The Impact of Digital Literacy on Fintech Service Usage Through Financial Literacy

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Abstract. The Covid-19 pandemic and lockdown have accelerated the pace of digital technology adoption and fintech services usage. Digital and financial literacy are needed to support the development of fintech services. This research proposes to study the influence of digital literacy on fintech services usage through financial literacy on college students. The data were collected through a questionnaire filled out by 165 respondents consisting of undergraduate students and postgraduate students and processed using SmartPLS statistics software. The variables used are digital literacy, financial literacy, and fintech service usage, and a moderator variable is education level. The result of the study is that the influence of digital literacy on fintech services usage through financial literacy is positive and significant. Similarly, the effect of digital literacy on financial technology usage moderated by education level is positive and significant. Therefore, introducing digital literacy and financial literacy in class subjects is needed so the students can take optimal benefits from the development of fintech.

1 Introduction

The development of fintech in recent years has been very rapid. During the Covid-19 pandemic, when people stayed home due to the lockdown policy, their financial transaction needs could be overcome using fintech services. The Covid-19 pandemic and lockdown have accelerated the pace of digital technology adoption, including the rapid development of Fintech services. Users from the business, government, and academia segments see an opportunity to minimize the negative impact of the pandemic by adapting digital technology [1].

FinTech developments drive a global trend in the banking sector to reduce branch offices. Banking products and services that overlap with products and services provided by competitors from the Fintech sector are vulnerable to being taken over by FinTech companies [2]. People today are familiar with using the services of fintech companies, such as making payments online and so on. The government is trying to improve digital literacy to support the use of good fintech services.

The Indonesian government has established digital literacy as the main issue that will become a benchmark to prepare its people to face the new reality in the digital era. Information technology has brought many benefits and advancements to human life. Using computers, including gadgets and the internet, has helped facilitate various work and daily activities. The Ministry of Communication and Informatics measures the 2021 Indonesia Digital Literacy Index. The Indonesia Digital Literacy Index 2021 reached 3.49 on a scale of 1-5; the index value increased from the previous year to 3.46.

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Digital literacy is essential for Internet adoption and information effective use in the digital space. Evidence from developing countries confirmations that technology digital deliver access to valued information about jobs, financial services, markets, education, and health [3]. Digital literacy is related to financial ability, where the low-income category has a low digital literacy score; however, the digital literacy score increases as the income category rises. People with higher incomes are more likely to be connected to the internet and have sufficient digital literacy to use them effectively [4].

The increase in the level of domestic financial literacy has been a concern for the government in recent years; a national-scale survey conducted by the Financial Services Authority on a triennial basis show that in 2022 the financial literacy index is 49.68 percent, an increase from the 2019 financial literacy index of 38.03 percent. The government is aggressively creation several efforts to increase public understanding and as well access to the financial sector.

Fintech first appeared in the early 1990s, along through the advance of the internet. Fintech company work as financial intermediaries by taking advantage of technological advances and new business models to improve operational procedures in providing goods and services. Fintech can provide financial services that are more transparent, cost-effective, and consumer-friendly. Besides that, it is also considered to revolutionize the financial industry by challenging financial service providers that have existed for a long time, such as financial services companies, banking, investment companies, and insurance [5].

Financial Literacy affects the decision to use financial technology. Decisions in managing finances are
supported by a person's knowledge of finance and decision-making ability in managing his finances [6]. Increasing the paybacks of financial inclusion through fintech company will work if user consider the risks of using digital networks. For instance, digital literacy for public must be increased to keep them from probable digital fraud when conducting technology-based financial transactions [7].

Using data from the 2014 S&P (Standard & Poor's) Global Financial Literacy Survey, it is known that the average financial literacy for young adults between the ages of 15 and 35 years is 35%; young adults drive this result from developing economic countries. The financial literacy level of a Southeast Asian country, namely Vietnam, is 24% of participants surveyed are financially literate. Other countries' financial literacy levels are Singapore (59%), Malaysia (36%), Myanmar (52%), Indonesia (32%), Thailand (27%), Philippines (25%), and Cambodia (18%). Low financial literacy poses a challenge for the government because, with low financial literacy, they do not have adequate financial knowledge, so they are not optimal in utilizing digital access to financial products and services [8].

The phenomenon of the fintech industry sector, which has experienced high growth in recent years, and the increased interest of college students in utilizing Fintech services have stimulated researchers to explore digital literacy supported by financial literacy that has an impact on fintech usage services amid college students. The study is projected to contribute to rising research on using fintech services in college students.

**Literature review**

Financial technology (Fintech) is a digital framework that includes artificial intelligence, big data, cloud computing, augmented reality, and biometric technology [9]. As a combination of financial services and technology, fintech can make people's daily activities more accessible and comfortable [10]. Fintech has become a driving force for the development of the financial industry and economic progress in various countries in the world in recent years. Innovative Fintech services have attracted people's interest; Fintech services are cost-effective and user-friendly [11]. Fintech is rapidly revolutionizing the financial services industry and building the next generation of financial tools. Fintech company services have the potential to enhance financial knowledge and capabilities by simplifying and streamlining financial services processes [12].

Fintech has introduced a new technology trend among college students, providing fast, secure, and accessible financial transactions [13]. The development of Fintech has given rise to various new and innovative financial products and services. Fintech services allow users to carry out transaction activities via mobile devices in a cashless manner. The term Fintech is broadly integrated with operational technologies used by financial institutions [14]. Fintech industrial sectors are divided into digital banking; capital markets innovations; money transfers and payments; wealth managers digital; fintech lending; PropTech (property service related); equity crowdfunding; and InsureTech (insurance services related) [15].

Digital literacy is an individual's awareness, ability, and attitude to use a digital device properly and utilize digital resources to communicate and acquire new knowledge to achieve constructive action. Digital literacy is an essential aspect in the context of using modern technology [16]. Digital literacy is not only about functional computer knowledge, but digital literacy refers to a series of skills and competencies related to information technology and computers [17]. Digital literacy is becoming an essential skill for college graduates and helping graduates to have the increasing competitiveness needed to achieve success [18].

Fintech users need a high level of financial literacy to use fintech services effectively and avoid fraudulent attempts such as phishing, unauthorized use of data, hacking attacks, and behavioral problems such as excessive online lending [19]. Financial literacy is divided into three categories: first, financial literacy can be explained as basic knowledge related to financial fundamentals, such as saving, borrowing, protection, and investing. Second, it can refer to the ability to apply and go beyond knowledge of basic financial concepts. Third, based on subjective financial tests can be measured the level of financial literacy [20].

The research framework and hypotheses are presented in Figure 1.

![Research framework](image)

**Fig. 1.** Research framework.

**Hypotheses 1 (H1):** There is an effect of Digital Literacy on Fintech Services Usage Through Financial Literacy.

**Hypotheses 2 (H2):** There is an effect of Digital Literacy on Fintech Services Usage Moderated by Education Level.

**Research methods**

The population in this study was Bina Nusantara University students. Sampling used purposive sampling, a sampling technique based on the researcher's considerations about which samples are most appropriate and considered to represent a population. This study collected data from questionnaires distributed to undergraduate and postgraduate students from Bina Nusantara University. The Likert scale used on the questionnaire is strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The research objects
are Digital Literacy, Financial Literacy, Fintech Services Usage, and Education Level.

Digital literacy is an individual’s awareness, ability, and attitude to use a digital device properly and utilize digital resources to communicate and acquire new knowledge to achieve constructive action. Digital Literacy indicators measurement: Data Transmission (DL1), Information Communication (DL2), Digital Learning (DL3), Advanced Tools (DL4), General Configuration (DL5), Access Memory (DL6), and Software Application (DL7) [21-23].

Financial literacy is basic knowledge of financial fundamentals and the ability to apply basic financial concepts. Financial Literacy indicators measurement: Financial skill (FL1), Financial Knowledge (FL2), Interest Rates (FL3), Inflation Rates (FL4), Risk Diversification (FL5), Financial Management (FL6), Risk Return (FL7), Personal Budgeting (FL8) [24-27].

Fintech Services Usage relates to the experience of service users on fintech company platforms. Fintech Services Usage indicators measurement: Perceived Usefulness (FTU1), Ease Use (FTU2), Perceived Risk (FTU3), Access Features (FTU4), Service Reliability (FTU5), User Needs (FTU6), Trust (FTU7), Intention (FTU8), User friendly (FTU9), Service Provided (FTU10) [28-31].

The data collected from the respondents were then processed as structural equation modeling data using SmartPLS. The number of respondents was 165 college students consisting of 74 (44.85%) undergraduate students and 91 (55.15%) postgraduate students from Bina Nusantara University. Respondent data based on male gender 105 (63.64%) and 60 (36.36%) females. The Fintech services used by respondents are presented in Table 1.

Table 1. Types of fintech services used by respondents.

<table>
<thead>
<tr>
<th>Types of services</th>
<th>Users</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital market innovations</td>
<td>5</td>
<td>3.03</td>
</tr>
<tr>
<td>Digital banking</td>
<td>95</td>
<td>57.58</td>
</tr>
<tr>
<td>Equity crowdfunding</td>
<td>2</td>
<td>1.21</td>
</tr>
<tr>
<td>Fintech lending</td>
<td>4</td>
<td>2.42</td>
</tr>
<tr>
<td>Money transfer and payments</td>
<td>59</td>
<td>35.76</td>
</tr>
<tr>
<td>Total</td>
<td>165</td>
<td>100.00</td>
</tr>
</tbody>
</table>

The analytical methods used in this research are multivariate analysis. Multivariate analysis was used to analyze the relationship between the variables used in this study, namely Financial Literacy, Digital Literacy, Fintech Services Usage, and Education Level, as moderator variables. Structural Equation Modelling (SEM) contains of the inner model or structural model and outer model or measurement model. The outer model or measurement model provides measurements from the observed variables that representative of latent variables. The outer model consists of validity tests and reliability tests. The validity test uses the benchmark value of factor loadings with a criteria value higher than 0.60. The Reliability tests usage benchmark Cronbach Alpha criteria value for respectively variable higher than 0.7 and for Composite Reliability benchmark value higher than 0.70.

The inner models (structural model) provide a robust estimation relationship between latent variables. The inner model discussion consists of the coefficient of determination (R2), predictive relevance test (Q2), Goodness of Fit test (GoF), and hypothesis test. The coefficient of determination (R2), is used to measure the capability of the research model to describe how the effect of independent variables simultaneously impact the dependent variable. The value of (R2), is 0.25 means weak, 0.50 means moderate, and 0.75 means strong.

The Predictive relevance tests (Q2) show research model predictive capabilities. The value of Q2 > 0 indicates research model prediction accuracy is acceptable. The value of Q2 or predictive relevance is attained using the blindfolding method and cross validated redundancy. The formula for calculating value of predictive relevance tests is $Q^2 = 1 - SSE/SSO$. The criteria used on the predictive relevance test value 0.35 is large, medium predictive relevance is 0.15, and small predictive relevance is 0.02.

The Goodness of Fit test or GoF gives an idea of how strong the theoretical structure obtained from research data can represent its reality. The Goodness of Fit values $0 \leq$ GoF $\leq 1$ by the criteria small Goodness of Fit value of 0.10, a Goodness of Fit value of 0.25 is medium, and a Goodness of Fit value of 0.36 is large. The hypothesis test uses a value of alpha 5 percent or p-value 0.05. The criteria of H0 or hypotheses null is rejected if the p-value less than 0.05.

Research results

The data obtained from the respondents were then processed using SEM (Structural Equation Modeling) method with the support of data processing using SmartPLS software. When conducting structural equation modeling analysis, inner model and outer model analysis are carried out. The outer model or measurement model is based on validity test and reliability test. The validity test results showed that questionnaire indicators meet the validity criteria with a value higher than 0.60 and value Average Variance Extracted (AVE) higher than 0.50. The result of validity test is presented in Table 2.

Table 2. Factor loadings test results.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Factor Loadings</th>
<th>Factor Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL1</td>
<td>0.60</td>
<td>FL7 0.70</td>
</tr>
<tr>
<td>DL2</td>
<td>0.73</td>
<td>FL8 0.72</td>
</tr>
<tr>
<td>DL3</td>
<td>0.63</td>
<td>FTU1 0.69</td>
</tr>
<tr>
<td>DL4</td>
<td>0.61</td>
<td>FTU2 0.68</td>
</tr>
<tr>
<td>DL5</td>
<td>0.77</td>
<td>FTU3 0.77</td>
</tr>
<tr>
<td>DL6</td>
<td>0.63</td>
<td>FTU4 0.73</td>
</tr>
<tr>
<td>DL7</td>
<td>0.71</td>
<td>FTU5 0.71</td>
</tr>
<tr>
<td>FL1</td>
<td>0.72</td>
<td>FTU6 0.79</td>
</tr>
<tr>
<td>FL2</td>
<td>0.75</td>
<td>FTU7 0.80</td>
</tr>
<tr>
<td>FL3</td>
<td>0.75</td>
<td>FTU8 0.65</td>
</tr>
<tr>
<td>FL4</td>
<td>0.60</td>
<td>FTU9 0.82</td>
</tr>
<tr>
<td>FL5</td>
<td>0.79</td>
<td>FTU10 0.74</td>
</tr>
<tr>
<td>FL6</td>
<td>0.71</td>
<td>EL 1.00</td>
</tr>
</tbody>
</table>
Reliability tests using Cronbach's Alpha and Composite Reliability measurements, by the criteria value greater than 0.70 for Composite Reliability and Cronbach's Alpha. The reliability test outcomes showed that the study's variable met the reliability criteria with a value greater than 0.70. The reliability test results are presented in Table 3.

Table 3. Reliability and validity test result.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach's Alpha</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Literacy</td>
<td>0.79</td>
<td>0.85</td>
<td>0.50</td>
</tr>
<tr>
<td>Financial Literacy</td>
<td>0.87</td>
<td>0.89</td>
<td>0.52</td>
</tr>
<tr>
<td>Fintech Services Usage</td>
<td>0.91</td>
<td>0.92</td>
<td>0.55</td>
</tr>
</tbody>
</table>

In the discussion of the inner model, conducted hypothesis test, predictive relevance test (Q²), Goodness of Fit test (GoF), Effect Size test or f-square, and coefficient of determination (R-square). Based on the data processing results for the inner model presented in Figure 2, the coefficient of determination or R-square for the variable Financial Literacy (FL) is 0.334. The results interpreted that Financial Literacy (FL) variable explained the variability of Digital Literacy (DL) and Fintech Services Usage (FTU). The outcomes show that the variable of Fintech Services Usage (FTU) described by the variability of Digital Literacy (DL) and Financial Literacy (FL) is 41.2%, and other variables outside the study explain the rest.

The hypothesis test result for Hypothesis 2 has a path coefficient value of 0.12 and a p-value of 0.04. The decision is accepted for hypothesis 2, with the result that Digital Literacy influences Financial Technology Usage Moderated by Education Level. Education Level as a moderating variable has a positive effect on variable Digital Literacy and Fintech Services Usage. The results of the hypothesis test are presented in Table 4.

Table 4. Hypothesis test.

<table>
<thead>
<tr>
<th>Description</th>
<th>Path Coefficient</th>
<th>P-Value</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis 1 (H1)</td>
<td>0.22</td>
<td>0.00</td>
<td>Positive and Significant</td>
</tr>
<tr>
<td>Hypothesis 2 (H2)</td>
<td>0.12</td>
<td>0.04</td>
<td>Positive and Significant</td>
</tr>
</tbody>
</table>

Conclusion

The development of digital literacy in Indonesia, according to the Indonesia Digital Literacy Index 2021, increased from the previous year. The results of the study show that digital literacy with the support of financial literacy has a positive and significant effect on fintech services usage. Digital literacy is needed to understand and use modern technology. Besides that, digital literacy can improve college graduates' abilities and help graduates have the required increasing competitiveness to achieve success.

Education level has a positive and significant effect in moderating the influence of digital literacy on fintech services usage. Digital literacy is required in the use of services provided by Fintech companies. With a better level of education, the knowledge about the services offered by Fintech companies is also improving. Users of Fintech services need knowledge of basic technology related to computers and finance through education in higher education.

The most widely used fintech services are digital banking and the next is money transfers and payments. Based on the type of Fintech service chosen, students use services that support the ease of transactions related to finance and banking. Financial literacy support is important so that the fintech services can be used properly. Introducing financial literacy in class subjects is needed as a form of socialization for students.

Based on the research results, the recommendation is the need for knowledge about digital literacy and financial literacy to be given as a course so that students can take optimal benefits from the development of fintech. The limitation of this study is that it only uses college student data. For further research, respondents of school age can
find fintech services usage among senior high school students.

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