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Do Demographic Factors Affect Digital Financial Literacy?

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Abstract: The purpose of this study is to determine the socio-economic influence on digital financial literacy. This research also focuses on differences in digital financial literacy by age category. The samples in this study are generation Z, millennials, generation X and baby boomers in Indonesia. The sample is selected using criteria and around 420 participants are selected as the sample of this study. The data is collected using a survey method with a questionnaire. Data analysis in this study was carried out using regression analysis to see the causal relationship between variables. Meanwhile, the one-way ANOVA test was used to see differences in digital financial literacy by age category. The results showed that age and education have a significant effect on digital financial literacy. Meanwhile, gender and income are not the factors that influence digital financial literacy. The findings also suggest that digital financial literacy differs based in the age group. This research suggests policy makers to consider digital financial literacy as part of the knowledge offered at schools or universities and use a a different program to promote digital financial literacy in each age group.

Keywords: Digital Financial Literacy; Demographic Factors; Gender; SEM; AMOS; ANOVA

Introduction

According to (Tony & Desai, 2020), digital financial literacy is a combination of two aspects, namely, financial literacy and digital platforms. According to (P. J. Morgan, Huang, & Trinh, 2019) there is no standard definition of digital financial literacy and digital financial literacy is a multi-dimensional concept. (P. J. Morgan et al., 2019) mentions four dimensions of financial literacy, including knowledge of digital financial products and services, awareness of digital financial risks, knowledge of digital financial risk control and knowledge of consumer rights and compensation procedures. The existence of digital

technology makes financial services borderless where it is easier for individuals to gain access to financial products and services offered by other countries. *Fintech* provides product solutions for payment systems, savings, remittances, investments, trading, loans, insurance and small and medium enterprises (SMEs). Based on data from findex, it shows that in Indonesia, almost 77% of the Indonesian population has a mobile phone. Furthermore, 48% of them have accounts for banking and other financial services and 55% have connected shopping applications on their devices (Datareportal, 2020).

On the other hand, according to (Panos & Wilson, 2020) developments in financial technology can also undermine financial well-being by triggering impulsive consumer behavior when interacting with technology and financial platforms. With the ease of 'one-click-away' that can be done by consumers through their devices, excessive spending/spending behavior is also a challenge that will be faced by users of financial technology. Furthermore, the use of financial technology also helps finance the community through P2P-based applications (*peer to peer*) loans. However, the increased use of P2P lending is also accompanied by several challenges such as data leaks and restrictions, including personal data protection, personal data fraud, illegal financing, and product marketing ethics (Suryono, Budi, & Purwandari, 2021). Research from (Young & Nam, 2022) found that consumers who use digital payments have a higher risk of overspending in consumption. This research also found that individuals who have good financial literacy are more able to resist overspending when using digital payments. In addition to influencing consumption behavior, *fintech* also has an influence on saving behavior (Loaba, 2021). The convenience offered by fintech, such as reducing travel costs, increases the possibility of saving. This indicates that in use *fintech*, the level of digital financial literacy is also important because *fintech* can affect financial behavior. By knowing the contribution of digital financial literacy to fintech, excessive consumption behavior can be avoided and access to savings can be increased.

In relation to what influences digital financial literacy, socio-economic factors such as gender, age, education and income are believed to have quite a significant influence. Research from (Dzogbenuku, Amoako, Kumi, & Bonsu, 2021; Ghosh & Hom Chaudhury, 2020; Kulkarni & Ghosh, 2021; Prasad, Meghwal, & Dayama, 2018) shows that the use of digital platforms or digital finance is influenced by social- economy. The same is shown by (Aguilar-Díaz & Zagalaz- Jiménez, 2021; Bannier & Schwarz, 2018; Gilenko & Chernova, 2021; P. J. Morgan & Trinh, 2017; Nanziri, Lwanga & Olckers, 2017; Rink, Walle, & Klasen, 2021; Santini, Ladeira, Mette, & Ponchio, 2019; Setiawan, Effendi, Santoso, Dewi, & Sapulette, 2020; Tinghög et al., 2021) which reveals that financial literacy is related to a person's socio-economic characteristics. However, some of these studies have not shown consistent results, so knowing about the influence of socio-economic factors on digital financial literacy is still very relevant. Different to the previous studies, this study also tries to see how digital financial literacy differs between age groups.

By knowing how demography affects Digital Financial Literacy, policy makers are able to find ways to increase Digital Financial Literacy in those demographic groups that still have low literacy and maintain those that have adequate literacy. This article tries to shed the light on the effect of demographic factors such as, gender, age, education and income on the digital financial literacy in Indonesia. This study also contributes to the literatures relating to digital financial literacy in the emerging market.

Hypothesis Development

Digital financial literacy has a direct relationship related to online purchases, online payments through various modes and online banking systems (Prasad et al., 2018). Research from (Dzogbenuku et al., 2021) shows that customer experience in using digital payment systems differs by gender and age category. Furthermore, research from (Ghosh & Hom Chaudhury, 2020) suggests that the gender gap is still felt in the use of digital finance where women are still lagging behind men. This is in line with (Arora, 2020) which also states that the use of digital financial services by women is still low. This implies the possibility that digital financial literacy may be influenced by gender and age. As mentioned by (Tony & Desai, 2020) that financial literacy is a part of digital financial literacy, so to explain the relationship related to socio-economic factors, its relation to financial literacy can be used. Research from (Bannier & Schwarz, 2018; P. J. Morgan & Trinh, 2017; Santini et al., 2019) found that socio-economic factors such as gender, age, education and income are closely related to digital financial literacy. Therefore the hypothesis of this study are as follows:

- H1_a: Gender has an influence on the level of digital financial literacy
- H1_b: Age has an influence on the level of digital financial literacy
- H1_c: Education has an influence on the level of digital financial literacy
- H1_d: Income has an influence on the level of digital financial literacy
- H2: There are differences in the level of digital financial literacy by age category

Methods

The samples in this study are generation Z, millennials, generation X and baby boomers in Sumatera and Java. The criteria used in selecting the sample are people who are in the age category used and use digital financial services (such as e-wallets or internet/mobile banking) and use e-commerce. The data collection method in this study used a survey method with a questionnaire. The type of data used is primary data in the form of perceptions of research subjects. The survey was conducted online using a Google form. Questionnaire distribution is used through social media.

(Morgan et al., 2019) mentions four dimensions of financial literacy, including knowledge of digital financial products and services, awareness of digital financial risks, knowledge of digital financial risk control and knowledge of consumer rights and compensation procedures. In this study, digital financial literacy is measured through 11 indicators used by (Setiawan et al., 2020) which cover the four dimensions mentioned above. In this study, socio-economic factors will be measured by four indicators, including age, education, gender and income. For the age variable, the research sample will be divided into four groups; generation Z (born 1997-2012), millennial generation (born 1981-1996), generation X (born 1965-1980) and baby boomers (born 1946-1964). Gender uses a dummy variable, 1 for male and 0 for female. While education and income use categorical.

Data analysis in this study uses the regression analysis to measure the relationship between socio-economic factors and digital financial literacy. Meanwhile, One-way ANOVA will be used to see whether there are differences in the level of digital financial literacy based on age. The software used to perform the analysis is STATA13.

The validity and reliability tests in this study aim to determine the quality of the instruments from each of the research constructs. Confirmatory Factor Analysis (CFA) method is used to test the validity and reliability of each construct's instrument. Based on the validity results only 9 indicators of the construct *Digital Financial Literacy* that meet the criteria of convergent validity with value *loading* > 0.50 and *P-value* < 0.01, that is, while the other 2 indicators were excluded (DFE 1 and DFK1). The results of the internal consistency reliability test showed that the Composite reliability and Cronbach's alpha values for each latent in this study were above the value > 0.70 so that it could be concluded that the construct indicators in this study fulfilled internal consistency reliability.

Findings

Respondent Profile

This research is a study with individual analysis units. Demographic information on the respondents in this study is presented in Table 1 which shows that the majority of respondents were women (65%) and aged around 18-25 years (39%). Most of the respondents had a master's degree (42%) and had an income of less than Rp. 5,000,000 per month (55%).

Table 1. Respondent Profile

Characteristics of Respondents		Amount	Percentage
Gender	Man	148	35%
	Woman	272	65%
Age	18 - 25 years	164	39%
	26 - 41 years	117	28%
	42 - 57 years	100	24%
	58 - 76 years	39	9%
Education	SMA/SMK	82	20%
	Diploma	52	12%
	Masters	71	17%
	Magister	176	42%
	Doctor	39	9%
Marital Status	Not married yet	185	44%
	Marry	235	56%
Income	< Rp. 1,000,000	108	26%
	Rp. 1,000,000 - Rp. 3,000,000	60	14%
	Rp. 3,000,000 - Rp. 5,000,000	65	15%
	Rp. 5,000,000 - Rp. 7,000,000	78	19%
	Rp. 7,000,000 - Rp. 9,000,000	33	8%
	> Rp. 9,000,000	76	18%

The variables in this study consist of digital financial literacy and socio-economic factors, namely, gender, age, education and income. Table 3 presents the statistics descriptive of this study.

Table 2. **Statistics Descriptive**

Variable	Obs	Mean	Std. Dev.	Min	Max
DFL	420	3.179	0.803	1	5
Knowledge	420	3.211	0.862	1	5
Experience	420	2.855	0.925	1	5
Awareness	420	3.376	1.218	1	5
Skills	420	3.4880	1.066	1	5
Gender	420	0.352	0.478	0	1
Age	420	2.0333	1.000	1	4
Education	420	3.090	1.300	1	5
Income	420	3.228	1.804	1	6

Table 2 presents the statistics descriptive of the variables. DFL refers to digital financial literacy and the table also provides the dimensions of financial literacy such as knowledge, experience, awareness and skills. Based on the information above, the mean value of digital financial literacy is 3.179 indicating that the majority of the study sample have quite high digital financial literacy, above the median score of 2.5 and maximum score of 5.

Hypothesis Testing

Table 3. **Regression Results**

DFL	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
Gender	.117	.083	1.40	.163	-.047	.28	
Age	-.378	.062	-6.12	0	-.5	-.257	***
Education	.128	.046	2.77	.006	.037	.218	***
Income	.014	.031	0.46	.649	-.047	.075	
Constant	3.468	.098	35.54	0	3.276	3.66	***
Mean dependent var	3.180		SD dependent var		0.803		
R-squared	0.100		Number of obs		420		
F-test	11.537		Prob > F		0.000		
Akaike crit. (AIC)	972.346		Bayesian crit. (BIC)		992.547		

*** $p < .01$, ** $p < .05$, * $p < .1$

To test the first four hypothesis, regression analysis is used. Table 3 provides the regression results of the variables. It can be seen that demographic variables that affect digital financial literacy is age and education. Therefore, hypothesis H1_b and H1_c are accepted. Age is found to have negative relationship with Digital Financial Literacy indicating that the older the individual is, the lower their DFL. Meanwhile education has a positive relationship with education showing that individuals with higher education have higher DFL. Gender and income are found to have no effect on DFL, thus hypothesis H1_a and H1_d are rejected. The R-squared of this model is 10% (0.100) meaning that the independent variables can explain digital financial literacy only for 10% and the rest of 90% is affected by other variables outside the model.

One-way ANOVA Test

One of the hypotheses in this study was tested using One-way ANOVA to test the difference in sample means with more than 1 group sample group. The second hypothesis in this study states that there are differences in the level of digital financial literacy based on age category. Before carrying out the One-way ANOVA Test, a normality test was first carried out on the digital financial literacy variable. The results of the normality test found that the data were normally distributed so that the One-way ANOVA test could be carried out.

Table 4. One-way ANOVA Test

Source	SS	Df	MS	F	Prob > F
Between groups	20.1705929	3	6.72353097	11.19	0.0000
Within groups	250.017896	416	.601004557		
Total	270.188489	419	.644841262		
Bartlett's test for equal variances: $\chi^2(3) = 4.6713$ Prob> $\chi^2 = 0.198$					

Table 4 shows the results of the One-way ANOVA test with a prob>F value of 0.000, which means that there is a significant difference in digital financial literacy by age group. Thus, hypothesis H₂ is accepted.

Discussion of Findings

From the results of hypothesis testing, it was found that age has a significant influence on financial digital literacy. This finding is supported by (Azeez & Akhtar, 2021; P. Morgan & Trinh, 2019). However, this result is different to (Gilenko & Chernova, 2021; Rahayu, Ali, Aulia, & Hidayah, 2022; Setiawan et al., 2020) that mentions age does not have any influence on digital financial literacy. The relationship between age and digital financial literacy is negative indicating that the older an individual is, the lower their digital financial literacy. This is in line with research from (Azeez & Akhtar, 2021) which also found that there is a negative effect between age and the level of digital financial literacy. According to (P. Morgan & Trinh, 2019) this may cause by the education variables that Indonesia is a developing country and older generations tend to have lower education levels than the younger generation. This finding is also supported by the results of ANOVA that show a significant differences based on age category. This shows that the level of digital financial literacy in generation Z is different from generation X, millennials and baby boomers.

Furthermore, education is also found to have a significant effect on financial digital literacy. The positive relationship between education and financial digital literacy indicate that people with higher level of education have better financial literacy. This result is inline with (P. Morgan & Trinh, 2019; Nanziri, Lwanga & Olckers, 2017; Santini et al., 2019; Setiawan et al., 2020) that states education can influence financial literacy. However, (Rahayu et al., 2022) mention that educational level is not a factor that influence digital financial literacy. Although, there is no specific curriculum that discusses financial literacy and specifically digital financial literacy, basic of financial literacy such as interest compound and inflation is thought in school subjects such as economics or accounting. Futhermore, individuals with

higher education tend to be exposed with more information related to digital financial products (Ghosh & Hom Chaudhury, 2020; Prasad et al., 2018).

The results also show that gender and income are not the factors that influence the financial digital literacy. Findings on gender is different to (Banner & Schwarz, 2018; Rahayu et al., 2022; Santini et al., 2019) that explain men tend to have better financial literacy compared to women. However, our findings suggest that there is no difference in digital financial literacy between men and women. This is supported by (Gilenko & Chernova, 2021; Grohmann, Hübler, Kouwenberg, & Menkhoff, 2021) that put forward there is no a gender gap related to financial literacy. This may be due to the fact that women in our sample have the same education level with men which causes the missing gap in gender. Lastly, income is also found to have no effect on digital financial literacy. This finding is in line with (Gilenko & Chernova, 2021) and differ to (Grohmann et al., 2021; Mouna & Anis, 2017; Santini et al., 2019).

Conclusion

This study examines whether socio-economic factors such as age, gender, education and income can affect the level of digital financial literacy and also tries to examine whether there are differences in the level of digital financial literacy when viewed from an age perspective. The results showed a negative and significant relationship between age and digital financial literacy and a positive significant relationship between education and digital financial literacy. Meanwhile, gender and income are found to have on effect on digital financial literacy. Theoretically, this study proves that age and education are one of the factors that determine the digital financial literacy. Practically, digital financial literacy does differ between age group which put forward an insight to the policy makers in increasing digital financial literacy that a different program may be used in each age group. The number of sample can be increased in the next study and this research also suggests policy makers to consider digital financial literacy as part of the knowledge offered at schools or universities.

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