpha, and rho_A values exceeding 0.70. Table 1 shows that the model satisfied all requirements, validating reliability.

This study evaluated the convergent validity via the average variance extracted (AVE) and cross-loading measures. Based on the (Sarstedt et al., 2017) the value of AVE should be greater than 0.5 and factor loadings of each indicator should be greater than 0.70. Appendix 1 illustrates that the factor loadings ranged from 0.687 to 0.940 whereas AVE is greater than 0.5. Therefore, the convergent validity met the quality criteria.

In addition, discriminant validity (Table 2) was conducted systematically by using the Fornell and Lacker criteria and the heterotrait-monotrait (HTMT) correlation ratio (Hair et al., 2017). Findings of the Fornell and Lacker criteria require that the diagonal values, which reveal the square roots of the AVE, be larger than the off-diagonal values, which indicate the correlations between variables. Table 3 depicts the Heterotrait-monotrait ratio (HTMT) matrix, which was less than 0.85 ensured the discriminant validity (Sarstedt et al., 2017; Henseler et al., 2015b).

4.2. Validation of the Structural Model

To validate the structural model (Figure 3), this study has analyzed the degree of the effect of f^2, the corresponding coefficient of determination R^2, blindfolding-based cross-validating redundancy

Figure 1: Conceptual Framework

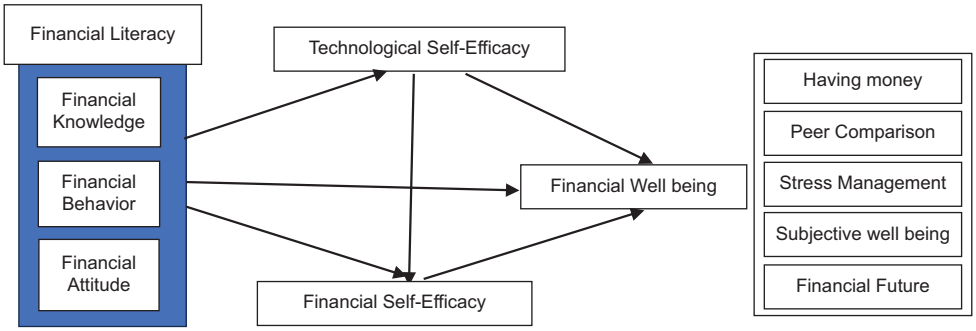


Figure 2: Flowchart of the study

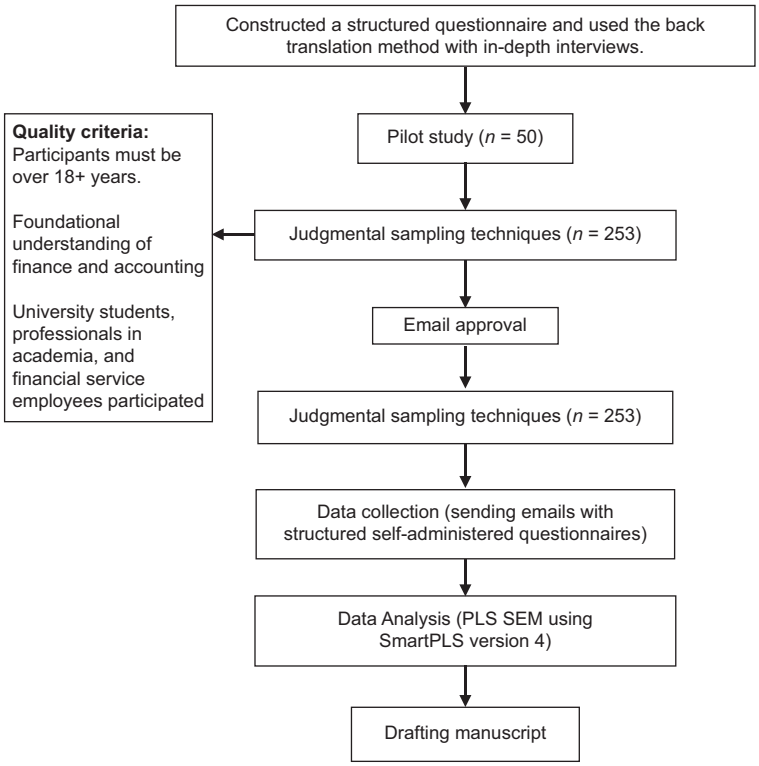
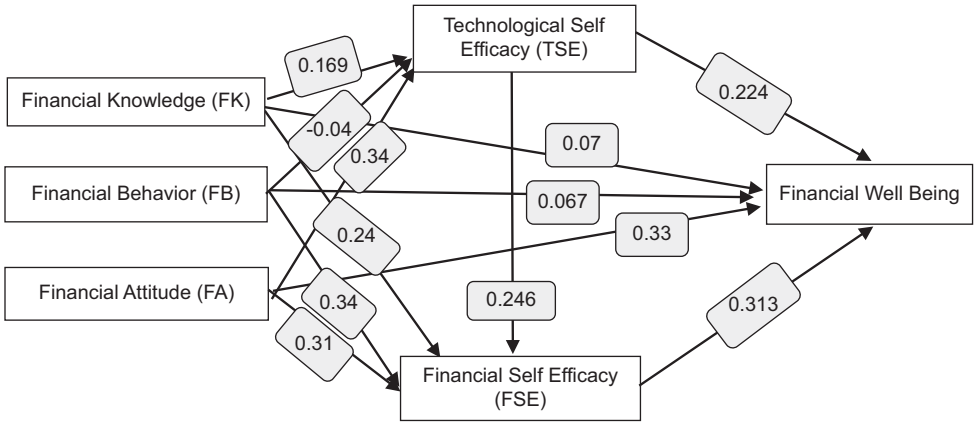


Figure 3: Structural Model



Q^2 and the significance test of the path co-efficient of the structural model (Sarstedt, et al., 2017). Additionally, the bootstrap procedure employed to assess the presented hypotheses and examine the path coefficient through t-statistics, as suggested by (Henseler et al., 2016). Appendix 2 illustrates the corresponding coefficient of determination R^2 of satisfaction for FSE, TSE, and FWB 0.579, 0.167, and 0.249 respectively. This finding demonstrates that

three predictors, including FK, FB, and FA, accounted for 57.9% and 16.7% of the variance in satisfaction, while the remaining 24.9% of the variation was explained by the five latent constructs, comprising FK, FB, FA, TSE, and FSE.

Furthermore, the researchers conducted a test to determine the magnitude of effect sizes f^2 as shown in Appendix 3. This test aimed to evaluate the relative impact of several factors within a unified model (Henseler et al., 2015). As stated by Chin (2001) and (Henseler et al., 2015), effect sizes f^2 with a value of 0.02 could be considered predictive of a small effect, while a value of 0.15 indicates a medium effect and a value of 0.35 is indicated a larger effect. Following Appendix 3, the value of f^2 ranged from 0.001 to 0.167. The evaluation of PLS-SEM parameter predictiveness was conducted using blindfolding-based cross-validated redundancy Q^2. (Sarstedt et al., 2017) recommend that an endogenous component's Q^2 value exceeds zero to demonstrate the path model's predictive potential. Appendix 4 demonstrates that Q^2 performance met predictions. Multicollinearity is evaluated in the PLS-SEM study. That is, each pair of exogenous latent variables in the inner model is reviewed for potential collinearity issues (J. F. Hair, Sarstedt, et al., 2017). Inner VIF focus on structural model collinearity whole outer model used to assess formative constructs' collinearity. The VIF should 5 or lower (i.e. tolerance level of 0.2 or higher) to avoid collinearity problem (Appendix 5).

Table 1: Framework validity and reliability

Construct	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
FA	0.824	0.822	0.877	0.589
FB	0.902	0.908	0.932	0.773
FK	0.857	0.876	0.903	0.699
FSE	0.933	0.942	0.952	0.832
TSE	0.930	0.937	0.947	0.782
FWB	0.894	0.900	0.919	0.653

AVE: Average variance extracted, FA: Financial attitude, FB: Financial behavior, FK: Financial knowledge, FSE: Financial self-efficacy, TSE: Technological self-efficacy, FWB: Financial well-being

Table 2: Discriminant validity (Fornell–Larcker Criterion)

Construct	FA	FB	FK	FSE	FWB	TSE
FA	0.768					
FB	0.620	0.879				
FK	0.371	0.438	0.836			
FSE	0.611	0.640	0.503	0.912		
FWB	0.396	0.302	0.223	0.457	0.808	
TSE	0.380	0.246	0.278	0.473	0.348	0.884

FA: Financial attitude, FB: Financial behavior, FK: Financial knowledge, FSE: Financial self-efficacy, TSE: Technological self-efficacy, FWB: Financial well-being

Table 3: Heterotrait-monotrait ratio – matrix

Construct	FA	FB	FK	FSE	FWB	TSE
FA						
FB	0.689					
FK	0.434	0.491				
FSE	0.682	0.684	0.546			
FWB	0.452	0.320	0.241	0.494		
TSE	0.434	0.258	0.305	0.504	0.375	

FB: Financial behavior, FK: Financial knowledge, FSE: Financial self-efficacy, TSE: Technological self-efficacy, FWB: Financial well-being

Table 4 reveals that FA substantially affects FSE, FWB, and TSE (β = 0.310, t-statistics = 4.825, $P < 0.000$, β = 0.327, t-statistics = 3.341, $P < 0.001$ and β = 0.342, t-statistics = 3.664, $P < 0.000$). Therefore, the results supported H1, H2 and H3. FSE is affected significantly by both FB and FK (β = 0.343, t-statistics = 4.642, $P < 0.000$ and β = 0.237, t-statistics = 2.906, $P < 0.004$). Therefore, H4 and H7 were accepted. Furthermore, FSE significantly influences FWB, TSE significantly effect on FSE and TSE has significant relationship with FWB, and values are (β = 0.313, t-statistics = 2.707, $P < 0.007$, β = 0.246, t-statistics = 4.252, $P < 0.000$ and β = 0.224, t-statistics = 2.595, $P < 0.009$) respectively. Finally, hypothesis H10, H11 and H12 were supported.

4.3 Mediation Effect

This research tested the indirect effects of financial knowledge (FK), financial behavior (FB), and financial attitude (FA) on financial well-being (FWB) via the mediators of financial self-efficacy (FSE) and technological self-efficacy (TSE). Table 5 exhibits significant indirect effects ($P < 0.05$) from the product coefficient paradigm for all paths, suggesting mediation as stated by (Preacher and Hayes, 2004) (Zhao et al., 2010). (Memon et al., 2018) explained that bias-corrected confidence intervals confirmed the mediation effect. Table 5 indicates that indirect

Table 4: Direct effect hypotheses

H	Paths	Standard beta	T statistics	P	CI bias corrected	Supported	VIF	Q^2
H1	FA → FSE	0.310	4.825	0.000	0.178–0.431	Yes	1.799	
H2	FA → FWB	0.327	3.341	0.001	0.123–0.505	Yes	1.921	
H3	FA → TSE	0.342	3.664	0.000	0.153–0.522	Yes	1.659	
H4	FB → FSE	0.343	4.642	0.000	0.192–0.481	Yes	1.772	
H5	FB → FWB	0.067	0.718	0.473	−0.118–0.251	No	2.068	
H6	FB → TSE	−0.040	0.477	0.633	−0.211–0.116	No	1.770	
H7	FK → FSE	0.237	2.906	0.004	0.071–0.389	Yes	1.297	
H8	FK → FWB	0.072	0.599	0.549	−0.177–0.284	No	1.388	
H9	FK → TSE	0.169	1.767	0.077	−0.028–0.341	No	1.263	
H10	FSE → FWB	0.313	2.707	0.007	0.085–0.533	Yes	2.373	0.500
H11	TSE → FSE	0.246	4.252	0.000	0.139–0.363	Yes	1.200	0.112
H12	TSE → FWB	0.224	2.595	0.009	0.063–0.402	Yes	1.344	0.127

FSE: Financial self-efficacy, FWB: Financial well-being, FB: Financial behavior, FK: Financial knowledge, FA: Financial attitude

Table 5: Specific indirect effects hypotheses

Indirect effect	Standard beta	T statistics	P	CI bias corrected	Supported
FA → FSE → FWB	0.071	2.483	0.013	0.023–0.137	Yes
FB → FSE → FWB	0.111	2.251	0.024	0.032–0.230	Yes
FA → TSE → FSE → FWB	0.026	2.050	0.040	0.008–0.063	Yes
FB → TSE → FSE→ FWB	−0.003	0.447	0.655	−0.022–0.007	No
FB → TSE → FWB	−0.006	0.430	0.667	−0.045–0.015	No
FK → TSE → FSE → FWB	0.013	1.169	0.242	0.000–0.046	No
FA → TSE → FSE	0.084	2.666	0.008	0.034–0.165	Yes
TSE → FSE → FWB	0.077	2.290	0.022	0.022–0.156	Yes
FK → FSE → FWB	0.061	1.778	0.076	0.011–0.149	No
FB → TSE → FSE	−0.010	0.469	0.639	−0.058–0.028	No
FK → TSE → FSE	0.042	1.544	0.123	−0.003–0.103	No
FA → TSE → FWB	0.050	1.534	0.125	0.003–0.135	No
FK → TSE → FWB	0.025	1.158	0.247	−0.001–0.090	No

FSE: Financial self-efficacy, FWB: Financial well-being, FB: Financial behavior, FK: Financial knowledge, FA: Financial attitude, TSE: Technological self-efficacy

Table 6: Mediation effect with VAF

Hypotheses	Direct effect without mediator	Significant	Direct effect with mediator	Significant	Indirect effect	P (bootstrap)	Total effect	VAF (%)	Mediation
FA → FSE → FWB	0.405	0.000	0.195	0.049	0.208	0.001	0.402	51.74	Partial
FB → FSE → FWB	0.321	0.000	0.017	0.866	0.286	0.000	0.303	94.38	Full
FA → TSE → FSE → FWB	0.406	0.000	0.183	0.051	0.062	0.03	0.245	25.30	Partial
FA → TSE → FSE	0.617	0.000	0.499	0.000	0.108	0.003	0.607	17.79	No
TSE → FSE → FWB	0.355	0.000	0.174	0.034	0.177	0.000	0.351	50.42	Partial

FSE: Financial self-efficacy, FWB: Financial well-being, FB: Financial behavior, FK: Financial knowledge, FA: Financial attitude, TSE: Technological self-efficacy

effect confidence intervals exclude zero, empirically supporting the mediation effect (Hayes and Little, 2018) (Popy and Bappy, 2022).

4.4. VAF Mediating Effect

The first phase follows the (Baron and Kenny, 1986) method. Following this, this study adopted the mediating variables viz TSE and FSE in the model to evaluate the significance of the indirect effects of path coefficient (FA to FSE, FSE to FWB), (FB to FSE, FSE to FWB), (FA to TSE, TSE to FSE, FSE to FWB), (FA to TSE, TSE to FSE) and (TSE to FSE, FSE to FWB). According to Hair et al. (2017), full mediation exists when VAF exceeds 80%, partial mediation while 20%–80%, and no mediation since 20% or below. The results presented in Table 6 indicate that the indirect paths (FA → FSE → FWB), (FA → TSE → FSE → FWB), and (TSE → FSE → FWB) exhibit a weighted percentage are 51.74%, 25.30%, and 50.42% respectively. Subsequently seems that partial mediation existed. Finally, the indirect paths (FB → FSE → FWB) and (FA → TSE → FSE) depict the full mediation and no mediation exists in the path model.

5. CONCLUSION AND FUTURE RESEARCH DIRECTION

Despite the significance of financial literacy, research has found that this capacity is not highly developed among people particularly in developing and underdeveloped nations. The importance of financial literacy and the requirement for financial understanding and education have been made clear by the current global financial crisis. The Covid-19 pandemic has caused risk, uncertainty, and volatility that have impacted not only the world's financial markets but also the psychological, financial, and economic situations at every level of society. In the aftermath, financial well-being is also impacted by job losses, a decline in the GDP, and inflation, particularly in emerging nations like Bangladesh (Kumar et al., 2023; Andrade, 2020). With the onset of the coronavirus disease, which required physical distance, the need to address financial illiteracy and financial technological self-efficacy became even more urgently apparent (Jain, 2022). Financial literacy can be seen as the first step towards financial inclusion because it encompasses ideas like financial awareness, knowledge of financial institutions, products, and concepts, as well as financial skills and competence (Xu and Zia, 2012; Jain, 2022).

The findings from this study could have significance for decision-makers, educational institutions, financial analysts, and financial planners. The results may be used to create financial education programs that will give people's ability to manage their own finances in terms of retirement planning and savings by improving their overall financial well-being. The financial education programs, financial literacy, financial wellbeing, investment decision, savings and consumptions, digitization of financial products and services, economic development will significantly benefit from this study. We strongly believe that the policy makers should include financial literacy in their curriculum from school level. There is still room to improve and grow in terms of financial behavior, attitude, and knowledge as well as financial well-being. There are certain drawbacks to this study. Most of the respondents to our survey who were urban dwellers knew the fundamentals of investing and saving. To provide decisions that can be more broadly generalized, more research is still needed on

non-urbanized locations and various ethnic backgrounds. The scale that was employed to assess technological self-efficacy solely took smartphone use into consideration. Future research endeavors have to aim to enhance the present analysis by including further data sources (such as the partner of the participant and stress levels). Our investigation focused on measuring FWB at a certain moment in time, ignoring its temporal stability. Future studies should therefore evaluate the potential temporal variability of FWB.

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APPENDIX

Appendix 1: Factor loadings

Items	FA	FB	FK	FSE	FWB	TSE
FA1	0.687					
FA2	0.708					
FA3	0.818					
FA4	0.798					
FA5	0.817					
FB1		0.911				
FB2		0.888				
FB3		0.891				
FB4		0.825				
FK2			0.834			
FK3			0.845			
FK4			0.783			
FSE1				0.940		
FSE2				0.907		
FSE3				0.887		
FSE4				0.914		
FWB1					0.815	
FWB2					0.763	
FWB3					0.797	
FWB4					0.790	
FWB5					0.857	
FWB6					0.824	
TSE1						0.870
TSE2						0.890
TSE3						0.906
TSE4						0.846
TSE5						0.908
FK1			0.880			

FSE: Financial self-efficacy, FWB: Financial well-being, FB: Financial behavior, FK: Financial knowledge, FA: Financial attitude, TSE: Technological self-efficacy

Appendix 2: R^2

Construct	R^2	R^2 adjusted
FSE	0.579	0.572
FWB	0.249	0.234
TSE	0.167	0.157

FSE: Financial self-efficacy, FWB: Financial well-being, TSE: Technological self-efficacy

Appendix 3: F^2

Construct	FA	FB	FK	FSE	FWB	TSE
FA				0.067	0.022	0.085
FB				0.167	0.001	0.001
FK				0.070	0.001	0.027
FSE					0.055	
FWB						
TSE				0.120	0.021	

FSE: Financial self-efficacy, FWB: Financial well-being, FB: Financial behavior, FK: Financial knowledge, FA: Financial attitude, TSE: Technological self-efficacy

Appendix 4: Q^2

???	Q^2 predict	RMSE	MAE
FSE	0.500	0.715	0.495
FWB	0.112	0.957	0.702
TSE	0.127	0.943	0.701

FSE: Financial self-efficacy, FWB: Financial well-being, TSE: Technological self-efficacy

Appendix 5: Collinearity statistics (VIF)

Items	VIF					
Outer model - list						
FA1	2.027					
FA2	2.035					
FA3	3.764					
FA4	3.819					
FA5	3.196					
FB1	4.093					
FB2	3.554					
FB3	2.985					
FB4	1.771					
FK2	2.246					
FK3	2.314					
FK4	1.958					
FSE1	5.055					
FSE2	3.859					
FSE3	3.372					
FSE4	4.094					
FWB1	2.197					
FWB2	1.857					
FWB3	2.048					
FWB4	1.905					
FWB5	2.497					
FWB6	2.204					
TSE1	2.817					
TSE2	3.139					
TSE3	3.689					
TSE4	2.604					
TSE5	3.702					
FK1	2.479					
Inner model - matrix						
Construct	**FA**	**FB**	**FK**	**FSE**	**FWB**	**TSE**
FA				1.799	1.921	1.659
FB				1.772	2.068	1.770
FK				1.297	1.388	1.263
FSE					2.373	
FWB						
TSE				1.200	1.344	

FSE: Financial self-efficacy, FWB: Financial well-being, FB: Financial behavior, FK: Financial knowledge, FA: Financial attitude, TSE: Technological self-efficacy