Role of Digital Financial Literacy and Digital Financial Behavior on Financial Well-being in Indonesia

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ABSTRACT
In the current digital financial era, this research explores the important and relevant impact of the lack of welfare of Indonesian society in facing digital financial transformation. With the aim of improving people’s financial welfare, this research focuses on digital financial literacy and digital financial behavior. Using the Theory of Planned Behavior (TPB) from a financial perspective, this research seeks to provide an in-depth understanding of how digital financial literacy and digital financial behavior can help improve people’s financial welfare. This research uses a quantitative approach by distributing questionnaires to workers in JABODETABEK. This research model uses Partial Least Square - Structural Equation Modeling (PLS-SEM) via the SmartPLS application. It is hoped that the research results can help the government, practitioners or policy makers in improving the financial welfare of the Indonesian people. The findings in this study show that workers in the JABODETABEK area that DFL influences DFB and FWB FS. Then DFB influences FWB FS. However, DFL has no effect on FWB FA and DFB FA.

Keywords: 
Financial Well-Being
Digital Financial Literacy
Digital Financial Behavior
Theory of Planned Behavior

1. INTRODUCTION
Currently, Indonesia has entered and is entering an all-digital era which is increasingly dominating people's lives which are closely related to technology as a medium to support their activities. Moreover, the Covid-19 Pandemic situation in 2020 further encouraged the acceleration of digital transformation in Indonesia [1]. Thus, there is also an increase in meeting needs through digital services such as online shops (e-commerce) and there is also innovation with digital payments using mobile banking or companies providing digital financial services (financial technology) [1].

The development of Indonesia’s digital economic technology is also supported by the increasingly rapid innovation of the digital financial system in Indonesia, especially in the variety of payment instruments and digital financial products, such as internet banking, digital wallets (e-wallets), mobile banking, and QR Code usage has increasingly become dominant in Indonesia. This is supported by data published by the Financial Services Authority (OJK) through public education in Trimester 3 of 2020 that the payment method that is
predominantly used in Indonesia is e-wallet at 81%.

Based on data submitted by Bank Indonesia, there has been growth of 158% in the last 5 years, namely 2018 to 2023, in digital banking transactions in Indonesia. Then Indonesia will be the country with the highest level of digital economy in Southeast Asia in 2022, based on studies from Google, Temasek, Bain and Company, namely US$77 billion or around IDR 1,155 trillion (exchange rate IDR 15,000). Not only that, Indonesia has become a part of the digital economy market in Southeast Asia.

This can be seen from the activities of Indonesian people who like to shop online for various needs. According to research by Google et al, the e-commerce sector plays a large role in the value of Indonesia’s digital economy.

However, the phenomenon of increasing use of digital financial technology and even though digital financial services are increasingly showing positive trends, there are problems that should not be ignored, namely those related to financial literacy. Based on the 2022 National Survey of Financial Literacy and Inclusion (SNLIK), Indonesia’s financial inclusion level is 85.10, but financial literacy is still 49.68% and this is considered low. With a lower level of financial inclusion compared to financial literacy, this can have a negative impact on digital finance users.

Insufficient financial literacy will lead to the potential for unwise financial decisions, such as taking on debt without taking into account the interest, or investing without considering the potential for loss. Apart from that, understanding financial literacy related to poor management of digital financial services will make users vulnerable to illegal loans, fraud and loss of funds [2].

Due to a lack of understanding about digital finance, reports from the Financial Services Authority (OJK) show that the value of uncollectible online loans (pinjol) nationally has reached IDR 1.53 trillion in August 2023. These uncollectible online loans are measured by the default rate (TWMP) exceeds 90 days, which means that the loan is considered problematic if the payment is delayed more than 90 days after the due date.

This is certainly a deep sorrow and an example of low digital financial literacy. Defaulting on online loans often results in terror and theft of personal data, highlighting the complexity of issues related to security and privacy in online transactions [43]. Motives for default can originate from deliberate intent, consumptiveness, or financial limitations, all of which contribute to significant default rates [43]. Competition at the cost level can also influence the potential for default, with increased costs increasing the risk of default [15].

So the importance of financial literacy has been chosen as the focus of attention in various developed and developing countries. Financial literacy is not only considered an important life skill, but also a critical intellectual competency [21]. The level of financial literacy of an individual or family can have an impact on the ability to have long-term savings, fulfill higher education, and prepare for retirement funds [5]. Financial literacy also plays an important role in helping someone read investment opportunities, avoid financial problems, and improve life welfare [48].

Studies show that financial literacy has a significant moderating impact, emphasizing the importance of jointly learning from media and financial literacy to increase individual stock market participation [44]. The importance of financial literacy can also be seen in its influence on the profitability of MSMEs, where financial education is expected to help Indonesian people manage their finances intelligently [13]. Apart from that, financial literacy also plays a role in increasing the initiative of micro business actors regarding the urgency of financial information, so that they can manage their business activities better [11].

Financial literacy also has a positive impact on the sustainability of micro, small and medium enterprises, especially in the fashion sector [42]. Apart from that, financial literacy is also considered the strongest factor in determining a person’s debt level [28]. Thus, financial literacy has a very important
role in helping a person or community manage finances wisely, make the right investment decisions, and improve overall welfare.

Based on the results of research conducted by [20], financial literacy has a positive and significant influence on financial well-being. Financial behavior has a positive and significant effect on financial well-being. So based on the phenomena, problems and results of previous research, this research wants to test "The Influence of Digital Financial Literacy and Behavior on the Financial Well-Being of Jabodetabek Workers in Using Digital Financial Services".

Therefore, it is hoped that this research can contribute to better understanding digital financial literacy and behavior among workers in the JABODETABEK area and will provide valuable insights to researchers, practitioners and policy makers to improve digital financial literacy and behavior in society. In addition, identifying the main challenges and opportunities in improving the financial well-being of workers in the JABODETABEK area in the use of digital financial services will enable more effective and optimal use of these services.

2. LITERATURE REVIEW

2.1 Grand Theory

The Theory of Planned Behavior (TPB) is a model that has the most significant influence in explaining human social actions [3]. TPB is an extension of the Theory of Reasoned Action (TRA) built by [3]. Joo & Grable (2004) link behavioral problems to financial problems; A person's attitude and actions towards finances are called financial actions.

This theory assumes that a person's attitude does not only depend on personal control, but also requires the availability of certain resources and skills. TPB theory describes how behavior is influenced by individual responses to their ability to display behavior [45].

The Theory of Planned Behavior results that an individual's actual actions are directly influenced by behavioral intentions, which are also influenced by attitudes and control responses to that behavior.

The relationship between TPB theory and this research is to explain how a person's actions are influenced by self-control abilities. This theory illustrates that a person's behavior is not completely determined by internal factors alone, but is also influenced by various psychological factors which play an important role in shaping that behavior. This is the basis for the link between financial well-being and financial behavior, which is also influenced by psychological factors that influence it.

2.2 Financial Well-Being

Having control over money (money management) is vital, because this involves managing funds in daily activities with the aim of achieving financial prosperity. Financial welfare according to the Consumer Financial Protection Bureau quoted from a journal written by [52].

States that financial well-being is conceptually explained as an individual's opinion about daily financial situations, the strength to face short-term financial crises, opinions about the ability to achieve financial goals, and flexibility in making financial decisions, choices and activities and services provided. relating to free time and recreation [52]. Based on [8], [51], financial well-being refers to an individual's ability to fulfill their current and future financial obligations by controlling themselves, so as to achieve a prosperous life that is financially and emotionally balanced.

Stated that financial well-being is significantly influenced by the ability to manage finances independently, attitudes towards finances, financial knowledge, financial behavior, and locus of control, in their research, shows that financial literacy is influenced by self-control, financial behavior and self-control. Meanwhile, according to [31], indicators of financial well-being can be divided into two aspects, namely financial anxiety and financial security.

2.3 Digital Financial Literacy (10pt)

According to research conducted by [36], [46], financial literacy refers to a person's skills...
in reading, analyzing and making decisions related to finances in an effective and efficient way, in order to achieve financial prosperity. Digital financial literacy, according to the definition of [32], refers to a person's level of understanding of all aspects of financial literacy related to digital technology. According to [39], the younger generation are gullible consumers because they do not have sufficient literacy skills to make important financial judgments.

According to research conducted by [38], a person’s social characteristics have a significant influence on their level of digital financial literacy. They also found that a person’s income and education level significantly influence their level of digital financial literacy.

Financial literacy has been recognized as a sustainable financial well-being strategy for individuals in the dynamics of changing financial market conditions and demographics, economic environment, and regulations for individuals and families in the US, according to the Financial Literacy and Education Commission based on journals cited by [52].

According to research conducted by [27], digital financial literacy has a positive and significant impact on digital financial behavior. Meanwhile, according to research conducted, financial literacy has a positive and significant influence on financial well-being.

Based on what has been explained previously, this research examines digital financial behavior as a factor that determines financial anxiety and financial security as well as a mediating factor between the two. Based on this, the hypothesis proposed in this research is:

**H4: There is an influence of digital financial behavior on financial anxiety**

**H5: There is an influence of digital financial behavior on financial security**

**H6: Digital financial behavior significantly mediates the relationship with digital financial literacy and financial anxiety**

**H7: Digital financial behavior significantly mediates the relationship with digital financial literacy and financial security**

Based on this theoretical basis, the conceptual framework for this test can be seen in Figure 1

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2.4 Digital Financial Behaviour

Based on research conducted by [40], financial behavior is a person’s ability to plan, budget, control, use, search for and also save finances in daily activities. According to [18], financial behavior refers to a person’s or household’s ability to manage their financial resources, including making a budget for investment, insurance and savings.

According to [27] financial behavior is a combination of behavior and finance, which includes individual or family financial planning, starting from budgeting and spending to long-term goals. A healthy financial balance can be maintained through spending and saving habits that are consistent and in line with healthy financial practices (Damian et al., 2020).

Economic socialization, financial literacy, financial confidence, and financial attitudes have a positive influence on financial well-being by influencing financial behavior variables as mediators [40]. Research by [29], is convincing with evidence of the influence between financial behavior and financial well-being. And according to research found by [7], financial well-being has a positive and significant effect on financial behavior.

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3. METHODS

This research uses quantitative research methods by utilizing primary data sources collected through questionnaires distributed via the Google Form platform, as well as distributed via the WhatsApp, Instagram applications, and also given directly. The focus of this research is on financial well-being, and the research subjects are workers in the Jakarta, Bogor, Depok, Tangerang, Bekasi (JABODETABEK) areas with an age range of 18 to 45 years during the research period from March to April 2024.

The total population in the age range of 18 to 45 years in the JABODETABEK area is not yet known with certainty, but this research used a sample of 125 respondents. The samples taken in this research used the Non Probability Sampling method, namely using an emphasis on the use of purposive sampling. Purposive sampling is applied when the population size is not known with certainty. This technique was chosen because there is no certainty regarding the population size in the JABODETABEK area in the age range 18-45 years, so this research refers to the formula explained by [16] to determine the number of samples needed.

The Hair formula was used because there was no certainty regarding the population size and they suggested that the optimal sample size was 5 to 10 times the number of indicator variables in the study [16]. In this study, the number of question indicators was 25 questions, with eight (8) question indicators on the Digital Financial Literacy variable, ten (10) question indicators on the Digital Financial Behavior variable, and seven (7) question indicators on the Financial Wellbeing variable.

The data collection method in this research relies on the use of a questionnaire as an instrument to measure each variable being studied. The questionnaire consists of 25 statement items given to respondents based on their individual preferences. All items in the questionnaire cover all indicators of the variables investigated in this research.

This research applies data analysis techniques that focus on the relationship between the independent variable (X) and the dependent variable (Y), with the variable (Z) acting as a mediator between the two. Analysis was carried out using the Partial Least Square - Structural Equation Modeling (PLS-SEM) method using the SmartPLS application.

The data analysis approach used is cross-sectional, which means data was collected through questionnaires at the time the research was conducted, namely in March-April 2024. The data was then analyzed to test both the outer model and the inner model. The purpose of this step is to understand whether there is a relationship between variables and to ensure the consistency and accuracy of the measured data.

The outer model analysis used in this research includes Composite Reliability, Convergent Validity, and Discriminant Validity. Composite Reliability aims to evaluate the reliability of latent variables in influencing indicator variables. In contrast to Cronbach's alpha, Composite Reliability does not assume that all indicators have the same level of confidence, so it is more suitable for use in PLS-SEM which pays attention to indicator reliability when estimating the model. The Composite Reliability value should ideally be in the range of 0.60 to 0.70 in explanatory research [17].

Convergent Validity occurs when two different measuring instruments, but measuring the same concept, show a high correlation [37]. Convergent Validity is considered fulfilled if the Average Variance Extracted (AVE) is greater than 0.50 for each indicator, according to [17]. Discriminant validity is achieved when two variables that should be unrelated according to theory, turn out to be uncorrelated in empirical measurement.

There are several ways to determine validity, as mentioned by [37]. One of them is the Fornell–Larcker criterion, where the AVE of each latent construct must be greater than the highest squared correlation of that construct with other latent constructs. In addition, the loading of an indicator must
exceed its cross loading with other variables [16].

Meanwhile, the inner model analysis used in this research is Path Analysis and TStatistics (Hypothesis). Path Analysis is a technique that is useful for evaluating relationships between variables, namely latent variables and observed variables. This model is a model with multiple regression that is estimated simultaneously, which can take the form of mediation, moderation, or interaction between variables [10].

The aim of Path Analysis is to measure the extent of the structural relationship between the specified latent variables and the observed indicators [10]. In Path Analysis, PLS there are two linear equations that formally describe the path model. The outer model identifies the relationship between hidden variables and observed variables, while the inner model determines the relationship between hidden variables [19].

T-statistics are used to test hypotheses in statistical analysis. The alpha value is generally 5% or 0.05 (p < 0.05), with the expected t-statistic value being 1.96. If the t-statistic value in hypothesis testing exceeds 1.96, then the hypothesis criteria are considered fulfilled.

4. RESULTS AND DISCUSSION

4.1 Respondent Demographics

Respondent data collected through a questionnaire of 100 people has been presented in Table 1 which details the demographics of respondents, such as gender, age, income, occupation, location, sector/field of work, length of service, and monthly income expressed in millions of rupiah. In this analysis, the number of male respondents reached 51 (51%), while the number of women reached 49 (49%).

The majority of respondents were aged between 18 and 25 years, consisting of 61 people (61%), while the majority of respondents’ most recent education was high school or bachelor’s degree, each with 47 people (47%). Most of the respondents work in Tangerang, namely 42 people (42%), with the majority having a working period of less than 1 year and the highest monthly income being in the range of 3-5 million rupiah.

Table 1. Respondent Demographics

<table>
<thead>
<tr>
<th>Gender</th>
<th>Occupation</th>
<th>Level of Field of Work</th>
<th>Respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51</td>
<td>47</td>
<td>49</td>
</tr>
</tbody>
</table>

4.2 Measurements/Outer Model

The measurement model is created by formulating correlations between hidden construct variables which are measured using several indicators. Evaluation of the validity and reliability of each indicator for each hidden variable is shown in Table 2. In this study, indicators that have a loading factor value below 0.5 will be deleted, while those with a value of more than 0.5 will be retained.

There are seven indicators with load factor values below 0.50, namely DFL 1, DFL 5, DFB 1, DFB 2, DFB 3, DFB 4, and DFB 9. These indicators are considered not to meet the requirements for convergent validity. As a result, the researchers decided to adjust the model by gradually removing the seven indicators, then recalculating them using the SmartPLS4 application. Thus, all indicators meet the convergent validity criteria without any variables being removed from the model.

4.3 Factor Loadings

Factor loading determines validity above 0.5 Average Variance Extracted (AVE) and Cronbach’s alpha determines reliability above 0.6. The R Square test is to find out to what extent the dependent variable can be explained by the independent variable. Digital Financial Behavior is influenced 0.189
by financial literacy. Financial Literacy 0.024 can be explained by DFL & DFB which can be explained by variables outside this. Financial Literacy can be explained by DFL & DFB by variables outside this.

Table 2. Outer Model

| Construct | Indicator (Digital Financial Literacy) | Factor Loading | AVE | CR
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>DFL</td>
<td>0.906</td>
<td>0.573</td>
<td>0.725</td>
<td></td>
</tr>
<tr>
<td>DFB</td>
<td>0.762</td>
<td>0.514</td>
<td>0.734</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Coefficient

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Original</th>
<th>t-Statistics</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>0.798</td>
<td>3.208</td>
<td>0.001</td>
</tr>
<tr>
<td>H2</td>
<td>0.600</td>
<td>1.500</td>
<td>0.129</td>
</tr>
<tr>
<td>H3</td>
<td>0.582</td>
<td>1.400</td>
<td>0.156</td>
</tr>
<tr>
<td>H4</td>
<td>0.482</td>
<td>1.000</td>
<td>0.309</td>
</tr>
<tr>
<td>H5</td>
<td>0.382</td>
<td>0.700</td>
<td>0.456</td>
</tr>
<tr>
<td>H6</td>
<td>0.282</td>
<td>0.400</td>
<td>0.656</td>
</tr>
<tr>
<td>H7</td>
<td>0.182</td>
<td>0.200</td>
<td>0.809</td>
</tr>
</tbody>
</table>

Hypothesis testing is carried out after verifying that the research model is considered good or appropriate. The PLS-SEM method is nonparametric, so bootstrapping is carried out on the data to estimate standard errors and calculate confidence intervals [17]. Thus, bootstrapping can overcome the problem of non-normality in research data. This research follows the explanation of [17] that the bootstrap process produces t values in the form of T-Statistics using the open source software R Studio with the SEMinR package.

The T-Statistic value is then compared with the critical value of the significance level to determine whether the hypothesis can be accepted or rejected based on the significance of the direction of influence of the path coefficient. This study uses a significance level of 5%, and if the T-Statistic value is > +/-1.960 (two-sided test), then the direction of influence of the path coefficient is considered significant. Research hypotheses can be accepted or rejected based on these criteria.

The results of statistical hypothesis testing on the seven hypotheses formulated in this research are shown in Table 4, and all of them were accepted. In detail, the direction of influence (path coefficient) between construct variables resulting from various hypotheses, both hypotheses one, three, five and seven, shows a positive influence.

On the other hand, hypotheses two, four, and six show a negative influence. Even though the direction of influence of each hypothesis is different, the T-Statistic value for all hypotheses is > +/- 1.960, in accordance with the direction of influence of each hypothesis, showing consistent significance. Therefore, all research hypotheses are accepted or rejected based on these criteria.

5. CONCLUSION

Based on the results of the variable testing that has been carried out, the researchers obtained results namely that Digital Financial Literacy influences Digital Financial Behavior. This is supported by research conducted by [27] which states that digital financial literacy has a positive and significant effect on digital financial behavior. Then, this research shows that Digital Financial Literacy has no effect on Financial Anxiety. This is supported by research conducted by [27] which stated the same thing.

Furthermore, Digital Financial Literacy has an influence on Financial Security. This is also supported by research conducted by [40], in their research which proves that financial literacy, financial confidence, and financial attitudes have a positive effect on financial well-being by influencing financial behavior variables as mediators, and in this research financial well-being is represented by financial security. Also, Digital Financial Behavior has no effect on Financial Anxiety. This is also supported by research conducted by [27] with similar research results.

In this study, DFB has a positive and significant impact on financial security. This indicates that behaviors such as making ends meet, paying bills, and saving digitally can increase a person's financial stability. Further explanation highlights that wise financial behavior can increase a person's sense of financial security. When someone is used to
managing their finances digitally, they have experience in choosing the best strategy to manage their finances. Managing finances better can provide a sense of financial security by ensuring immediate needs are met and creating reserves for unexpected expenses.

Additionally, good financial behavior allows individuals to focus on planning their financial future rather than dealing with current financial challenges. Therefore, financial security is more guaranteed when individuals are familiar with digital financial behavior. These findings are consistent with other studies showing that digital financial behavior has a positive impact on financial security [27].

Research shows that DFB does not have a significant influence as a mediator between digital financial literacy and financial anxiety. This is in line with the previous hypothesis which shows that digital financial literacy does not influence financial anxiety, nor does digital financial behavior. These findings also support the research results of, which stated that financial literacy does not have a significant impact on financial well-being. According to [31], financial literacy allows individuals to manage and maintain their financial condition by choosing appropriate strategies. The research noted that the majority of respondents came from the technology, industrial and financial sectors, who may not experience financial anxiety due to their stable financial situation.

Research findings show that the DFB plays a mediator role in influencing financial security through digital financial literacy. This is in line with the previous hypothesis which states that digital financial literacy influences financial security, as well as digital financial behavior. Financial literacy helps individuals make the right decisions and increases confidence in managing budgets, expenses, savings, and the use of financial products and services. Additionally, individuals who have a high level of financial literacy tend to be more active in stock market investments and plan their retirement better, which ultimately improves their financial well-being. This finding is consistent with research by [27], who show that financial behavior acts as a mediator between financial literacy and financial security. Financial literacy, which includes knowledge and skills regarding digital financial instruments and the ability to use them safely, plays a crucial role in shaping individuals' financial behavior. These behaviors, ultimately, affect a person's level of financial well-being and security.

REFERENCES


