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Framework of Digital Financial Literacy Dimensions in Indonesia

Arinda Mentari Putri*¹, Sudarso Kaderi Wiryono², Sylviana Maya Damayanti³, Raden Aswin Rahadi⁴

Abstract

The rapid development of financial technology (Fintech) is happening in this digital age and become the reason why individuals should be equipped with digital financial literacy. Fintech will help our financial activities but will become a big risk if we don't have the basics of Digital Financial Literacy. Many phenomena happen in Indonesia, such as being trapped in online lending, data fraud, and others due to the lack of digital financial literacy. The main issue is that Digital financial literacy doesn't have a standardized definition, measurement, or set of dimensions, and it becomes hard to enhance the level of its level in Indonesia. Every country, including Indonesia, has its own dimensions. This research fills the gap by determining the framework of dimensions of Digital Financial Literacy in Indonesia using Qualitative Semi-Structured Interviews. The study's findings determine digital financial literacy framework in Indonesia dimensions consist of Digital Financial Risk control, Awareness of Digital Financial Services, Ability to use Digital Financial Applications, and Awareness of positive financial attitudes and behavior. The outcome of this research would benefit the general public, academicians, practitioners, and the government to face the rapid growth of Fintech by enhancing and determining by measuring the dimensions of the level of Digital Financial Literacy in Indonesia.

Keywords: Digital Financial Literacy, Dimensions, Fintech, Framework, Digital Financial Service

1. Introduction

The exponential advancement of technology in the current digital age has greatly propelled the development of all digital services and applications, including digital financial services. More than conventional financial literacy is needed to face the rapid growth of the digital era. In the era of digital advancements, it is imperative to possess both financial literacy and digital financial literacy in order to effectively navigate the evolving landscape of financial technology. Since 2018, G20 countries have prioritized the enhancement of digital financial literacy as part of their agenda. They recognize that strengthening digital and financial literacy and raising awareness about it may be considered a significant advancement in the field of science. It's a crucial thing to enhance the level of Digital Financial Literacy, to prevent miss-selling, fraud, phishing, hacking, and unauthorized data usage when using digital financial services (Morgan, Huang, and Trinh, 2019). According to data from the Ministry of Computer and Information in Indonesia, the level of Digital Financial Literacy (DFL) in the country is around 35%. However, this figure is only an approximation because there is currently no standardized

¹ Institut Teknologi Bandung, Email: arinda.mp@sbm-itb.ac.id

² Institut Teknologi Bandung, Email: Sudarso_kw@sbm-itb.ac.id

³ Institut Teknologi Bandung, Email: sylvianamaya@sbm-itb.ac.id

⁴ Institut Teknologi Bandung, Email: Aswin.rahadi@sbm-itb.ac.id

definition or measurement for digital financial literacy. There is a requirement for establishing dimensions, a framework, and methods to assess Digital Financial Literacy under the present circumstances. In the absence of knowledge regarding the outcome of the measurement of Digital Financial Literacy in Indonesia, it is difficult to provide a proposal for enhancing the level of Digital Financial Literacy.

According to OJK measurements in 2022, the level of traditional Financial Literacy in Indonesia is 49.68%, while financial inclusion stands at 85.10%. Indonesia faces a significant disparity between financial literacy and financial inclusion, which is a major challenge. In 2020, there was a 37.8% rise in digital transactions, a 65% increase in electronic money usage, and an 18% decline in ATM card usage. The lack of financial literacy has given rise to new phenomena, such as a teacher becoming involved in 24 online loans. Another phenomenon is mothers utilizing the school children's tuition fund to purchase stocks without comprehending the stock market's principles and so forth. The users of DFS (Digital Financial Services) are lack of awareness regarding the potential hazards associated with utilizing such services, including phishing, profiling, and other forms of recourse (Lyons, Kass-Hanna, and Joseph, 2021).

Utilizing digital financial services on our smartphones presents both benefits and risks, contingent upon the extent of one's digital financial literacy level (Lo Prete, 2021). With the advent of digital financial services in this digital era, digital financial literacy has become an essential requirement alongside traditional financial literacy. Regrettably, there are still no dimensions, frameworks, and measurement tools, so it can't provide recommendations and strategic steps for enhancing the level of digital financial literacy in Indonesia.

However, the primary issue is the lack of standardization in the specification of the dimensions as the base of measurement method and variables for Digital Financial Literacy (Morgan, Huang, and Trinh, 2019). Digital Financial Literacy lacks standardized parameters, dimensions, methodology, and measurement methods. The variables in each country will likewise vary differently. Traditional financial literacy measurements have been conducted with effective standardization and quantification with standardized tools measurement; meanwhile, Digital Financial Literacy would like to have measurement tools, but until now, there is no standardization of dimensions. Financial literacy variable and dimensions its excluded the variables related to Digital Financial Literacy. These standardized dimensions are really important in creating the measurement tools and using them as fundamental for enhancing the level of digital financial literacy in every country, including Indonesia. This study is trying to fill the gap by determining the framework of Digital Financial Literacy dimensions in Indonesia.

Moreover, once the dimensions are determined, we may utilize them as the base to enhance the level of Digital Financial Literacy in Indonesia. Also, with the determined dimensions, the measurement tools of Digital Financial Literacy can be developed further, and the level of Digital financial literacy in Indonesia can be measured precisely. There have been limited studies that aim to uncover the characteristics of Digital Financial Literacy. The findings of the research can be useful and give a good contribution both for theoretical, practical, and managerial implications for all the role players.

The contents of this paper will be organized into five distinct sections. The initial section will consist of an introduction, followed by a literature review in the subsequent section, and a methodology in the third section, which will then proceed with the presentation and discussion of findings. The final segment comprises the conclusion and recommendations.

2. Literature Review

The importance of digital financial literacy continues to rise in this digital age. Financial services have now become borderless and more accessible to access due to digital technology development (Morgan and Trinh 2019). Financial Technology facilitates increased financial sector efficacy. The covid-19 pandemic has accelerated the speed development of financial technology (Ozili 2021). The swift advancement of financial technology presents both benefits and drawbacks (Prasad, Meghwal, and Dayama 2018). Pros include the ability to connect identical facilities in financial services, which is an advantage. Constraints include an escalation in financial risk and the encouragement of impetuous consumer behavior. Increasing digital financial literacy levels is critical in this digital era. A greater level of digital financial literacy will prevent fraud, misrepresentation, and misuse of applications and risks (phishing, hacking, and other threats) (Morgan, Huang, and Trinh, 2019).

(Morgan, Huang, and Trinh, 2019) are in the process of determining the definition of digital financial literacy. According to their research, digital financial literacy is a multidimensional concept that has regrettably not been standardized. Individuals can assume greater accountability for their financial planning in the digital era by utilizing digital financial services efficiently. Side by side, while utilizing digital financial services, they should prevent fraud and errors and make sure their data is safe.

Misuse of digital financial services users will result if the acceleration of this technology is not accompanied by an increase in digital financial literacy. To prevent the side effects of using digital financial services and still enhance daily living, enough digital financial literacy should accompany it. Knowledge of digital financial products and services, awareness of digital financial risks, including phishing and pharming, knowledge of consumer rights and redress products, and knowledge of digital financial risk control are the four dimensions of digital financial literacy as described by (Morgan, Huang, and Trinh, 2019). Knowledge of digital financial products and services can show people a basic understanding and knowledge of digital financial products. Digital financial products, which include internet-based insurance services and payments, asset management, and alternative finance, are categorized into four main groups. The second dimension, awareness of digital financial risks, pertains to an individual's capacity to recognize the potential hazards that may arise from utilizing digital financial services. Risk can result in unforeseen complications and losses if applications of digital financial services have fraud. Next, the third dimension pertains to individuals' capacity to safeguard themselves against potential risks or fraudulent activities that may occur while utilizing digital financial services. Last, People's knowledge if they suddenly become digital financial services victims of fraud and risks is the fourth Morgan dimension. The most important thing is that digital financial literacy needs to be addressed in the Financial Literacy concept, despite the fact that we live in the digital age.

The concepts of digital literacy and financial literacy are interconnected through a conceptual framework that culminates in the notion of digital financial literacy (Lyons et al., 2021). The framework comprises five dimensions: basic knowledge and skill, awareness (pertaining to the availability of financial and digital products and services), practical know-how (particularly in terms of accessing and utilizing them), decision-making (including financial attitudes), and self-preservation and self-protection. Without digital financial literacy is insufficient to enable users to use digital financial services and products effectively. As per existing knowledge, online systems facilitate saving and spending via digital banking and payment (Prasad, Meghwal, and

Dayama, 2018). Financial Literacy with respect to digital financial technology constitutes digital financial literacy. The regulatory framework governing digital financial technology in Indonesia still needs to be improved (Setiawan et al., 2022).

A comprehensive understanding of consumer rights and redress procedures, as well as a solid grasp of digital financial services and products, can be regarded as adequate awareness of digital financial risk (Azeez and Akhtar 2021). According to (Kotni and Botta 2020), digital financial literacy consists of the knowledge, abilities, and practices required to conduct financial transactions using digital devices. When discussing financial transactions, Financial Technology (Fintech) is also a topic of conversation. Advancements in financial technology (fintech) have the potential to negatively impact economic welfare through the stimulation of impulsive consumer behavior, such as impulsive spending on products or financial assets. (Panos and Wilson 2020) Individuals with a lower level of digital financial literacy will have a restricted comprehension and awareness of risk and reward concepts in asset classes, according to these findings. This phenomenon is happening in Indonesia.

In the current situation, there are still few studies about Digital financial literacy, both in the world and in Indonesia. Several previous studies, such as (Liew, Lim, and Liu 2020), examine the level of digital financial literacy among rural Sarawak farmers using the hypothetical dimensions from (Morgan, Huang, and Trinh, 2019). The individual obtained a moderate score on the knowledge of digital financial products dimension of digital financial literacy but a low score on the remaining three dimensions (awareness of digital financial risk, digital financial risk controls, and knowledge of consumer rights and redress procedures). We can therefore deduce that digital finance rights and risks are inaccessible in rural areas. Next, studies from (Prasad, Meghwal, and Dayama 2018) examine the correlation between awareness and usage of digital platforms and the influence of educational attainment on both awareness and use of digital platforms for financial transactions among households in Udaipur. The findings are a correlation between knowledge and digital financial literacy when using digital financial services.

Several research from Indonesia, such as (Indrawati, 2020), determine whether members of the Faculty of Economics at the University of 17 August Samarinda are more likely to utilize financial technology. The findings are that the level of using financial technology products is significantly influenced by digital financial literacy. (Damayanti, Susilaningsih, and Indriayu 2020) Investigate the effect of financial technology on Universitas Sebelas Maret financial management students' digital financial literacy. There is a significant influence of users financial technology and digital financial services with a level of digital financial literacy. Next, The study conducted by (Setiawan et al. 2022) examines the correlation between socioeconomic status and digital financial literacy in multiple urban regions of Java Island that have adopted digital financial services. A greater degree of education correlates with a greater degree of digital financial literacy, as does larger levels of expenditure. Digital Financial Literacy, including knowledge of consumer rights and protections associated with digital financial services, comprehension of digital asset management products, digital payment products, and digital insurance products, and awareness of the potential risks associated with using digital financial products.

In this digital age, it is important to study Digital Financial Literacy. OECD has recognized the importance of research regarding Digital Financial Literacy (Atkinson, 2019). G20 has endorsed FIAP (Financial Inclusion Action Plan), the Importance of Digital Financial Literacy with the growing development of Fintech (Morgan et al., 2019). However, there is still a lack

of consensus on Digital Financial Literacy and this is the Research gap happens. There is no specific study about the dimensions of Digital financial literacy in Indonesia. Based on a literature study from (Putri, A.M., Damayanti, S. M., and Rahadi, R. A., 2022), the hypothetical dimensions of Digital financial literacy in Indonesia, such as digital financial products knowledge, digital financial risk control, and awareness, knowledge about consumer rights, level of usage applications, hands-off experience, basic knowledge, skill, awareness about digital financial literacy, understanding to do the practical, having a good decision making, understanding how to do self-protection, etc. Based on the literature review, the researcher determines the dimensions of digital financial literacy in Indonesia and believes the findings will be beneficial for every role player to measure and enhance the level of digital financial literacy in Indonesia.

3. Methodology

The study began with problem identification and research objective determination. The challenge is to strike a balance between the level of digital financial literacy in Indonesia and the rapid advancements of the digital age. As a consequence, numerous phenomena ensue, including individuals trapped in online lending schemes and using digital financial services with a lack of knowledge and understanding. The research objective is to determine the framework of Digital Financial Literacy dimensions in Indonesia.

The study use exploratory and qualitative approach. Once the objective has been identified, the study proceeds by doing a literature review. Digital financial literacy requires additional research, particularly in Indonesia, where current theories only address financial literacy. The hypothesis is that each country possesses distinct dimensions of digital financial literacy, and our objective is to analyze the characteristics of digital financial literacy in Indonesia. This study used triangulation using both secondary and primary data sources, drawing from both literature and primary data obtained through interviews. This research has several triangulations of the source (from literature and primary data by interview) and from methodology (literature review and semi-structured interview).

Dimensions construction and research framework are created after the literature review and continue with the protocol interview development. The subjects for this research are people with different backgrounds and activities in Greater Jakarta area. This research uses qualitative study and is suitable for low-middle range theory output research for Indonesia territory.

When conducting a qualitative analysis of this research, there needs to be more precise data regarding the quantity of samples, and it aligns with the research objectives (Kathy Charmaz, 2014). According (J. M. Morse 1994) the sample size for qualitative analysis ranges from three to ten individuals. (Sandelowski, 1995) There are no strict guidelines or specific sample sizes that must be followed in Qualitative research, as stated by (Marilyn Litchman 2010). This research aims to find the dimensions of Digital Financial Literacy in Indonesia. The Greater Jakarta area in Indonesia exhibits the most significant level of high dynamic growth. It is comprised of multiple interconnected cities (Rahmawati 2015). Greater Jakarta is an area in Indonesia that is experiencing a significant increase in the utilization of digital financial services due to the high internet penetration. This research involves the collection of ten samples from individuals with diverse origins, vocations, and ages.

A semi-structured interview is a frequently employed strategy in Qualitative research. Semi-structured interviews are used in exploratory studies to examine the correlation between

responses (Saunders, Lewis, and Thornhill, 2007). Following the completion of interviews with multiple individuals and the consistent discovery of identical responses, the researcher proceeds to analyze the collected data. Interview transcripts facilitate the retrieval of the interviewee's responses. Researchers are using the Nvivo 20 program to analyze the interview transcript, extract study findings, and determine the framework of the Digital Financial Literacy Dimensions in Indonesia. The recommendations can be used to enhance digital financial literacy in Indonesia and address the associated difficulty.

4. Findings and Discussion

The framework of Dimensions in Digital Financial Literacy in Indonesia from interviews becomes the main result of this research. There are the hypothesis dimensions or modifiable dimensions based on the literature and when doing the interview. The figure below is the framework dimensions of digital financial literacy in Indonesia.

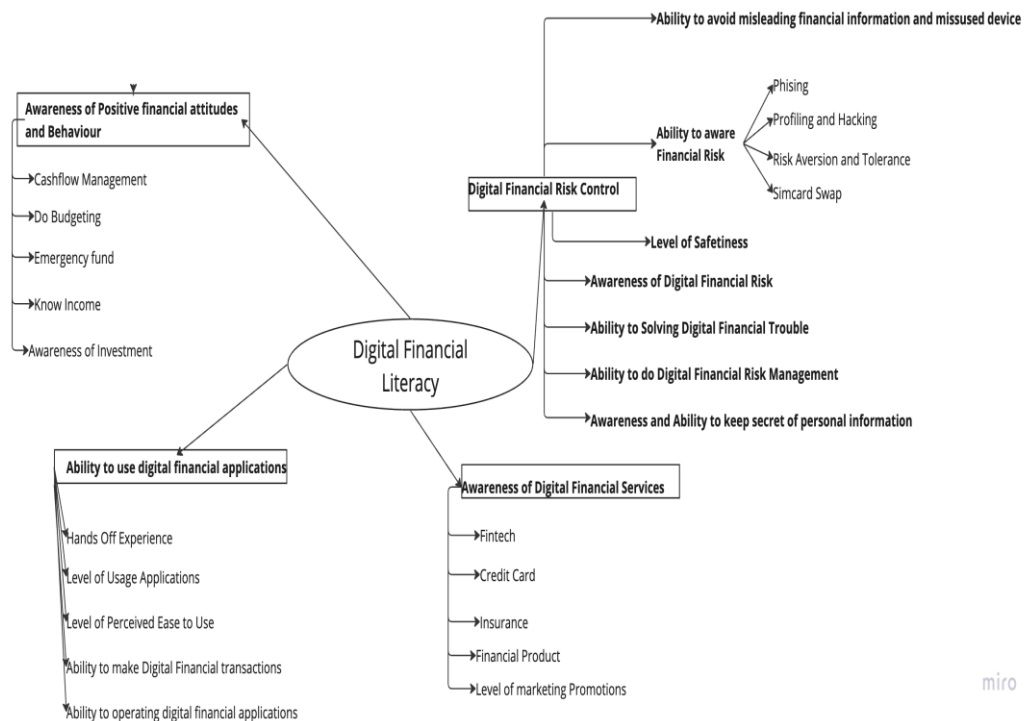


Figure.1 The Framework Dimensions of Digital Financial Literacy in Indonesia.

Based on the result, there are four dimensions of Digital Financial Literacy dimensions consist: Digital Financial Risk Control, Awareness of Digital Financial Services, Ability to use digital financial applications, and Awareness of Positive Financial Attitudes.

The first dimension is Digital Financial Risk Controls. Digital financial risk is an additional risk when people use digital financial services rather than using traditional products (Normawati, Rahayu, and Worokinasih 2021). Digital financial risk control is the understanding required to utilize digital financial services without incurring digital financial risk. There are seven subdimensions categorized to Digital Financial Risk Control consisting of the ability to avoid misleading financial information and misused devices, the ability to be aware of financial risk

(including phishing, profiling and hacking, risk aversion and tolerance, and sim card swap), the level of safetiness, awareness of digital financial risk, ability to solving digital financial trouble, ability to do financial risk management, last is awareness and ability to keep secret personal information.

Misleading financial information and misused devices are some of the risks when using digital financial services and become one ability for self-protection using digital financial services (Lyons, Kass-Hanna, and Joseph 2021). The ability to digital financial risk from the are only phishing, profiling and hacking, risk aversion and tolerance, and sim card swap become the details of the ability to aware of financial risk known by the interviewee and think is important by the interviewee. The interviewee's definition of phishing is identical to that of (Bhavsar, Kadlak, and Sharma 2018), It is a method of obtaining personal information through cybercrime using email, telephone, and other similar channels. A diminished level of digital financial literacy may increase an individual's susceptibility to phishing (Morgan, Huang, and Trinh, 2019). A vulnerability within a system may facilitate the acquisition of personal information, called profiling and hacking. A greater degree of digital financial literacy can increase the efficacy of fintech usage and protect against digital scams like hacking and profiling (Organisation for Economic Co-operation and Development 2020). Risk aversion and tolerance are two of the digital financial literacy dimensions (Ribeiro et al. 2018). Risk aversion is how people act in risky situations and tend to avoid the risk (Thomas 2013). Risk tolerance is the level of people's acceptance of a risk-occurring situation (Hanna et al, 2011).

The next subdimension of Digital financial risk control is the level of safety. Enhancing one's understanding of digital financial literacy is directly correlated with improving proficiency in utilizing digital financial services. (OECD and G20, 2018) emphasises the importance of increasing the level of safetiness should be balance with enhancing user proficiency in utilising digital financial services. Ensuring the safety of digital financial services is crucial for achieving optimal financial well-being. People can't control risk if they are not aware of digital financial risk. Concept of Digital Financial Literacy are awareness of use Digital Financial Services, knowledge of Digital Financial Related Risk and awareness of consumer protection and redress (triloks 2021).

Digital finance gives another new risk, called digital financial risk, including the possibility of exposure data of digital assets (Mckinsey 2017). Digital financial risk management will give better financial decisions with a good level of digital financial literacy (Lajuni et al. 2018). Although keeping the PIN private is crucial, the majority of interviewees stated that they must share the information with a select few trusted individuals. A greater number of digital financial applications, including ATMs, card payment systems, and payment systems, utilize personal identification numbers (PINs) for authorization purposes (Korauš et al. 2019). One factor contributing to the rise in instances of PIN leakage is the widespread distribution of these numbers among numerous individuals. The majority of interviewees disclose their PIN information to individuals in their immediate circle of trust, such as their spouses or parents. This is due to the fact that in the event of an emergency, dependable individuals can assist them in accessing financial applications or banks. This is consistent with the subdimensions of awareness and confidentiality of personal information.

Some Related response answers are:

“in my view, we should not be as open as that for sharing our digital financial data because there will be a risk if we share the data, but we need to share the data with our inner family.”

“If we have savings, don’t save only in one place, but you need to separate that because if one is getting bad, there is any chance the other will get good.”

“I think it's important to keep the PIN secret, but I need to share it with my wife for the PIN.”

“I am wondering if the ATM machines are having eye censored so the possibility of risk will be decreased.”

The second dimension is awareness of Digital Financial Services. Raising the fintech promotes the effectiveness of financial services through digital financial services. The unbanked people can get benefit from this innovation (Klapper, Lusardi, and Panos 2013). Digital financial services encompass electronic money, financial mobile applications, and branchless banking, among other digital technologies utilized in the operation of finance (OECD and G20, 2018). A proficient understanding of digital finances should accompany users of digital financial services.

The majority of interviewees indicated that they utilize Fintech for their routine digital financial needs. Each interviewee responded that they possess a smartphone equipped with mobile banking capabilities and are proficient in its usage. Several factors contribute to the popularity of mobile banking in Indonesia, including its provision of convenient services, real-time information, and unrestricted access (Sitorus et al. 2019). Interviewee likely to utilize Qris due to its ability to offer consumers convenience and ease during transactions (Susanti and Kresnha Reza, 2022). Individuals use digital financial services for a variety of reasons, including the enhancement of their psychological health, facilitation of productive business relationships, and elevation of convenience and efficacy (Elliot, Cavazos, and Ngugi 2022)

The interviewee responses reveal several subdimensions that impact financial product awareness, consisting of fintech, credit cards, financial products, and the level of marketing promotions that influence the awareness of financial products. The influence of fintech users on digital financial literacy is substantial. Awareness and knowledge about available financial products and services are dimensions of Digital Financial Literacy (Lyons and Kass-Hanna 2021). Hands off experience of using digital financial services can increase the level of financial literacy (Rai et al., 2019).

Some related responses from the interviewee are:

“ Fintech is making the transactions easier, so we don’t need any physics transaction.”

“ Fintech change the transaction habit to digital and online.”

“ I usually prefer not to bring any cash and prefer to bring my smartphone to do the Qris transactions.”

“ Credit cards can make the transactions cashless.”

“ I use bibit and bareksa applications as investment applications.”

The third dimension of Digital Financial Literacy in Indonesia is the ability to use digital financial services. The rapid development of fintech has rendered cognizance only some of the crucial aspects of digital financial literacy dimensions. Capabilities must be endowed with awareness. One aspect of Digital Financial Literacy is the ability to utilize digital financial applications in a practical manner (Morgan, Huang, and Trinh, 2019). The results from the interviewee have five subdimensions that can be categorized into the ability to use digital financial applications, such as hands-off experience, level of usage applications, level of

perceived ease to use, ability to make digital financial transactions, and ability to operate digital financial applications.

Some related answers from the Interview are:

“I came to the bank and asked to download the applications and then create my account”

“Mobile banking mandatory applications in a smartphone”

“Mobile banking is the most important application, I used it at least two times a week”

“Creating bank accounts is no need to come to the bank and go to the customer service; it only registers from the applications and does the video call.”

“In the past time, to send the money, we needed to go to a post office and send the wesel, but now we only use mobile banking everywhere, and every time we can send the money.”

Individuals who possessed knowledge and consciousness inspired others to utilize digital financial applications and provided hands-on training on how to use the applications (Tony and Desai, 2020). The majority of interviewees stated that they register for financial applications alone rather than having someone else do so. The degree of application utilization is a significant factor that impacts the level of digital financial literacy. The adoption of digital financial applications is directly affected by the level of awareness surrounding them (Kotni and Botta, 2020). When deciding which applications are the most essential, mobile banking should be among the ones on their smartphone. The adoption of mobile banking is on the rise, surpassing that of online website-based banking, owing to the convenience it provides users in accessing banks at any time and from any location (Chen 2013). Application utilization constitutes a significant subcomponent of digital financial literacy. Experience and understanding with applications, including digital finance apps, are connected to perceived ease of use (Ajzen 1991). People's perceptions of how simple an application is to use define perceived ease of use (Davis 1989). The perceived simplicity of the use of digital financial apps is a determining factor in one's ability to use them, as it raises awareness and utilization levels. The interviewees often utilize typical fintech, such as investment applications, e-commerce, and mobile banking, and they have a positive perception of their use. This demonstrates that the degree to which digital financial applications are viewed as being easy to use influences the degree of digital financial literacy in Indonesia, in line with research (Hapsari 2021) that demonstrates the substantial influence that perceived ease of use has on financial literacy in Indonesia.

Fintech makes people easier to access financial products, gain a level of digital financial literacy, and help do financial transactions (Usanti, Silvia, and Setiawati, 2020). Knowledge of fintech and awareness of digital financial services become the basis of the ability to do digital financial transactions. The capacity to conduct digital financial transactions is a critical component of digital financial literacy, according to the findings of (Prasad, Meghwal, and Dayama 2018; Lyons, Kass-Hanna, and Joseph 2021). The ability to make digital financial transactions is not complete without the ability to operate digital financial applications. Digital Financial Literacy is important in raising the ability of people to use digital financial applications through their digital devices and access financial products (Lo Prete 2021).

The fourth dimension of Digital financial literacy in Indonesia is Awareness of positive financial attitudes and behavior. Good Digital Financial Literacy and awareness of financial attitudes is an important thing to make positive financial attitudes and behavior. People with

limited financial literacy show negative financial attitudes and behaviors (Khalisharani, Johan, and Sabri, 2022). People's understanding, analysis, and management of their financial matters are reflected in their financial attitudes (Edwards, Allen, and Hayhoe, 2007). Based on the interviewee's answer, there are five subdimensions of awareness of positive financial attitudes and behavior consisting of cashflow management, budgeting, having an emergency fund, knowing their income, and awareness of investment.

Some related answers from the interview are:

“I have separate banks account for daily life and my skincare and shopping needs.”

“Every month, I create a budget for children's school needs and for family's daily life.”

“A couple of years ago, I didn't have any emergency fund, and I think if I need money, I just took from my investment. However, I realized the importance of emergency funds after disaster struck my family. It is important so it will not disturb our cash flow and not use any assets which we can use for our future plans.”

“income is from my payroll, and I have an online shop.”

“Investing is important, but the most important thing is that we have enough knowledge about investing first.”

Everybody should have an emergency fund since it is a crucial component of protection. An emergency fund reflects the amount of knowledge and is linked to the level of financial literacy level (Babiarz and Robb 2014). This is also a crucial factor in determining an individual's digital financial literacy. Sound financial knowledge will lead to positive financial behavior and attitudes toward having an emergency fund (Marsden, Zick, and Mayer 2011). If people don't know which sources of income will cover their expenses, they can't manage their cash flow. One measure of sound financial behavior and mindset is knowledge of income (Setiawan et al., 2022). According to (Morgan and Trinh, 2019; Xue et al., 2019), age and income are important determinants of financial literacy. Since every interviewee disclosed their income throughout the interview, we can infer that income may play a role in a person's level of digital financial literacy. Investing awareness is the final subdimension that the interviewee provides. Knowledgeably, only a minority of respondents expressed concern regarding knowledge prior to initiating the investment.. The degree of financial literacy serves as an indicator of both investment intention and awareness (Hapsari 2021). A positive financial behavior that contributes to one's financial well-being is investing, which requires knowledge and awareness (Sugiharti and Maula 2019).

5. Conclusion

In this digital era, financial technology, or Fintech, is expanding at a rapid rate. It has to be balanced with the progress development of digital financial literacy. The main issue is that digital financial literacy has not been standardized until now. There are no standard dimensions of Digital financial literacy included in Indonesia, only for financial literacy. The adoption of G20 and OECD/INFE guidelines pertaining to digital financial literacy is still pending. In order to assess financial literacy only, a standardized questionnaire has been developed by the OECD and INFE, but not for Digital Financial Literacy. Without standardized guidelines, dimensions, and definitions, it's hard to create a good measurement of the digital financial literacy level in Indonesia.

This research objective is trying to fill the gap by determining the dimensions of Digital Financial Literacy in Indonesia. There are four dimensions of Digital Financial Literacy in Indonesia with subdimensions of every dimensions consist of: Digital Financial Risk Control (ability to avoid misleading financial information and misused device, ability to aware financial risk (including phishing, profiling and hacking, risk aversion and tolerance, and simcard swap), level of safetiness, awareness of digital financial risk, ability to solving digital financial trouble, ability to do financial risk management, last is awareness and ability to keep secret personal information), Awareness of Digital Financial Services (fintech, credit card, financial product, and level of marketing promotions influence the awareness of financial product), Ability to use digital financial application (ability to use digital financial applications such as hands off experience, level of usage applications, level of perceived ease to use, ability to make digital financial transactions and ability to operating digital financial applications) and Awareness of Positive Financial Attitudes (awareness positive financial attitudes and behavior consist of cashflow management, do budgeting, having emergency fund, knowing their own income and awareness of investment).

The findings of this study have managerial, practical, and theoretical implications. This study contributes to the development of a theory of digital financial literacy in Indonesia by identifying its dimensions. Typically, each nation possesses distinct attributes and manifests them in various ways. Theoretically, this study provides a foundational structure for the development of a digital financial literacy assessment and a survey to ascertain the level of digital financial literacy. This research also provides practical implications. This Digital Financial Literacy dimension can serve as an initial framework for all participants in this domain—academics, financial planners, the government, and stakeholders—to improve digital financial literacy in Indonesia. In regard to managerial actors, By acquiring knowledge of the minimum dimensions, stakeholders in this domain can augment the precise dimensions in order to raise the standard of digital financial literacy in Indonesia. Academics can utilise this research result to strengthen early childhood education in Indonesia so that children can acquire digital financial literacy.

While this research does have certain limitations, such as the need for additional interviews with subjects from diverse backgrounds and locations in Indonesia to improve the findings, another constraint is the inability to test the dimensions in a larger sample. Further research regarding digital financial literacy is numerous research prospects remain in this field.

References

- Ajzen, Icek. 1991. 'The Theory of Planned Behavior'. *Organizational Behavior and Human Decision Processes* 50 (2): 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T).
- Atkinson, Adele. 2019. 'Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study Flore-Anne Messy'. <https://doi.org/10.1787/5k9csfs90fr4-en>.
- Azeez, N. P. Abdul, and S. M. Jawed Akhtar. 2021. 'Digital Financial Literacy and Its Determinants: An Empirical Evidences from Rural India'. *South Asian Journal of Social Studies and Economics*, June, 8–22. <https://doi.org/10.9734/sajsse/2021/v11i230279>.
- Babiarz, Patryk, and Cliff A. Robb. 2014. 'Financial Literacy and Emergency Saving'. *Journal of Family and Economic Issues* 35 (1): 40–50. <https://doi.org/10.1007/s10834-013-9369-9>.
- Bhavsar, Vaishnavi, Aditya Kadlak, and Shabnam Sharma. 2018. 'Study on Phishing Attacks'. *International Journal of Computer Applications* 182 (33): 27–29. <https://doi.org/10.5120/ijca2018918286>.

- Chen, ChauShen. 2013. 'Perceived Risk, Usage Frequency of Mobile Banking Services'. *Managing Service Quality: An International Journal* 23 (5): 410–36. <https://doi.org/10.1108/MSQ-10-2012-0137>.
- Damayanti, Lutfiah Endah, Susilaningih, and Mintasih Indriayu. 2020. 'Financial Literacy in Student Financial Management Behavior in the Digital Age'. In *ACM International Conference Proceeding Series*. Association for Computing Machinery. <https://doi.org/10.1145/3452144.3453759>.
- Davis, Fred D. 1989. 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology'. *MIS Quarterly* 13 (3): 319. <https://doi.org/10.2307/249008>.
- Edwards, Renee, Myria Watkins Allen, and Celia Ray Hayhoe. 2007. 'Financial Attitudes and Family Communication About Students' Finances: The Role of Sex Differences'. *Communication Reports* 20 (2): 90–100. <https://doi.org/10.1080/08934210701643719>.
- Elliot, Esi A., Carmina Cavazos, and Benjamin Ngugi. 2022. 'Digital Financial Services and Strategic Financial Management: Financial Services Firms and Microenterprises in African Markets'. *Sustainability* 14 (24): 16994. <https://doi.org/10.3390/su142416994>.
- Hanna, Sherman D., William Waller, and Michael S. Finke. 2011. 'The Concept of Risk Tolerance in Personal Financial Planning'. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1923409>.
- Hapsari, Safira Amalia. 2021. 'The Theory of Planned Behavior and Financial Literacy to Analyze Intention in Mutual Fund Product Investment'.
- Indrawati, Andi. 2020. 'DIE : Jurnal Ilmu Ekonomi Dan Manajemen. DIGITAL FINANCIAL LITERACY, AND FINANCIAL TECHNOLOGY: CASE STUDIES OF FACULTY OF ECONOMICS UNIVERSITY 17 AUGUST 1945 SAMARINDA'.
- J. M. Morse. 1994. *Designing Funded Qualitative Research*. Sage Publications, Inc.
- Kathy Charmaz. 2014. *Constructing Grounded Theory*. 2nd ed. SAGE Publications, Inc.
- Khalisharani, Hanin, Irni Rahmayani Johan, and Mohamad Fazli Sabri. 2022. 'The Influence of Financial Literacy and Attitude towards Financial Behaviour Amongst Undergraduate Students: A Cross-Country Evidence'. *Pertanika Journal of Social Sciences and Humanities* 30 (2): 449–74. <https://doi.org/10.47836/pjssh.30.2.03>.
- Klapper, Leora, Annamaria Lusardi, and Georgios A. Panos. 2013. 'Financial Literacy and Its Consequences: Evidence from Russia during the Financial Crisis'. *Journal of Banking & Finance* 37 (10): 3904–23. <https://doi.org/10.1016/j.jbankfin.2013.07.014>.
- Korauš, Antonín, Ján Dobrovič, Jozef Polák, and Stanislav Backa. 2019. 'SECURITY ASPECTS: PROTECTION OF PEOPLE IN CONNECTION WITH THE USE OF PERSONAL IDENTIFICATION NUMBERS'. *Journal of Security and Sustainability Issues* 8 (3): 319–30. [https://doi.org/10.9770/jssi.2019.8.3\(3\)](https://doi.org/10.9770/jssi.2019.8.3(3)).
- Kotni, V. V. Devi Prasad, and Ashok Botta. 2020. 'Our Heritage Citizens of Visakhapatnam City A Study on Digital Financial Transactions Performed By Our Heritage' 68 (1). <https://ssrn.com/abstract=3604848>.
- Lajuni, Nelson, Noraini Abdullah, Imbarine Bujang, Yusman Yacob, and &yusman Yacob. 2018. 'Examining the Predictive Power of Financial Literacy and Theory of Planned Behavior on Intention to Change Financial Behavior Identifying The Optimal Multicollinearity Range with Near-Perfect Collinearity and Near-Perfect Multicollinearity Characteristics View Project Bank Selection View Project Examining the Predictive Power of Financial Literacy and Theory of Planned Behavior on Intention to Change Financial Behavior'. *International Journal of Business and Management Invention (IJBMI) ISSN*. Vol. 7. www.ijbmi.org60 | Page.
- Lyons, Angela C., and Josephine Kass-Hanna. 2021. 'A Methodological Overview to Defining and Measuring "Digital" Financial Literacy'. *FINANCIAL PLANNING REVIEW* 4 (2). <https://doi.org/10.1002/cfp2.1113>.

- Lyons, Angela C, Josephine Kass-Hanna, and Saint Joseph. 2021. 'The Evolution of Financial Services in the Digital Age'.
- Lyons, Angela C, Josephine Kass-Hanna, Assistant Professor, and Saint Joseph. n.d. 'A Multidimensional Approach to Defining and Measuring Financial Literacy in the Digital Age'.
- Marilyn Litchman. 2010. *Qualitative Research in Education: A User's Guide*. 2nd ed. Virginia: SAGE Publications.
- Marsden, Mitchell, Cathleen D. Zick, and Robert N. Mayer. 2011. 'The Value of Seeking Financial Advice'. *Journal of Family and Economic Issues* 32 (4): 625–43. <https://doi.org/10.1007/s10834-011-9258-z>.
- Mckinsey. 2017. 'The Future of Risk Management in the Digital Era'. <https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/the-future-of-risk-management-in-the-digital-era#/>.
- Morgan, Peter J, Bihong Huang, and Long Q Trinh. 2021. 'The Need to Promote Digital Financial Literacy for the Digital Age'. <https://whatis.techtarget.com/definition/gig-economy>.
- .2021. 'The Need to Promote Digital Financial Literacy for the Digital Age'. <https://whatis.techtarget.com/definition/gig-economy>.
- Morgan, Peter J, and Long Q Trinh. 2019. 'ADB Working Paper Series FINTECH AND FINANCIAL LITERACY IN THE LAO PDR Asian Development Bank Institute'. <https://www.adb.org/publications/fintech-and-financial-literacy-lao-pdr>.
- Normawati, Rani, Sri Rahayu, and Saparila Worokinasih. 2021. 'Financial Knowledge, Digital Financial Knowledge, Financial Attitude, Financial Behaviour and Financial Satisfaction on Millennials'. In . European Alliance for Innovation n.o. <https://doi.org/10.4108/eai.6-3-2021.2305967>.
- OECD, and G20. 2018. 'G20/OECD INFE Policy Guidance Digitalisation and Financial Literacy'. www.oecd.org/going-digital.
- Organisation for Economic Co-operation and Development. 2020. *OECD Business and Finance Outlook 2020 : Sustainable and Resilient Finance*.
- Ozili, Peterson K. 2021. 'Digital Finance, Green Finance and Social Finance: Is Thera a Link?' *Financial Internet Quarterly* 17 (1): 1–7. <https://doi.org/10.2478/fiqf-2021-0001>.
- Panos, Georgios A., and John O.S. Wilson. 2020. 'Financial Literacy and Responsible Finance in the FinTech Era: Capabilities and Challenges'. *European Journal of Finance*. Routledge. <https://doi.org/10.1080/1351847X.2020.1717569>.
- Prasad, Hanuman, Devendra Meghwal, and Vijay Dayama. 2018. 'Digital Financial Literacy: A Study of Households of Udaipur'. *The Journal of Business and Management* 23.
- Prete, Anna Lo. 2021. 'Digital and Financial Literacy as Determinants of Digital Payments and Personal Finance'. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3953114>.
- Putri, Arinda Mentari., Damayanti, Sylviana Maya., Rahadi, Raden Aswin. 2022. 'DIGITAL FINANCIAL LITERACY IN INDONESIA: A LITERATURE REVIEW' 23: 2022. <https://doi.org/10.37178/ca-c.23.1.318>.
- Rahmawati, Yovi. 2015. 'Self-Organization, Urban Transformation, and Spatial Planning in Greater Jakarta, Indonesia'. *Jurnal Perencanaan Wilayah Dan Kota* 26 (3): 147–65. <https://doi.org/10.5614/jpwk.2015.26.3.1>.
- Rai, Kamini, Mamta Sharma B A Associate, and Rukmini Devi. 2019. 'A Study on Awareness about Digital Financial Services among Students'. <https://ssrn.com/abstract=3308732>.
- Ribeiro, Diogo, Mara Madaleno, Anabela Bothelo, and Julio Lobao. 2018. 'The Relationship Between the Levels of Financial Literacy and Digital Financial Literacy: Evidence from an Online Survey'.

- Sandelowski, Margarete. 1995. 'Sample Size in Qualitative Research'. *Research in Nursing & Health* 18 (2): 179–83. <https://doi.org/10.1002/nur.4770180211>.
- Saunders, M. N. K., Philip Lewis, and Adrian. Thornhill. 2007. *Research Methods for Business Students*. Financial Times/Prentice Hall.
- Setiawan, Maman, Nury Effendi, Teguh Santoso, Vera Intanie Dewi, and Militcyano Samuel Sapulette. 2022. 'Digital Financial Literacy, Current Behavior of Saving and Spending and Its Future Foresight'. *Economics of Innovation and New Technology* 31 (4): 320–38. <https://doi.org/10.1080/10438599.2020.1799142>.
- Sitorus, Hotna Marina, Rajesri Govindaraju, Iwan I. Wiratmadja, and Iman Sudirman. 2019. 'Examining the Role of Usability Compatibility and Social Media in Mobile Banking Adoption in Indonesia'. *International Journal of Technology* 10 (2): 351–62.
- Sugiharti, Harpa, and Kholida Atiyatul Maula. 2019. 'Pengaruh Literasi Keuangan Terhadap Perilaku Pengelolaan Keuangan Mahasiswa'. *Accountthink : Journal of Accounting and Finance* 4 (2). <https://doi.org/10.35706/acc.v4i2.2208>.
- Susanti, Melly, and Heru Kresnha Reza. 2022. 'Added Value and Ease of Using Quick Responses Qris Indonesian Standard (QRIS)'. *International Journal of Science, Technology & Management* 3 (3): 715–23. <https://doi.org/10.46729/ijstm.v3i3.518>.
- Thomas, P J. 2013. 'Methods for Measuring Risk-Aversion: Problems and Solutions'. *Journal of Physics: Conference Series* 459 (September): 012019. <https://doi.org/10.1088/1742-6596/459/1/012019>.
- Tony, Nisha, and Kavitha Desai. 2020. 'Impact Of Digital Financial Literacy On Digital Financial Inclusion'. *INTERNATIONAL JOURNAL OF SCIENTIFIC & TECHNOLOGY RESEARCH* 9: 1. www.ijstr.org.
- triloks. 2021. 'DIGITAL FINANCIAL LITERACY GUIDELINE NOTE 2'.
- Usanti, Trisadini Prasastinah, Fiska Silvia, and Anindya Prastiwi Setiawati. 2020. 'Dispute Settlement Method for Lending in Supply Chain Financial Technology in Indonesia'. *International Journal of Supply Chain Management* 9 (3): 435–43.
- Xue, Rui, Adrian Gepp, Terry J. O'Neill, Steven Stern, and Bruce J. Vanstone. 2019. 'Financial Literacy amongst Elderly Australians'. *Accounting & Finance* 59 (S1): 887–918. <https://doi.org/10.1111/acfi.12362>.