DETERMINANTS OF DIGITAL FINANCIAL LITERACY FROM STUDENTS' PERSPECTIVE

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Abstract

In Malaysia, there has been an increase in bankruptcy cases among the younger generation, indicating poor money management among youths. The Coronavirus Disease 2019 (COVID–19) outbreak has exacerbated this emerging financial issue since financial transactions are now more accessible through the growth of online digital financial products and services (DFS) (Mansour, 2022). Therefore, it is crucial that the younger generation is financially literate from the digital perspective — digital financial literacy (*DFL*). This study identified factors that may affect one's DFL that have not been previously explored in the financial literacy literature. In a survey that involved 183 Malaysian university students, determinants of DFL were identified, namely: financial knowledge score (*FKS*), programme or study level (*PL*), *gender, age*, as well as parental influence (*PRI*), peer influence (*PEI*), and social media influence (*SMI*). The data were analysed using partial least squares (PLS) modelling. The structural model analysis revealed that *FKS* and *SMI* positively impacted DFL, highlighting the importance of social media for financial education. Age had an insignificantly negative effect on DFL, contradicting earlier studies that used age as a proxy for financial experience. This research outcome adds to the existing and growing literature on DFL, which has lately gained prominence due to the proliferation of DFS.

Keywords: Digital Financial Literacy, Financial Literacy, Students, Malaysia

1. INTRODUCTION

The recent outbreak of coronavirus disease 2019 (COVID-19) has resulted in a move away from physical to electronic financial transactions, as physical isolation and avoidance of interaction with other people can effectively curb the transmission of the disease. Prior studies revealed that fear of

COVID-19 has exponentially increased the use of technology in many spheres of life, including education and daily financial transactions (Al-Maroof et al., 2020; Puriwat & Tripopsakul, 2021). According to Mansour (2022), the use of digital financial products and services (DFS) has increased substantially as a result of the COVID-19 pandemic. As a consequence, risks stem from simplicity of executing financial transactions and security issues that revolve around online transactions.

Malaysia has recorded high bankruptcy cases among the youth. Referring to the latest figures obtained from the Malaysian Department of Insolvency (2021), 36,173 Malaysians aged between 18 and 44 were declared bankrupt from the year 2017 to October 2021. Such a high rate of bankruptcy, along with the ease with which financial transactions may be conducted online, is ascribed to poor financial management. To date, proficiency in the use of DFS is just as vital as basic financial literacy. Hence, it is critical for the younger generation to have a firm grasp of the knowledge of online transactions; a concept known as *digital financial literacy* (*DFL*).

The primary aim of this study is to investigate the factors that affect DFL among youth. A survey that was conducted among students in Selangor, Malaysia yielded 183 acceptable questionnaires for analysis. From the results of partial least squares structural equation modelling (PLS-SEM), financial knowledge score (*FKS*) and social media influence (*SMI*) emerged as the two major elements that affected a student's DFL.

The reported findings significantly contribute to the area of financial literacy, since previous studies, while focusing on financial literacy, neglected the DFL and its measurement. Additionally, this research work lists the primary factors that affected DFL, and which should be taken into account by policymakers in the development of effective mechanisms to improve DFL among the youth. This should guarantee a comprehensive mechanism in place that takes into account the current essential elements of DFL that have emerged as a result of the COVID-19 pandemic.

The following depicts the structure of this research paper. Section 2 summarises the pertinent literature and discusses the hypotheses. Section 3 explains the research design, including research instrument and data analysis method. Section 4 presents the study results and discussion. Finally, Section 5 concludes this study, along with the study's shortcomings and future research directions.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Prior studies on financial literacy had mostly determined the level of financial literacy and its influential factors. Studies on DFL are in scarcity, mainly because the importance of DFL has only recently become evident as a consequence of the rapid growth in the use of digital financial products and services. This section examines the current studies on DFL and its determinants (basic financial literacy & DFL).

2.1. Digital financial literacy (DFL)

The various cutting-edge digital financial products and services necessitate the inclusion of DFL as part of relevant financial information. Since the outbreak of COVID-19 pandemic, the conventional method of conducting financial transactions has shifted to online transactions. Therefore, it is crucial for one to increase his/her DFL skills in order to effectively conduct financial transactions. Past studies (Alliance for Financial Inclusion [AFI], 2021; Lyons & Kass-Hanna, 2021; Morgan et al., 2019; Tony & Desai, 2020) have described DFL as a multi-dimensional concept that includes financial literacy and digital literacy. As defined by Setiawan et al. (2022), DFL is "financial literacy in digital financial technology" (p. 322).

Morgan et al. (2019), Tony and Desai (2020), and Lyons and Kass-Hanna (2021) applied five dimensions to define DFL; while AFI (2021) used three dimensions to conceptualise DFL. There are similarities between the dimensions described in the literature. In fact, all studies have embedded the dimensions of knowledge, practical know-how, and self-protection. Knowledge indicates the possession of knowledge about digital financial products and services available (AFI, 2021; Lyons & Kass-Hanna, 2021; Morgan et al., 2019; Setiawan et al., 2022), including a digital wallet and online banking (Lyons & Kass-Hanna, 2021). Practical know-how denotes having the skills or experience of using digital financial products or services. Self-protection refers to the ability to identify risks related to digital financial transactions and be aware of the self-protection mechanism against the risk.

Despite the existence of established measures for financial literacy, the measurement of digital financial is still at the infancy level. Besides, only a handful of studies have examined DFL and its measurement (Setiawan et al., 2022; Tony & Desai, 2020). Tony and Desai (2020) explored the impact of DFL on financial inclusion in India, whereas Setiawan et al. (2022) assessed the relationship between DFL and financial management behaviour such as saving and spending behaviour. Setiawan et al. (2022) deployed subjective measures of DFL based on the multi-dimensions outlined by Morgan et al. (2019). Meanwhile, Lyons and Kass-Hanna (2021) listed a set of multidimensional indicators to serve as a basis to devise questionnaires that measure DFL.

2.2. Determinants of financial literacy

Numerous researchers have investigated the critical elements that might raise financial literacy levels. As a result, recommendations have been outlined on how to execute intervention programmes relevant to the identified main factors. Nonetheless, only a few studies have assessed factors that contribute to DFL (Azeez & Akhtar, 2021; Setiawan et al., 2022).

Based on the definition of financial literacy, it is clear that knowledge or skills are connected to significant financial information; hence it is reasonable to say that knowledge can typically be transmitted via education, formally or informally. Thus, both formal financial education and informal

via financial socialisation are the crucial determinants of financial literacy.

According to Loh et al. (2021), education and experience must be combined to provide a solid basis for financial literacy. Hence, financial experience is a fundamental determinant of financial literacy. Hence, the essential determinants of financial literacy are: 1) *Financial education* (*FKS* & programme or study level (*PL*)), 2) *Financial experience* (gender & age (*AGE*)), and 3) *Financial socialisation* (parental influence (*PRI*), peer influence (*PEI*), & *SMI*).

Financial education, according to Widyastuti et al. (2020), is a process that enhances one's comprehension of financial concepts and products or acquisition of skills via information gained. Similarly, Lusardi (2019) claimed that financial education is imminent to improve financial literacy. Lusardi (2019) highlighted the importance of providing financial education in schools as a targeted venue, implying that formal education institutions or related agencies provide financial courses.

Many studies have examined the effect of the field of study on students' financial literacy. Some investigations reported that students from accounting, finance, and business majors possessed significantly better financial literacy than students from other fields of study (Ansong & Gyensare, 2012; Chen & Volpe, 1998; Ghazali et al., 2017; Karaa & Kuğu, 2016; Lantara & Kartini, 2015; Nikonova et al., 2018; Yew et al., 2017).

Various reasons have been attributed to the positive effect of accounting, finance, and business majors on students' financial literacy level. Chen and Volpe (1998) claimed that business major allowed students to learn finance and other related courses. They added that students from business major were more knowledgeable about personal finance. Lantara and Kartini (2015), who surveyed 384 students in Indonesia, reported a similar result. Hence, they depicted that the subjects taken by students from business major enabled them to improve their *FKS*.

Meanwhile, Ghazali et al. (2017) reported that the mean value for financial literacy scored by school students in Malaysia with a business background was significantly higher at 52.09 when compared to students with non-business background (mean score = 45.94). The study asserted that students with business background had better understanding of financial literacy issue because they were informally exposed to financial management concepts. Next, Yew et al. (2017) reported that students from accounting, finance, and business majors were regularly exposed to financial terms throughout their study years.

Based on the studies mentioned above, it is fair to conclude that students from accounting, finance, and business majors are more financially literate than students from other fields of study. Nikonova et al. (2018) depicted that it is necessary to develop special programs for students of all fields of study to improve their financial literacy level. However, Kubicková et al. (2019) found contradicting findings: the financial literacy level of business students was slightly lower than that of students from grammar school. The study also explained that most parents of the students from grammar school had university academic qualification, which might influence the financial literacy level of the grammar school students.

Apart from the field of study, researchers have claimed that *PL* may influence one's level of financial literacy. Dewanty and Isbanah (2018) reported a significantly positive impact of education level on financial literacy level. They claimed that higher education level enables one to absorb information and apply it to their daily lives, inclusive of financial information.

In relation to the impact of education on DFL, Azeez and Akhtar (2021) assessed the effect of study level on DFL among Indian households. Similar to past studies, the study reported the significantly positive impact of education level on DFL. The study concluded that DFL can be enhanced by improving the level of education in India. Based on prior studies, it is hypothesised that there is a significant effect of financial education on financial literacy level. Referring to the literature, financial education can be measured based on *FKS* possessed by students and *PL* (undergraduate or postgraduate). Thus, the following are hypothesised:

H1: Financial knowledge score (FKS) positively influences students' digital financial literacy (DFL).

H2: Programme level (PL) positively influences students' digital financial literacy (DFL).

As suggested by Loh et al. (2021), integrating financial education with financial experience is indeed integral to serve as a good foundation for financial literacy. Gender and age are the two most researched factors that have always been associated with financial experience.

Gender has a significant impact on financial literacy level. According to Chen and Volpe (1998), men are more knowledgeable financially than women. This notion is supported by many studies (Ansong & Gyensare, 2012; Bawre & Kar, 2019; Ergün, 2017; Lantara & Kartini, 2015; Migliavacca, 2019; Mottola, 2013; Oseifuah et al., 2018; Philippas & Avdoulas, 2020). Ansong and Gyensare (2012) and Oseifuah et al. (2018) depicted that men are more literate financially due to the role of men as decision-makers in a household, including decisions related to financial matters. Their financial decision enhances their financial experience because it demands them to understand various financial concepts, thus leading to a higher financial literacy level than women.

Although many studies demonstrate that men are more literate than women, some studies report otherwise (Ghazali et al., 2017; Murugiah, 2016; Selvadurai et al., 2018). Selvadurai et al. (2018), who interviewed Malaysian elderly, found that women possessed higher financial literacy level than men because women are more family-oriented than men. They added that women were often involved in managing family expenses and regularly saved money, thus, enhancing their financial experience. However, some studies revealed an insignificant difference in financial literacy level between men and women (Kenayathulla et al., 2020; Sabri et al., 2010; Swiecka et al., 2020; Tan & Singaravelloo, 2020).

Next, Azeez and Akhtar (2021) reported that males had a higher level of DFL than females. They depicted that female in Aligarh District, India, was generally illiterate. Therefore, they did not have adequate financial experience as illiteracy hindered

them from getting involved in all aspects of life. This is inclusive of the use of digital products and services. Thus, the following is proposed:

H3: Gender-male (GDM) positively influences students' digital financial literacy (DFL).

Another important determinant of financial literacy is age, mainly due to the financial experience gained throughout their lives. Most studies have reported the significantly positive effect of age on students' financial literacy level (Ansong & Gyensare, 2012; Chen & Volpe, 1998; Hayei & Khalid, 2019; Karaa & Kuğu, 2016). Chen and Volpe (1998) found that students aged 40 and older were more knowledgeable than those below 30 years old. They added that older students had more exposure to personal finance, thus the ability to enhance their financial literacy level. Similarly, Ansong and Gyensare (2012), who surveyed 250 undergraduate and postgraduate students of a public university in Ghana, revealed that knowledge accumulation was positively related to age based on financial experience. Hence, there is a significantly positive effect of age on students' financial literacy level. Hayei and Khalid (2019), upon surveying school students, reported that financial literacy score increased by 7.5% for one year increase in age.

On the contrary, several studies reported an insignificant difference in financial literacy level across different ages (Ghazali et al., 2017; Lantara & Kartini, 2015; Oseifuah et al., 2018). However, Ghazali et al. (2017) found an insignificant relationship between age and financial literacy level attributable to the sample surveyed — school children with very low age variation.

The impact of age on DFL contradicts the literature on financial literacy. Azeez and Akhtar (2021) depicted a significantly negative link between age and DFL level. Thus, younger people are more technology savvy and updated with the latest technological devices, such as smartphones and tablets. As elder people are left behind and often deprived of education, it is difficult for them to gain better DFL. Hence, the following hypothesis is proposed:

H4: Age negatively influences students' digital financial literacy (DFL).

On top of formal financial education, based on Bandura's (1971) *social learning theory* informal interaction between students and their surroundings may stimulate learning, including financial education (Jorgensen, 2007). Bandura (1971) claimed that an appropriate learning environment generates direct experience or observation of other people's behaviour. This notion asserts that learning takes place in any scenario in which people spend an extended period of time at a young age (parents, peers, and social media). Thus, *PRI* on financial literacy level is viewed from the stance of parental financial socialisation.

Jorgensen (2007) reported that students with higher financial literacy level learned about money management skills from parents. Grounding on the social learning theory, a parent is a key social agent who interacts with a child and can ultimately influence the child's financial literacy level. Undeniably, parents shape the environment of their children in the early years of life. Hence, any form of interaction between parents and children (e.g., financial skills and knowledge) can be informally imparted to the children. Such an interaction reflects the following forms: 1) sharing of financial experience (Putri et al., 2020), 2) discussion about financial aspects (Putri et al., 2020; Sabri et al., 2010), 3) direct teaching effort (Shim et al., 2010) or even financial monitoring of children (Putri et al., 2020). These interactions are known as *parental financial socialisation.* The significantly positive impact of parental financial socialisation on the level of financial literacy has been reported in numerous studies (Alekam et al., 2018; Putri et al., 2020; Sabri et al., 2010; Shim et al., 2010).

Sharif et al. (2020) disclosed the adverse impact of parental financial socialisation on the financial literacy level. However, the result is true for male respondents only. They claimed that the negative effect is ascribed to the characteristics of male respondents: defensive and act in contradiction with what their parents wish them to act. As male respondents are risk-takers, they would not follow their parents' advice and act contradictory. Finally, some studies revealed the insignificant effect of parental financial socialisation on financial literacy level (Amagir et al., 2020; Ameer & Khan, 2020). In particular, Amagir et al. (2020) asserted that parental financial socialisation can affect financial attitude and behaviour instead of financial literacy level. Despite the negative effect of parental financial socialisation on male respondents' financial literacy, Sharif et al. (2020) found an insignificant impact on female respondents. Based on social learning theory, the following is proposed:

H5: Parental influence (PRI) positively influences students' digital financial literacy (DFL).

Similar to parents, a peer is a crucial social agent that influences one's financial literacy level. This is because, peer refers to a person a student would spend most of his/her time with (Thomas & Subhashree, 2020). Thomas and Subhashree (2020), who examined the level of financial literacy among engineering students, revealed the significant impact of *PEI* on students' financial literacy level. Similarly, Alekam et al. (2018) claimed that one's interaction with peers is a form of social influence.

On the contrary, Sabri and Aw (2019) reported the adverse effect of *PEI* on financial literacy level. They depicted that interaction with peers could transmit biased information, which may be misleading and incomplete. Some studies uncovered the insignificant effect of *PEI* on financial literacy level (Amagir et al., 2020; Ameer & Khan, 2020; Jorgensen, 2007). Although Thomas and Subhashree (2020) asserted that students would spend most of their time with peers, Jorgensen (2007) claimed that interaction with parents can exceed interactions with peers. This is attributed to the progress of information technology, where students can easily connect and interact with parents via smartphone. Jorgensen (2007) added that interaction with peers is limited when compared to exposure to parents at home. In light of DFL, it is believed that students actively interact with peers, thus may enhance their social learning related to DFL through peers, as depicted in the social learning theory. Therefore, the following hypothesis is proposed:

H6: Peer influence (PEI) positively influences students' digital financial literacy (DFL).

Another crucial determinant of financial literacy refers to social media exposure or usage. The social learning theory posits that learning can occur through interaction with the environment (Jorgensen, 2007). Many scholars have studied the effect of social media on financial literacy level, but there is no conclusive evidence due to mixed outcomes.

Based on a study that involved students from a Turkish university, Karaa and Kuğu (2016) reported the positive effect of social media usage on financial literacy level. They claimed that the usage of social media, such as following popular economist pages, can improve the students' knowledge on advanced financial literacy. Meanwhile, Sabri and Aw (2019) found a negative effect of social media usage on financial literacy level. They claimed that social media is not an effective social agent in learning financial management due to the absence of interaction as social media only offer one-way knowledge delivery. Thus, social media is not a good setting to learn financial management.

Meanwhile, Ameer and Khan (2020), Bawre and Kar (2019), and Ansong and Gyensare (2012) did not find any significant effect of social media on financial literacy level. This outcome, according to Ansong and Gyensare (2012), is ascribed to the instrument used where social media variable is only measured in relation to access to media. Access to media itself cannot result in any significant impact because such an access may not necessarily be information related to financial literacy.

Social media is widely used by students for multiple purposes. The movement restriction imposed due to the COVID-19 pandemic had increased the use of social media, including among the younger generation (e.g., students). The use of social media related to financial aspect is crucial to spur learning about financial management, including digital finance. Therefore, this study proposes:

H7: Social media influence (SMI) positively influences students' digital financial literacy (DFL).

The following diagram, shows the research framework of this study:

Figure 1. The research framework of the study
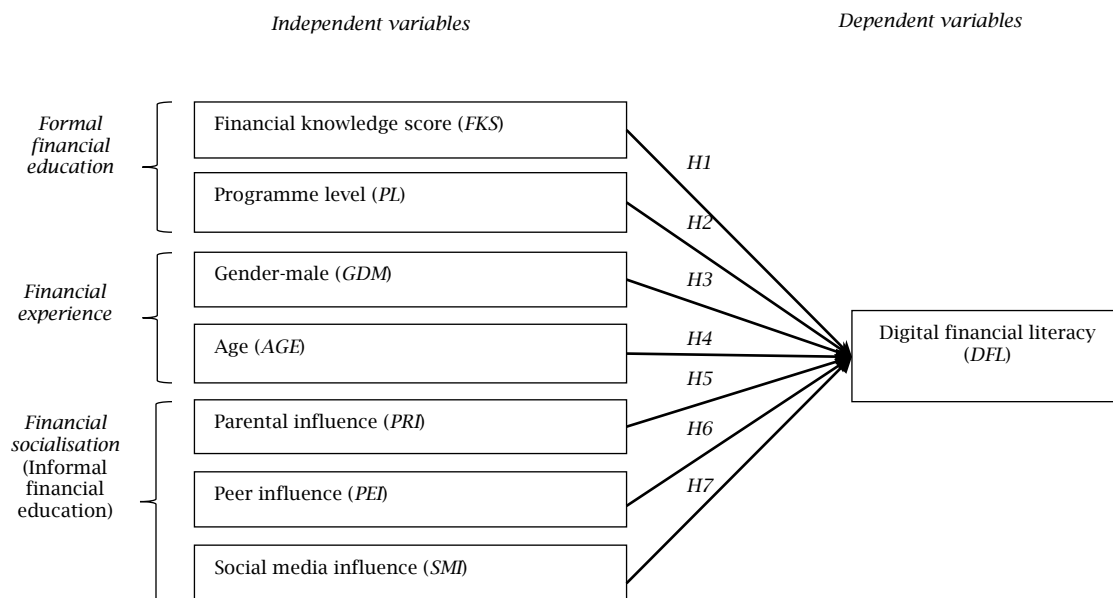
Seven (7) hypotheses are tested in this study, representing the factors that could affect the DFL. The first two (2) factors, namely financial knowledge score (*FKS*) and programme level (*PL*), could capture the effect of formal financial education on DFL. Meanwhile, for informal financial education, it is hypothesised that *PRI*, *PEI*, and *SMI* could lead to financial socialisation and improve DFL. Finally, the DFL is expected to be influenced by financial experience as proxied by *GDM* and *AGE*.

3. RESEARCH METHODOLOGY

3.1. Research instrument

A total of 183 accounting students in Selangor participated in this study. The responses were gathered by using an electronic survey called Survey Monkey. The questionnaire had six sections. The first section collected demographic data, such as gender, age, and *PL* of the respondents.

The second section is comprised of items about students' *FKS*. Following Philippas and Avdoulas (2020), five items were deployed to assess students' *FKS*. These items included fundamental economic concepts (interest rate and inflation), basic numeracy, and risk diversification. Based on Lyons and Kass-Hanna (2021), scores for *FKS* (proxied by financial knowledge scores) ranged from 0 (zero correct response) to 5 (maximum number of correct responses).

The third section contains items designed to ascertain *PRI*, which is defined as the influence of parents on students' DFL in this study. The respondents were required to score their level of agreement with items related to parents'

involvement in their personal financial decision (1 —strongly disagree, 5 — strongly agree) (Norvilitis & MacLean, 2010; Shim et al., 2010). The items determined if the students had discussed with their parents every financial decision they made and if they received advice about wise financial management from their parents.

The fourth section contains items designed to ascertain *PEI*. As 'peer' means friends (Dangol & Maharjan, 2018), *PEI* is the influence of friends on the DFL of students. The respondents were asked to score their level of agreement with items related to friends' involvement in their personal financial decision (1 — strongly disagree, 5 — strongly agree) (Churchill & Moschis, 1979; Dangol & Maharjan, 2018; Jorgensen, 2007). The items determined if the students followed their friends' advice on saving money and if they discussed financial management issues with their friends.

The fifth section is composed of items related to *SMI*. This study defines *SMI* as the influence of social media on the DFL of students. The respondents were requested to score their level of agreement with statements on the usage of social media related to finance (1 — strongly disagree, 5 — strongly agree) (Karaa & Kuğu, 2016). The items determined if the students followed financially and economically related pages or accounts.

The sixth section contains items related to DFL. Adapted from Setiawan et al. (2022), the five items covered the three common dimensions prescribed in past studies (Lyons & Kass-Hanna, 2021; Morgan et al., 2019; Tony & Desai, 2020), namely: 1) knowledge related to digital financial goods and services; 2) skills or experience using digital financial goods and services; 3) awareness of potential risk and self-protection mechanism against the risk.

Alternatively, interviews could be conducted to examine the extent of financial socialisation among the students. However, the other variables are best measured using a questionnaire, specifically to assess financial knowledge in the second section. Therefore, this study only uses questionnaires as a data collection method.

3.2. Data analysis

This study examined both measurement and structural models via PLS-SEM using SmartPLS 3.3.3 version (Ringle et al., 2015) as the statistical tool since it dismisses the normality assumption. Notably, the survey data were not normally distributed (Chin et al., 2003).

As the data were acquired from a single source, this study initially addressed the problem of common method bias by assessing complete collinearity, as prescribed by Kock and Lynn (2012) and Kock (2015). All variables were regressed against a common variable in this technique. If variance inflation factor (VIF) value is less than or equals to 3.3, there is no bias from the single source data.

Table 1. Full collinearity testing

Variable	DFL	FKS	PL	GDM	AGE	PRI	PEI	SMI
VIF	1.237	1.173	1.326	1.025	1.400	1.087	1.101	1.148

Note: DFL is digital financial literacy, FKS is financial knowledge score, PL is programme level, GDM is a dummy variable that denotes gender (1 male, 0 female), AGE is age of respondent, PRI is parental influence, PEI is peer influence, and SMI is social media influence.

4. RESULTS AND DISCUSSION

4.1. Sample characteristics

Table 2 presents the characteristics of the sample. Most of the respondents were female students (77%) enrolled in Bachelor's degree *PL* (67.4%). Most of them were 22 years old, on average.

Table 2. Sample characteristics

Variables	Descriptions	N	%
Gender	Male	42	23
	Female	141	77
Programme level	Diploma	29	15.8
	Bachelor's degree	123	67.4
	Master's degree	16	8.7
	Doctoral	2	1.1
	Professional	13	7.0
Age	Minimum	18	
	Mean	22.5	
	Median	21	
	Maximum	56	

4.2. Measurement model assessment

This study tested the model built by using the two-step technique prescribed by Anderson and Gerbing (1998). The measurement model was first evaluated to ensure the validity and reliability of the instruments employed, in accordance with Hair et al. (2019) and Ramayah et al. (2018). After that, the structural model was assessed to verify the proposed hypotheses.

This study evaluated the convergent and discriminant validity of the measurement model. Convergent validity refers to the degree to which two items measuring the same construct load heavily on that construct. Loadings, average variance extracted (AVE), and composite reliability (CR) are commonly applied to determine convergent validity. The loading should be at least 0.5, the CR should be equal or higher than 0.7, and the AVE should be equal or higher than 0.5 (Hair et al., 2017). Based on Table 3, AVE and CR values exceeded 0.5 and 0.7, respectively. The loadings were acceptable with only four loadings below 0.708 (Hair et el., 2019). Therefore, the measurement is valid and reliable.

Table 3. Measurement model

Variable	Item	Loading	CR	AVE
Digital financial literacy	DFL1	0.788	0.906	0.661
	DFL2	0.900		
	DFL3	0.844		
	DFL4	0.700		
	DFL5	0.819		
Peer influence	PEI1	0.804	0.903	0.609
	PEI2	0.739		
	PEI3	0.870		
	PEI4	0.816		
	PEI5	0.726		
	PEI6	0.712		
Parental influence	PRI1	0.752	0.896	0.556
	PRI2	0.631		
	PRI4	0.819		
	PRI5	0.871		
	PRI6	0.711		
	PRI7	0.621		
	PRI8	0.782		
Social media influence	SMI1	0.920	0.728	0.586
	SMI2	0.570		
Financial knowledge score	FKS	SIM	NA	NA
Programme level	PL	SIM	NA	NA
Gender	GDM	SIM	NA	NA
Age	AGE	SIM	NA	NA

Note: SMI3, SMI4, and PR3 were deleted due to low loadings. SIM = single item measure and NA = not applicable.

Discriminant validity is a test that ascertains if two constructs are conceptually distinct. The HTMT (heterotrait-monotrait ratio of correlations) criteria proposed by Henseler et al. (2015) and modified by Franke and Sarstedt (2019) was deployed in this study to measure discriminant validity. The HTMT values should be less than or equal to 0.85 for stricter criteria and less than or equal to 0.90 for a more lenient criterion.

Table 4. Discriminant validity heterotrait–monotrait ratio of correlations (HTMT)

Variable	DFL	PRI	PEI	SMI
DFL				
PRI	0.165			
PEI	0.115	0.288		
SMI	0.487	0.313	0.366	

Note: DFL is digital financial literacy, PRI is parental influence, PEI is peer influence, and SMI is social media influence.

As tabulated in Table 4, the HTMT values were all less than the tighter threshold of 0.85; signifying that the respondents did comprehend that the constructs were distinct. The two validity tests (convergent & discriminant validity) showed that the instruments used in this study were both valid and reliable.

4.3. Structural model assessment

This study assessed multivariate skewness and kurtosis, as proposed by Hair et al. (2017) and Cain et al. (2017). Apparently, the study data were not multivariate normal, as Mardia's multivariate skewness ($\beta = 37.189$, $p < 0.01$) and Mardia's multivariate kurtosis ($\beta = 127.038$, $p < 0.01$). Following Hair et al. (2019), this study reports the values of path coefficients, standard errors, t-values, and p-values for the structural model using 5,000-sample re-sample bootstrapping method (Ramayah et al., 2018). According to Hahn and Ang (2017), p-values are inadequate to examine the significance of a hypothesis and a combination of several criteria (e.g., p-values, confidence intervals, and effect sizes) should be employed. Table 5 lists the criteria applied in this study to assess the hypotheses.

Table 5. Hypotheses testing

Hypothesis	Relationship	Std. Beta	Std. Dev.	t-value	p-value	BCI LL	BCI UL	f^2
H1	FKS –> DFL	0.275	0.088	3.123	p <0.001	0.139	0.427	0.087
H2	PL –> DFL	0.107	0.096	1.114	0.133	-0.049	0.265	0.011
H3	GDM –> DFL	-0.036	0.072	0.502	0.308	-0.161	0.076	0.002
H4	AGE –> DFL	-0.095	0.124	0.764	0.222	-0.325	0.088	0.008
H5	PRI –> DFL	0.098	0.087	1.135	0.128	-0.164	0.198	0.011
H6	PEI –> DFL	-0.059	0.090	0.657	0.256	-0.143	0.196	0.004
H7	SMI –> DFL	0.218	0.074	2.953	p < 0.001	0.096	0.330	0.054

Note: 95% confidence interval was used with bootstrapping of 5,000. DFL is digital financial literacy, FKS is financial knowledge score, PL is programme level, GDM is a dummy variable for gender (1 male, 0 female), AGE is age of respondent, PRI is parental influence, PEI is peer influence, and SMI is social media influence. BCI LL = bias confidence interval lower limit, BCI UL = bias confidence interval upper limit.

The R^2 for the model was 0.192 ($Q^2 = 0.074$); reflecting that the seven factors explained 19.2% of the variance in DFL. Next, *FKS* ($\beta = 0.275$, $p < 0.01$) and *SMI* ($\beta = 0.218$, $p < 0.01$) were all positively related to DFL, which supports *H1* and *H7*. As the other factors turned out to be insignificant, *H2, H3, H4, H5*, and *H6* are not supported.

The findings imply that students' *FKS* emerged as a crucial predictor of their DFL. A student is more confident in using digital financial products and services if he/she has a solid financial foundation. Thus, it is imminent that students have better knowledge about and expertise with digital financial products and services. Moreover, a solid foundation in *FKS* will educate students on the risks related to the use of digital financial goods and services, apart from aiding them to develop effective self-protection mechanisms while using such products and services.

The COVID-19 pandemic has shifted the landscape of communication from face-to-face to online. As a consequence, there has been a significant increase in the use of social media for interaction purposes. As stipulated by Al-Maroof et al. (2020), the attempt to defeat COVID-19 has resulted in higher technology usage. Frequent use of social media has led many students to become familiar with fundamental digital abilities (e.g., setting a password for account access), which has improved their DFL. Following sites or accounts related to finance and economics can facilitate a student to improve his/her digital financial abilities. In agreement with the social learning theory, the study results hold that social media is indeed an important social agent for one to develop DFL skills.

Although the effect of age on DFL appeared to be insignificant, it is noteworthy to highlight that the link between age and DFL was negative. This is attributed to the lower age variation of the respondents, which ranged from 20–25 years. This negative effect of age is congruent with the findings reported by Azeez and Akhtar (2021), who reported a significantly negative link between age and DFL level. Such a notion contradicts the conventional

determinants of basic financial literacy — age is a significant proxy for financial experience. The more financial experience one has, the higher his/her literacy level is. However, DFL is definitely adequate for the younger generation.

Prior research has largely overlooked DFL and its measurement in favour of a focus on financial literacy. Additionally, this research work lists the key variables that impacted DFL, which policymakers should take into consideration when creating efficient strategies to raise DFL among young people. This should ensure the establishment of a thorough mechanism that considers the crucial aspects of DFL that have emerged as a result of the COVID-19 pandemic.

Shmueli et al. (2019) proposed PLSpredict, which is a holdout sample-based technique that provides case-level predictions on an item or construct level using the PLSpredict with a five-fold process to verify predictive relevance. They added that: 1) if the variance of all items (PLS-LM) is lower, there is strong predictive power; 2) if all are higher, predictive relevance is not confirmed; 3) if the majority is lower, there is moderate predictive power; and 4) if the minority is lower, there is low predictive power. Referring to Table 6, all errors noted in the PLS model are smaller than those of the linear model (LM); signifying that the model developed for this study displayed high predictive power.

Table 6. PLSPredict

Item	PLS RMSE	LM RMSE	PLS-LM
DFL5	0.568	0.607	-0.039
DFL1	0.820	0.871	-0.051
DFL4	0.778	0.825	-0.047
DFL3	0.704	0.735	-0.031
DFL2	0.657	0.689	-0.032

Note: DFL is digital financial literacy. RMSE is root mean squared error.

5. CONCLUSION

The use of digital financial products and services has become critical in the COVID-19 post-pandemic age. Consumers prefer online transactions due to the fear of COVID-19 and social isolation. Concurrently, the high rate of bankruptcy among the younger population in Malaysia denotes a red flag of bad financial management behaviour. As a result, the convenience of making online financial transactions may exacerbate poor financial management behaviour among the younger generation. The younger generation should not only have a good foundation of financial literacy, but also DFL to practise prudent financial management. This study, hence, outlined factors that affect students' DFL.

Notably, *FKS* and *SMI* displayed substantial impact in predicting a student's DFL. This outcome adds to the corpus of knowledge on financial literacy, which is lacking in studies concerning DFL. Policymakers should reckon with the significance of DFL and use social media to promote financial literacy among the younger generation. The absence of a significant positive age impact on DFL highlights the disparity between the determinants of DFL and financial literacy in general.

This paper has laid the groundwork for understanding the importance of DFL and exploring the factors that influence DFL. Due to the widespread use of digital financial products and services in recent years, this study commends that DFL should be included as part of financial literacy measurement, on top of numeracy skills, fundamental economic concepts, and risk management knowledge. This study is limited as only seven predictors (*FKS, PL, gender, age, PRI, PEI, and SMI*) assessed. Future research endeavour should examine other imminent aspects that may enhance one's DFL.

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