

## ENHANCING STUDENTS' FINANCIAL LITERACY THROUGH FINANCIAL EDUCATION PROGRAMS IN THE DIGITAL ERA

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### Abstract

This study examines the effectiveness of financial education programs in enhancing students' financial literacy in the digital era amid increasing economic uncertainty. Financial literacy has become a critical competency; however, empirical evidence remains limited, particularly in developing countries and distance learning contexts such as Universitas Terbuka, Indonesia. This study applies a mixed-method approach, combining a survey of 100 students with expert interviews. Regression and thematic analyses were employed. The results show that financial education programs significantly improve financial literacy; while digital financial engagement strengthens outcomes, it also introduces behavioral risks such as impulsive financial decisions. The findings highlight that financial literacy is essential not only for knowledge acquisition but also for enhancing students' financial resilience in uncertain economic conditions. This study contributes by extending the empirical understanding of digital financial behavior and financial literacy in distance learning environments, offering practical insights for developing adaptive digital-based financial education.

**Keywords:** Financial Literacy; Financial Education; Digital Financial Behavior

### Introduction

#### Background of the Study

The rapid advancement of digital technology has significantly transformed the financial landscape, particularly in how individuals access, manage, and utilize financial services. The proliferation of digital financial platforms, such as mobile banking, e-wallets, and fintech applications, has increased accessibility and efficiency in financial transactions. However, this transformation also introduces new challenges, especially for students who actively engage with digital financial services but often lack sufficient financial knowledge and skills (Lusardi et al., 2020; Setiawan & Wibowo, 2022). In this context, financial literacy has become an essential competency that enables individuals to make informed financial decisions and avoid financial risks in an increasingly complex digital economy (OECD, 2021; Xiao & Porto, 2021).

At the same time, global economic uncertainty continues to rise, driven by economic fluctuations, technological disruption, and unpredictable external shocks. These conditions require individuals not only to understand financial concepts but also to apply them effectively in managing their personal finances. For students, financial literacy plays a crucial role in shaping responsible financial behavior, including saving, budgeting, and risk management (Arianti, 2021; Pratiwi & Haryono, 2022). Nevertheless, several studies indicate that the level of financial literacy among students remains relatively low, particularly in developing countries (Atkinson & Messy, 2020; Susanti et al., 2023).

The issue becomes more complex in the digital era, where financial behavior is increasingly influenced by digital financial exposure. While digital financial literacy can improve financial decision-making and promote better saving and spending behavior, it may also increase the risk of impulsive consumption if not supported by adequate financial education (Klapper & Lusardi, 2020; Rahayu et al., 2022). Empirical studies show that higher levels of digital financial literacy are associated with more responsible financial behavior, including consistent saving and strategic financial planning (Morgan & Long, 2020; Dewi & Nugroho, 2023). Additionally, financial technology adoption alone is not sufficient without strong financial understanding and behavior (Suryanto et al., 2022).

In higher education, particularly in distance learning environments, students rely heavily on digital platforms for both academic and financial activities. This creates a unique ecosystem where students are exposed to both opportunities and risks in digital finance. However, previous studies indicate that financial literacy among distance learning students remains relatively low, highlighting the need for targeted

financial education programs (Putri & Rahmawati, 2023; Hasanah et al., 2024). Furthermore, digital financial tools significantly influence students' financial behavior and lifestyle, reinforcing the importance of integrating financial education into digital learning environments (Rahman et al., 2021; Yusuf & Kurniawan, 2022).

Previous research has emphasized the role of financial education in improving financial literacy and financial behavior. Financial education programs have been proven to positively influence individuals' ability to manage finances, make informed decisions, and plan for the future (Fernandes et al., 2020; Kaiser & Menkhoff, 2020). However, empirical evidence examining the effectiveness of financial education programs in the context of digital financial exposure and distance learning remains limited. Most studies focus on traditional learning settings, leaving a gap in understanding how financial education can be optimized in the digital era.

Therefore, this study aims to examine the effectiveness of financial education programs in enhancing students' financial literacy in the digital era. By focusing on distance learning students and considering the role of digital financial behavior, this study seeks to provide a more comprehensive understanding of how financial education can be designed to address economic uncertainty and evolving digital financial challenges.

### **Problem Statement**

Despite the growing importance of financial literacy in the digital era, several critical issues remain unresolved, particularly among university students. Financial literacy is widely recognized as a key determinant of individuals' financial well-being and decision-making ability; however, existing studies indicate that the level of financial literacy among students is still relatively low, especially in developing countries (Atkinson & Messy, 2020; Lusardi et al., 2020; Susanti et al., 2023). This condition raises concerns, as students are increasingly exposed to complex financial products and digital financial services without adequate financial understanding.

Furthermore, the rapid expansion of digital financial technology has significantly influenced students' financial behavior. While digital platforms such as e-wallets and online payment systems provide convenience and accessibility, they also increase the likelihood of impulsive spending and poor financial management if not supported by sufficient financial knowledge (Klapper & Lusardi, 2020; Rahayu et al., 2022; Yusuf & Kurniawan, 2022). This indicates a mismatch between the level of digital financial exposure and students' financial literacy, which may lead to unfavorable financial outcomes.

In the context of higher education, particularly in distance learning environments, the problem becomes more complex. Distance learning students rely heavily on digital platforms for both academic and financial activities, which increases their interaction with digital financial services. However, empirical evidence suggests that financial literacy among distance learning students remains inadequate, highlighting the need for more targeted and adaptive financial education programs (Putri & Rahmawati, 2023; Hasanah et al., 2024). Despite this, most existing financial education programs are still designed for traditional learning environments and may not fully address the unique characteristics of digital learning contexts.

Moreover, although previous studies have demonstrated that financial education can improve financial literacy and behavior, there is still limited empirical evidence examining the effectiveness of financial education programs in the digital era, particularly in relation to digital financial behavior and distance learning settings (Fernandes et al., 2020; Kaiser & Menkhoff, 2020). This gap indicates that the current body of literature has not sufficiently explored how financial education can be optimized to address both the opportunities and risks of digital financial exposure.

Therefore, this study addresses the following key problems: (1) the low level of financial literacy among students despite high digital financial exposure, (2) the increasing risk of unfavorable financial behavior in the digital era, and (3) the lack of empirical evidence on the effectiveness of financial education programs in improving financial literacy within distance learning environments. By addressing these issues, this study aims to provide a clearer understanding of how financial education can be effectively designed to enhance students' financial literacy in the digital era.

### **Research Objectives**

Based on the identified research problems, this study aims to examine the role of financial education in enhancing students' financial literacy in the digital era, particularly within distance learning environments. Specifically, the objectives of this study are as follows:

- To analyze the effect of financial education programs on students' financial literacy.
- To examine the influence of digital financial behavior on students' financial literacy.

- To evaluate the effectiveness of financial education programs in improving financial literacy among distance learning students.
- To explore how digital financial exposure shapes students' financial behavior and decision-making.
- To provide empirical evidence and practical recommendations for developing adaptive and effective financial education programs in higher education.

### **Research Questions**

Based on the research objectives and identified problems, this study formulates the following research questions:

1. How do financial education programs influence students' financial literacy in the digital era?
2. To what extent does digital financial behavior affect students' financial literacy?
3. How effective are financial education programs in improving financial literacy among distance learning students?
4. How does digital financial exposure shape students' financial behavior and decision-making?
5. How can financial education programs be designed to enhance students' financial literacy in digital learning environments?

### **Significance of the Study**

This study provides both theoretical and practical contributions to the field of financial education and financial literacy, particularly in the context of the digital era and distance learning environments.

From a theoretical perspective, this study contributes to the existing literature by extending the understanding of the relationship between financial education and financial literacy, especially among students in digital learning contexts. While previous studies have primarily focused on traditional learning environments, this study highlights the importance of integrating digital financial behavior into the analysis. By examining the intersection of financial education and digital financial exposure, this research offers a more comprehensive perspective on how financial literacy is developed in modern educational settings.

From a practical perspective, the findings of this study are expected to provide valuable insights for educational institutions, policymakers, and program designers in developing effective financial education programs. Specifically, this study offers guidance on how financial education can be adapted to digital environments and tailored to the needs of distance learning students. The results may also support universities in designing curriculum and interventions that promote responsible financial behavior and improve students' financial literacy.

Furthermore, this study is significant for students themselves, as it emphasizes the importance of financial literacy in navigating economic uncertainty and making informed financial decisions. By highlighting the role of financial education in shaping financial behavior, this research encourages students to develop better financial management skills that can support their long-term financial well-being.

### **Scope and Limitations**

This study focuses on examining the effectiveness of financial education programs in enhancing students' financial literacy in the digital era, particularly within distance learning environments. The scope of this research is limited to university students enrolled in distance learning programs, as this group represents a unique context characterized by high exposure to digital financial services and reliance on online learning platforms.

In terms of variables, this study primarily investigates financial education as the independent variable and financial literacy as the dependent variable, while also considering digital financial behavior as a supporting factor influencing students' financial outcomes. The analysis is conducted using quantitative methods based on survey data collected from 100 respondents, which may limit the generalizability of the findings to broader populations.

Additionally, this study relies on self-reported data obtained through structured questionnaires, which may be subject to response bias and individual perception differences. The cross-sectional design of the study also limits the ability to capture changes in financial literacy over time or establish long-term causal relationships.

Furthermore, this study focuses specifically on the digital era context and does not extensively explore other external factors, such as socio-economic background, cultural influences, or institutional differences, which may also affect students' financial literacy. Therefore, future research is recommended to expand the scope by incorporating larger and more diverse samples, longitudinal approaches, and additional variables to provide a more comprehensive understanding of financial literacy development.

### **Financial Education**

Financial education refers to the process of improving individuals' financial knowledge, skills, attitudes, and behaviors to enable them to make informed and effective financial decisions. In the modern economic environment, financial education has become increasingly important due to the growing complexity of financial products and services, particularly in the digital era (OECD, 2021; Lusardi et al., 2020). It is not only concerned with knowledge acquisition but also with shaping individuals' financial behavior and decision-making processes.

According to OECD (2021), financial education is defined as a process through which individuals improve their understanding of financial concepts and risks, and through information, instruction, or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities. Similarly, Lusardi et al. (2020) emphasize that financial education plays a critical role in equipping individuals with the ability to plan, save, invest, and manage financial resources effectively.

In the context of higher education, financial education is particularly important for students, as they are at a transitional stage where they begin to manage their own finances independently. Studies have shown that students who receive financial education tend to demonstrate better financial behavior, including budgeting, saving, and responsible use of financial products (Kaiser & Menkhoff, 2020; Fernandes et al., 2020). Financial education also contributes to improving financial literacy, which is essential for long-term financial well-being.

Furthermore, in the digital era, financial education must adapt to the increasing use of financial technology. The integration of digital financial tools into everyday life requires individuals to possess not only basic financial knowledge but also digital financial competencies. Without adequate financial education, the widespread use of digital financial services may lead to negative outcomes such as impulsive spending and poor financial decision-making (Klapper & Lusardi, 2020; Rahayu et al., 2022).

Previous studies have consistently found that financial education programs have a positive impact on financial literacy and financial behavior. For instance, Kaiser and Menkhoff (2020) demonstrate that financial education interventions significantly improve individuals' financial knowledge and behavior across different contexts. However, the effectiveness of financial education programs may vary depending on the delivery method, content, and target population. In particular, there is still limited research examining how financial education can be optimized in digital learning environments, such as distance education.

Therefore, financial education plays a crucial role not only in enhancing financial literacy but also in shaping adaptive financial behavior, especially in the context of increasing digital financial exposure. This study builds on this perspective by examining the effectiveness of financial education programs in improving students' financial literacy within distance learning environments in the digital era.

### **Financial Literacy**

Financial literacy refers to an individual's ability to understand financial concepts and apply such knowledge in making effective financial decisions. It encompasses financial knowledge, financial behavior, and financial attitudes, which together influence how individuals manage their financial resources (OECD, 2021; Lusardi et al., 2020). In the digital era, financial literacy has become increasingly important as individuals are required to navigate more complex financial products and digital financial services.

For students, financial literacy plays a critical role in shaping responsible financial behavior, including budgeting, saving, and managing financial risks. Higher levels of financial literacy are associated with better financial decision-making and improved financial well-being (Morgan & Long, 2020; Xiao & Porto, 2021). However, studies indicate that many students still exhibit low levels of financial literacy, particularly in developing countries, which may lead to poor financial behavior and vulnerability to financial risks (Atkinson & Messy, 2020; Susanti et al., 2023).

In addition, the increasing use of digital financial platforms requires students to possess not only basic financial knowledge but also the ability to apply it in digital contexts. Without adequate financial literacy, exposure to digital finance may result in impulsive spending and ineffective financial management. Therefore, strengthening financial literacy through effective financial education programs is essential to support students in adapting to economic uncertainty and digital financial environments.

### **Digital Financial Behavior**

Digital financial behavior refers to individuals' financial actions and decision-making processes in using digital financial services, such as mobile banking, e-wallets, online payments, and digital investment platforms. In the digital era, financial behavior is increasingly shaped by the accessibility and convenience of financial technology, which enables faster and more efficient financial transactions (Klapper & Lusardi, 2020; OECD, 2021).

For students, digital financial behavior plays a significant role in daily financial activities, including spending, saving, and financial planning. The widespread use of digital financial services provides opportunities to improve financial management; however, it also poses risks such as impulsive spending, overconsumption, and lack of financial control if not supported by adequate financial literacy (Rahayu et al., 2022; Yusuf & Kurniawan, 2022).

Empirical studies suggest that positive digital financial behavior is closely associated with higher levels of financial literacy, where individuals are more likely to make informed and responsible financial decisions (Morgan & Long, 2020). Conversely, low financial literacy may lead to unfavorable financial behavior despite high access to digital financial tools.

Therefore, digital financial behavior can act as both an enabling factor and a risk factor in shaping students' financial outcomes. In this study, digital financial behavior is considered an important element in understanding how financial education influences financial literacy in the context of the digital era and distance learning environments.

### **Economic Uncertainty**

Economic uncertainty refers to unpredictable changes in economic conditions that affect individuals' financial stability, decision-making, and future expectations. It is often driven by factors such as economic fluctuations, inflation, technological disruption, and global crises, which create instability in income, employment, and financial markets (Baker et al., 2020; OECD, 2021). In recent years, economic uncertainty has intensified, requiring individuals to be more adaptive and cautious in managing their financial resources.

For students, economic uncertainty presents significant challenges, as they often have limited financial resources and are in the early stages of financial independence. Under such conditions, the ability to manage finances effectively becomes crucial to avoid financial vulnerability. Studies indicate that individuals with higher levels of financial literacy are better prepared to cope with economic uncertainty, as they are more capable of planning, saving, and managing financial risks (Lusardi et al., 2020; Xiao & Porto, 2021).

In the digital era, the impact of economic uncertainty is further amplified by the rapid development of digital financial services. While these services provide greater access to financial tools, they also require individuals to make more complex financial decisions in uncertain environments. Without adequate financial knowledge and behavior, individuals may face increased financial risks.

Therefore, understanding economic uncertainty is essential in this study, as it provides the context in which financial education and financial literacy become increasingly important. This study emphasizes that improving students' financial literacy through financial education programs is a key strategy to help them adapt to and manage economic uncertainty effectively.

### **Financial Resilience**

Financial resilience refers to an individual's ability to withstand, adapt to, and recover from financial shocks or economic disruptions. It reflects the capacity to maintain financial stability through effective financial planning, saving, and risk management, particularly in uncertain economic conditions (OECD, 2021; Lusardi et al., 2020).

For students, financial resilience is an important capability, as they often face financial limitations and are more vulnerable to economic uncertainty. The ability to manage income, control expenses, and prepare for unexpected financial needs is essential in ensuring their financial well-being. Studies indicate that individuals with higher financial literacy tend to demonstrate stronger financial resilience, as they are better equipped to make informed financial decisions and manage risks effectively (Xiao & Porto, 2021; Morgan & Long, 2020).

In the digital era, financial resilience is increasingly influenced by digital financial behavior. While access to digital financial services can support financial management, it may also expose individuals to risks such as overspending and poor financial control if not accompanied by adequate financial knowledge. Therefore, financial education plays a crucial role in strengthening financial resilience by improving both financial literacy and financial behavior.

In this study, financial resilience is considered an important outcome that reflects the effectiveness of financial education in preparing students to cope with economic uncertainty in digital learning environments.

### **Relationship between Financial Education and Financial Literacy**

Financial education and financial literacy are closely interconnected concepts, where financial education serves as a key mechanism for improving individuals' financial literacy. Financial education provides structured knowledge, skills, and guidance that enable individuals to understand financial concepts and apply them in real-life financial decision-making (OECD, 2021; Lusardi et al., 2020).

Empirical studies consistently show that financial education has a positive and significant effect on financial literacy. Kaiser and Menkhoff (2020), through a meta-analysis, found that financial education interventions significantly improve financial knowledge and behavior across different populations. Similarly, Fernandes et al. (2020) highlight that financial education contributes to better financial decision-making, particularly when it is designed to be practical and context-specific.

In the context of students, financial education plays a crucial role in shaping financial literacy at an early stage. Students who receive financial education tend to demonstrate higher levels of financial knowledge, better financial behavior, and stronger financial attitudes compared to those who do not (Xiao & Porto, 2021; Morgan & Long, 2020). This relationship becomes even more important in the digital era, where students are required to navigate complex financial systems and digital financial services.

However, the effectiveness of financial education in improving financial literacy may depend on several factors, including the delivery method, content relevance, and the integration of digital financial contexts. In particular, there is limited research examining how financial education programs influence financial literacy among distance learning students who are highly exposed to digital financial environments.

Therefore, this study builds on the premise that financial education has a positive effect on financial literacy and seeks to examine this relationship within the context of digital-era distance learning. Based on this relationship, the following hypothesis is proposed:

H1: Financial education has a positive and significant effect on students' financial literacy.

### **Role of Digital Financial Behavior in Financial Literacy**

Digital financial behavior plays a significant role in shaping individuals' financial literacy, particularly in the context of the digital era. The increasing use of digital financial services, such as e-wallets, mobile banking, and online investment platforms, requires individuals to actively engage in financial decision-making processes. This engagement can enhance financial understanding through practical experience and continuous interaction with financial tools (OECD, 2021; Klapper & Lusardi, 2020).

Empirical studies suggest that individuals who actively use digital financial services tend to develop better financial knowledge and skills, as they are more exposed to financial information and real-time financial decision-making (Morgan & Long, 2020; Xiao & Porto, 2021). In this sense, digital financial behavior can act as an enabling factor that strengthens financial literacy.

However, digital financial behavior also presents potential risks. Without adequate financial literacy, high exposure to digital financial platforms may lead to impulsive spending, poor financial planning, and ineffective financial management (Rahayu et al., 2022; Yusuf & Kurniawan, 2022). This indicates that digital financial behavior can have both positive and negative effects, depending on the level of individuals' financial understanding.

In the context of students, particularly those in distance learning environments, digital financial behavior becomes highly relevant due to their intensive use of digital platforms. Therefore, understanding its role is essential in explaining variations in students' financial literacy.

Based on this perspective, this study proposes that digital financial behavior influences students' financial literacy, leading to the following hypothesis:

H2: Digital financial behavior has a positive and significant effect on students' financial literacy.

### **Previous Studies**

Previous studies have extensively examined the role of financial education and financial literacy in shaping individuals' financial behavior and well-being. Financial education has been widely recognized as a key factor in improving financial literacy and promoting responsible financial decision-making. Kaiser and Menkhoff (2020) found that financial education programs have a positive and significant impact on financial knowledge and behavior across various contexts. Similarly, Fernandes et al. (2020) highlight that

financial education contributes to improved financial decision-making, particularly when it is practical and relevant to individuals' needs.

In the context of students, several studies indicate that financial literacy remains relatively low, particularly in developing countries. Research by Lusardi et al. (2020) and Atkinson and Messy (2020) shows that limited financial knowledge among young individuals often leads to poor financial behavior, such as inadequate saving and ineffective financial planning. Furthermore, Xiao and Porto (2021) emphasize that financial literacy plays a critical role in shaping long-term financial well-being and resilience.

Recent studies have also highlighted the growing importance of digital financial behavior in influencing financial literacy. Morgan and Long (2020) find that engagement with digital financial services can enhance financial knowledge through practical experience. However, other studies indicate that excessive exposure to digital financial platforms may lead to negative outcomes, such as impulsive spending and overconsumption, particularly among individuals with low financial literacy (Rahayu et al., 2022; Yusuf & Kurniawan, 2022).

Despite these findings, there are still several limitations in the existing literature. Most previous studies focus on general populations or traditional learning environments, with limited attention to distance learning students. In addition, the interaction between financial education and digital financial behavior in shaping financial literacy remains underexplored.

Therefore, this study seeks to address these gaps by examining the effectiveness of financial education programs in enhancing students' financial literacy within the context of digital financial exposure and distance learning environments.

### **Research Gap and Conceptual Framework**

Despite the extensive literature on financial education and financial literacy, several important gaps remain. First, most previous studies primarily focus on general populations or students in traditional learning environments, with limited attention to distance learning students who rely heavily on digital platforms. This group represents a unique context characterized by high exposure to digital financial services but potentially limited structured financial education (Putri & Rahmawati, 2023; Hasanah et al., 2024).

Second, while prior research has established that financial education positively influences financial literacy, the interaction between financial education and digital financial behavior remains underexplored. Existing studies tend to examine these variables separately, without fully capturing how digital financial engagement shapes the effectiveness of financial education in improving financial literacy (Morgan & Long, 2020; Rahayu et al., 2022).

Third, in the digital era, individuals are increasingly exposed to both opportunities and risks associated with financial technology. However, there is still limited empirical evidence examining how financial education programs can be adapted to address the dual role of digital financial behavior as both an enabler and a risk factor in shaping financial literacy, particularly in developing country contexts.

Based on these gaps, this study proposes a conceptual framework that integrates financial education and digital financial behavior in explaining students' financial literacy. Financial education is positioned as the independent variable that directly influences financial literacy, while digital financial behavior is considered as an additional factor influencing financial literacy within digital environments.

The conceptual framework of this study is illustrated as follows:

Financial Education → Financial Literacy

Digital Financial Behavior → Financial Literacy

Based on this framework, the hypotheses of this study are formulated as follows:

H1: Financial education has a positive and significant effect on students' financial literacy.

H2: Digital financial behavior has a positive and significant effect on students' financial literacy.

This framework provides a comprehensive understanding of how financial literacy is shaped in the digital era, particularly among distance learning students. By integrating financial education and digital financial behavior, this study offers a more contextual and adaptive perspective that addresses the limitations of previous research.

### **Financial Education**

Financial education refers to the process of improving individuals' financial knowledge, skills, attitudes, and behaviors to enable them to make informed and effective financial decisions. In the modern economic environment, financial education has become increasingly important due to the growing complexity of financial products and services, particularly in the digital era (OECD, 2021; Lusardi et al., 2020). It is not only concerned with knowledge acquisition but also with shaping individuals' financial behavior and decision-making processes.

According to OECD (2021), financial education is defined as a process through which individuals improve their understanding of financial concepts and risks, and through information, instruction, or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities. Similarly, Lusardi et al. (2020) emphasize that financial education plays a critical role in equipping individuals with the ability to plan, save, invest, and manage financial resources effectively.

In the context of higher education, financial education is particularly important for students, as they are at a transitional stage where they begin to manage their own finances independently. Studies have shown that students who receive financial education tend to demonstrate better financial behavior, including budgeting, saving, and responsible use of financial products (Kaiser & Menkhoff, 2020; Fernandes et al., 2020). Financial education also contributes to improving financial literacy, which is essential for long-term financial well-being.

Furthermore, in the digital era, financial education must adapt to the increasing use of financial technology. The integration of digital financial tools into everyday life requires individuals to possess not only basic financial knowledge but also digital financial competencies. Without adequate financial education, the widespread use of digital financial services may lead to negative outcomes such as impulsive spending and poor financial decision-making (Klapper & Lusardi, 2020; Rahayu et al., 2022).

Previous studies have consistently found that financial education programs have a positive impact on financial literacy and financial behavior. For instance, Kaiser and Menkhoff (2020) demonstrate that financial education interventions significantly improve individuals' financial knowledge and behavior across different contexts. However, the effectiveness of financial education programs may vary depending on the delivery method, content, and target population. In particular, there is still limited research examining how financial education can be optimized in digital learning environments, such as distance education.

Therefore, financial education plays a crucial role not only in enhancing financial literacy but also in shaping adaptive financial behavior, especially in the context of increasing digital financial exposure. This study builds on this perspective by examining the effectiveness of financial education programs in improving students' financial literacy within distance learning environments in the digital era.

### **Financial Literacy**

Financial literacy refers to an individual's ability to understand financial concepts and apply such knowledge in making effective financial decisions. It encompasses financial knowledge, financial behavior, and financial attitudes, which together influence how individuals manage their financial resources (OECD, 2021; Lusardi et al., 2020). In the digital era, financial literacy has become increasingly important as individuals are required to navigate more complex financial products and digital financial services.

For students, financial literacy plays a critical role in shaping responsible financial behavior, including budgeting, saving, and managing financial risks. Higher levels of financial literacy are associated with better financial decision-making and improved financial well-being (Morgan & Long, 2020; Xiao & Porto, 2021). However, studies indicate that many students still exhibit low levels of financial literacy, particularly in developing countries, which may lead to poor financial behavior and vulnerability to financial risks (Atkinson & Messy, 2020; Susanti et al., 2023).

In addition, the increasing use of digital financial platforms requires students to possess not only basic financial knowledge but also the ability to apply it in digital contexts. Without adequate financial literacy, exposure to digital finance may result in impulsive spending and ineffective financial management. Therefore, strengthening financial literacy through effective financial education programs is essential to support students in adapting to economic uncertainty and digital financial environments.

### **Digital Financial Behavior**

Digital financial behavior refers to individuals' financial actions and decision-making processes in using digital financial services, such as mobile banking, e-wallets, online payments, and digital investment platforms. In the digital era, financial behavior is increasingly shaped by the accessibility and convenience of financial technology, which enables faster and more efficient financial transactions (Klapper & Lusardi, 2020; OECD, 2021).

For students, digital financial behavior plays a significant role in daily financial activities, including spending, saving, and financial planning. The widespread use of digital financial services provides opportunities to improve financial management; however, it also poses risks such as impulsive spending, overconsumption, and lack of financial control if not supported by adequate financial literacy (Rahayu et al., 2022; Yusuf & Kurniawan, 2022).

Empirical studies suggest that positive digital financial behavior is closely associated with higher levels of financial literacy, where individuals are more likely to make informed and responsible financial decisions (Morgan & Long, 2020). Conversely, low financial literacy may lead to unfavorable financial behavior despite high access to digital financial tools.

Therefore, digital financial behavior can act as both an enabling factor and a risk factor in shaping students' financial outcomes. In this study, digital financial behavior is considered an important element in understanding how financial education influences financial literacy in the context of the digital era and distance learning environments.

### **Economic Uncertainty**

Economic uncertainty refers to unpredictable changes in economic conditions that affect individuals' financial stability, decision-making, and future expectations. It is often driven by factors such as economic fluctuations, inflation, technological disruption, and global crises, which create instability in income, employment, and financial markets (Baker et al., 2020; OECD, 2021). In recent years, economic uncertainty has intensified, requiring individuals to be more adaptive and cautious in managing their financial resources.

For students, economic uncertainty presents significant challenges, as they often have limited financial resources and are in the early stages of financial independence. Under such conditions, the ability to manage finances effectively becomes crucial to avoid financial vulnerability. Studies indicate that individuals with higher levels of financial literacy are better prepared to cope with economic uncertainty, as they are more capable of planning, saving, and managing financial risks (Lusardi et al., 2020; Xiao & Porto, 2021).

In the digital era, the impact of economic uncertainty is further amplified by the rapid development of digital financial services. While these services provide greater access to financial tools, they also require individuals to make more complex financial decisions in uncertain environments. Without adequate financial knowledge and behavior, individuals may face increased financial risks.

Therefore, understanding economic uncertainty is essential in this study, as it provides the context in which financial education and financial literacy become increasingly important. This study emphasizes that improving students' financial literacy through financial education programs is a key strategy to help them adapt to and manage economic uncertainty effectively.

### **Financial Resilience**

Financial resilience refers to an individual's ability to withstand, adapt to, and recover from financial shocks or economic disruptions. It reflects the capacity to maintain financial stability through effective financial planning, saving, and risk management, particularly in uncertain economic conditions (OECD, 2021; Lusardi et al., 2020).

For students, financial resilience is an important capability, as they often face financial limitations and are more vulnerable to economic uncertainty. The ability to manage income, control expenses, and prepare for unexpected financial needs is essential in ensuring their financial well-being. Studies indicate that individuals with higher financial literacy tend to demonstrate stronger financial resilience, as they are better equipped to make informed financial decisions and manage risks effectively (Xiao & Porto, 2021; Morgan & Long, 2020).

In the digital era, financial resilience is increasingly influenced by digital financial behavior. While access to digital financial services can support financial management, it may also expose individuals to risks such as overspending and poor financial control if not accompanied by adequate financial knowledge. Therefore, financial education plays a crucial role in strengthening financial resilience by improving both financial literacy and financial behavior.

In this study, financial resilience is considered an important outcome that reflects the effectiveness of financial education in preparing students to cope with economic uncertainty in digital learning environments.

### **Relationship between Financial Education and Financial Literacy**

Financial education and financial literacy are closely interconnected concepts, where financial education serves as a key mechanism for improving individuals' financial literacy. Financial education

provides structured knowledge, skills, and guidance that enable individuals to understand financial concepts and apply them in real-life financial decision-making (OECD, 2021; Lusardi et al., 2020).

Empirical studies consistently show that financial education has a positive and significant effect on financial literacy. Kaiser and Menkhoff (2020), through a meta-analysis, found that financial education interventions significantly improve financial knowledge and behavior across different populations. Similarly, Fernandes et al. (2020) highlight that financial education contributes to better financial decision-making, particularly when it is designed to be practical and context-specific.

In the context of students, financial education plays a crucial role in shaping financial literacy at an early stage. Students who receive financial education tend to demonstrate higher levels of financial knowledge, better financial behavior, and stronger financial attitudes compared to those who do not (Xiao & Porto, 2021; Morgan & Long, 2020). This relationship becomes even more important in the digital era, where students are required to navigate complex financial systems and digital financial services.

However, the effectiveness of financial education in improving financial literacy may depend on several factors, including the delivery method, content relevance, and the integration of digital financial contexts. In particular, there is limited research examining how financial education programs influence financial literacy among distance learning students who are highly exposed to digital financial environments.

Therefore, this study builds on the premise that financial education has a positive effect on financial literacy and seeks to examine this relationship within the context of digital-era distance learning. Based on this relationship, the following hypothesis is proposed:

H1: Financial education has a positive and significant effect on students' financial literacy.

#### **Role of Digital Financial Behavior in Financial Literacy**

Digital financial behavior plays a significant role in shaping individuals' financial literacy, particularly in the context of the digital era. The increasing use of digital financial services, such as e-wallets, mobile banking, and online investment platforms, requires individuals to actively engage in financial decision-making processes. This engagement can enhance financial understanding through practical experience and continuous interaction with financial tools (OECD, 2021; Klapper & Lusardi, 2020).

Empirical studies suggest that individuals who actively use digital financial services tend to develop better financial knowledge and skills, as they are more exposed to financial information and real-time financial decision-making (Morgan & Long, 2020; Xiao & Porto, 2021). In this sense, digital financial behavior can act as an enabling factor that strengthens financial literacy.

However, digital financial behavior also presents potential risks. Without adequate financial literacy, high exposure to digital financial platforms may lead to impulsive spending, poor financial planning, and ineffective financial management (Rahayu et al., 2022; Yusuf & Kurniawan, 2022). This indicates that digital financial behavior can have both positive and negative effects, depending on the level of individuals' financial understanding.

In the context of students, particularly those in distance learning environments, digital financial behavior becomes highly relevant due to their intensive use of digital platforms. Therefore, understanding its role is essential in explaining variations in students' financial literacy.

Based on this perspective, this study proposes that digital financial behavior influences students' financial literacy, leading to the following hypothesis:

H2: Digital financial behavior has a positive and significant effect on students' financial literacy.

#### **Previous Studies**

Previous studies have extensively examined the role of financial education and financial literacy in shaping individuals' financial behavior and well-being. Financial education has been widely recognized as a key factor in improving financial literacy and promoting responsible financial decision-making. Kaiser and Menkhoff (2020) found that financial education programs have a positive and significant impact on financial knowledge and behavior across various contexts. Similarly, Fernandes et al. (2020) highlight that financial education contributes to improved financial decision-making, particularly when it is practical and relevant to individuals' needs.

In the context of students, several studies indicate that financial literacy remains relatively low, particularly in developing countries. Research by Lusardi et al. (2020) and Atkinson and Messy (2020) shows that limited financial knowledge among young individuals often leads to poor financial behavior, such as inadequate saving and ineffective financial planning. Furthermore, Xiao and Porto (2021)

emphasize that financial literacy plays a critical role in shaping long-term financial well-being and resilience.

Recent studies have also highlighted the growing importance of digital financial behavior in influencing financial literacy. Morgan and Long (2020) find that engagement with digital financial services can enhance financial knowledge through practical experience. However, other studies indicate that excessive exposure to digital financial platforms may lead to negative outcomes, such as impulsive spending and overconsumption, particularly among individuals with low financial literacy (Rahayu et al., 2022; Yusuf & Kurniawan, 2022).

Despite these findings, there are still several limitations in the existing literature. Most previous studies focus on general populations or traditional learning environments, with limited attention to distance learning students. In addition, the interaction between financial education and digital financial behavior in shaping financial literacy remains underexplored.

Therefore, this study seeks to address these gaps by examining the effectiveness of financial education programs in enhancing students' financial literacy within the context of digital financial exposure and distance learning environments.

### **Research Gap and Conceptual Framework**

Despite the extensive literature on financial education and financial literacy, several important gaps remain. First, most previous studies primarily focus on general populations or students in traditional learning environments, with limited attention to distance learning students who rely heavily on digital platforms. This group represents a unique context characterized by high exposure to digital financial services but potentially limited structured financial education (Putri & Rahmawati, 2023; Hasanah et al., 2024).

Second, while prior research has established that financial education positively influences financial literacy, the interaction between financial education and digital financial behavior remains underexplored. Existing studies tend to examine these variables separately, without fully capturing how digital financial engagement shapes the effectiveness of financial education in improving financial literacy (Morgan & Long, 2020; Rahayu et al., 2022).

Third, in the digital era, individuals are increasingly exposed to both opportunities and risks associated with financial technology. However, there is still limited empirical evidence examining how financial education programs can be adapted to address the dual role of digital financial behavior as both an enabler and a risk factor in shaping financial literacy, particularly in developing country contexts.

Based on these gaps, this study proposes a conceptual framework that integrates financial education and digital financial behavior in explaining students' financial literacy. Financial education is positioned as the independent variable that directly influences financial literacy, while digital financial behavior is considered as an additional factor influencing financial literacy within digital environments.

The conceptual framework of this study is illustrated as follows:

Financial Education → Financial Literacy

Digital Financial Behavior → Financial Literacy

Based on this framework, the hypotheses of this study are formulated as follows:

H1: Financial education has a positive and significant effect on students' financial literacy.

H2: Digital financial behavior has a positive and significant effect on students' financial literacy.

This framework provides a comprehensive understanding of how financial literacy is shaped in the digital era, particularly among distance learning students. By integrating financial education and digital financial behavior, this study offers a more contextual and adaptive perspective that addresses the limitations of previous research.

### **Methods**

#### **Research Design (Mixed-Method)**

This study employs a mixed-method research design, integrating both quantitative and qualitative approaches to provide a comprehensive understanding of the research problem.

The quantitative approach is used to examine the relationship between financial education, digital financial behavior, and financial literacy through statistical analysis. Meanwhile, the qualitative approach aims to provide deeper insights into students' financial behavior and perceptions through expert interviews.

This combination enables data triangulation, thereby enhancing the validity, reliability, and depth of the research findings.

### **Population and Sample**

The population of this study consists of university students, particularly those enrolled in distance learning programs.

The sample includes 100 students ( $n = 100$ ) who have participated in financial education programs, specifically through a financial literacy webinar. This criterion ensures that all respondents have prior exposure to financial education, making them relevant for evaluating the effectiveness of such programs.

A purposive sampling technique is employed to select respondents who meet this criterion, ensuring that the data collected is aligned with the research objectives.

### **Data Collection**

#### **Survey (Questionnaire)**

The primary data for the quantitative analysis were collected through a structured questionnaire distributed to students who had previously participated in a financial literacy webinar.

This selection ensures that respondents possess basic knowledge of financial education, allowing for a more accurate assessment of its impact on financial literacy and digital financial behavior. The questionnaire is designed to measure:

- Financial education exposure
- Financial literacy level
- Digital financial behavior
- All responses are measured using a Likert scale.

#### **Interview (Expert Insight)**

To complement the quantitative findings, semi-structured interviews were conducted with selected experts in the fields of financial education and digital finance.

These interviews aim to:

- Provide deeper insights into students' financial behavior
- Validate and enrich the quantitative results
- Explore practical implications of financial education programs in the digital era

### **Research Instruments**

The main research instrument used in this study is a structured questionnaire based on a Likert scale (1–5), where:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Validity and Reliability

To ensure data quality, the instrument was tested through:

- Validity Test: Conducted using Pearson Product-Moment Correlation to determine whether each item accurately measures the intended variable.
- Reliability Test: Assessed using Cronbach's Alpha, with a minimum threshold of 0.70, indicating acceptable internal consistency.

### **Variable Measurement**

This study involves three main variables:

#### **Financial Education (Independent Variable)**

Financial education refers to students' exposure to financial knowledge and participation in financial learning programs.

Indicators include:

- Participation in financial education programs (e.g., webinars)
- Understanding of financial concepts
- Ability to apply financial knowledge in daily life

### **Financial Literacy (Dependent Variable)**

Financial literacy refers to students' ability to understand, manage, and make effective financial decisions.

Indicators include:

- Financial knowledge
- Financial behavior (saving, budgeting, spending control)
- Financial decision-making ability

### **Digital Financial Behavior (Independent Variable)**

Digital financial behavior refers to students' financial activities conducted through digital platforms.

Indicators include:

- Use of digital financial services (e-wallets, mobile banking)
- Frequency of online transactions
- Spending behavior in digital environments
- Control over impulsive buying

### **Data Analysis Techniques**

#### **Regression Analysis**

Quantitative data are analyzed using multiple linear regression analysis to examine the influence of financial education and digital financial behavior on financial literacy.

The regression model is formulated as follows:

$$FL = \beta_0 + \beta_1 FE + \beta_2 DFB + \varepsilon$$

Where:

FL = Financial Literacy

FE = Financial Education

DFB = Digital Financial Behavior

$\beta$  = Regression coefficients

$\varepsilon$  = Error term

To ensure the robustness of the model, several classical assumption tests are conducted, including:

Normality test

Multicollinearity test

Heteroscedasticity test

#### **Thematic Analysis**

Qualitative data obtained from interviews are analyzed using thematic analysis.

This process involves:

Data transcription

Coding and categorization

Identification of key themes

Interpretation of patterns and insights

This analysis supports and enriches the quantitative findings by providing deeper contextual understanding of students' financial behavior in the digital era.

### **Results and Discussions**

#### **Respondent Profile and Distance Learning Context**

Based on the survey data collection, this study successfully reached 124 respondents, exceeding the initial target of 100 distance learning students. Demographic characteristics indicate that the majority of respondents are female with 87 students (70.2%), while male respondents accounted for 37 students (29.8%). In terms of age, the 20–25 years old age group dominates with 71 respondents (57.3%), representing a young adult demographic that is highly susceptible to the massive exposure of digital financial services such as e-wallets and paylater. This profile is highly representative for examining the main research problem regarding the level of students' financial literacy amidst high digital technology exposure.

#### **Data Quality and Classical Assumption Tests**

In accordance with the quantitative research design, the instruments were evaluated for their feasibility prior to hypothesis testing.

**Reliability and Validity Tests:** All variables demonstrated excellent internal consistency with Cronbach's Alpha values well above the 0.70 threshold, namely Financial Education (FE) at 0.949, Digital Financial Behavior (DFB) at 0.782, and Financial Literacy (FL) at 0.940.

**Classical Assumption Tests:** The model met the normality assumption (Shapiro-Wilk test  $W=0.903$ ,  $p<0.05$ ) and was free from multicollinearity symptoms, as the Variance Inflation Factor (VIF) values for the FE and DFB variables were only 1.31 each, far below the critical threshold of 10.

### **Multiple Linear Regression Analysis Results**

To address the research questions regarding the extent of the influence of financial education and digital financial behavior, the regression analysis generated the following equation

**Simultaneous Significance Test (F-Test):** The F-statistic value was recorded at 105.597 with a significance level of  $p < 0.001$ . This indicates that the regression model is a good fit, and collectively, financial education programs and digital financial behavior significantly influence students' financial literacy.

**Model Explanatory Power ( $R^2$ ):** The Adjusted  $R^2$  value is 0.630, indicating that 63% of the variance in the financial literacy level of distance learning students can be explained by their participation in financial education and their digital behavior, while the remaining 37% is influenced by other external factors not included in this model.

**Hypothesis 1 Testing (H1):** The regression coefficient for FE is 0.449 ( $p < 0.001$ ). With this result, H1 is accepted, proving that financial education has a positive and significant effect on students' financial literacy.

**Hypothesis 2 Testing (H2):** The regression coefficient for DFB is 0.415 ( $p < 0.001$ ). With this result, H2 is accepted, proving that digital financial behavior positively and significantly strengthens students' financial literacy.

### **Discussion**

#### **Effectiveness of Financial Education Programs in Distance Learning Environments (Addressing Objectives 1 & 3)**

These findings directly address the core issue of low student financial literacy. The analysis proves that interventions through financial education programs (such as webinars) are highly effective in improving the financial decision-making abilities of distance learning students. With an average financial education score of 3.94 (on a 5-point scale), students demonstrated excellent reception to the learning materials provided. In line with the research's conceptual framework, financial education serves as a primary foundation that equips students with the ability to budget, distinguish between needs and wants, and prepare emergency funds amidst economic uncertainty.

#### **The Influence and Forms of Students' Digital Financial Behavior (Addressing Objectives 2 & 4)**

Regarding how digital exposure shapes student behavior, the data processing results reveal that Digital Financial Behavior has an average response score of 3.82, indicating high student engagement with online transactions and mobile banking. In accordance with the second hypothesis (H2), this engagement yields a positive impact as it provides practical experience in monitoring transaction history in real-time, which in turn enhances their literacy (acting as an enabling factor).

However, integrating the qualitative analysis from expert interviews (mixed-method) deepens this finding: the convenience of digital payment access also carries inherent risks in the form of impulsive decision-making. Without being accompanied by strong financial education, features like online promos and paylater have the potential to trigger uncontrolled consumptive behavior. This confirms the argument presented in the introduction that financial technology alone is insufficient if it is not balanced with a solid foundational understanding.

#### **Recommendations for Developing Adaptive Programs (Addressing Objective 5)**

Based on the synthesis of the statistical results and qualitative findings, this study asserts that distance learning institutions must urgently integrate digital financial literacy into their curriculum or student development programs. Educational programs should no longer merely teach conventional saving concepts but must be adaptive—specifically addressing the risk management of e-wallet usage, strategies to avoid paylater debt traps, and the mitigation of impulsive spending within e-commerce ecosystems. Strengthening

this financial resilience is crucial so that students are well-prepared to survive and adapt to economic disruptions in the modern era.

## **Conclusion and Recommendations**

### **Conclusion**

Based on the quantitative data analysis of 124 respondents and the synthesis of qualitative findings, this study draws the following main conclusions:

**The Effectiveness of Financial Education:** Financial education programs have been empirically proven to have a positive and significant impact on improving the financial literacy of distance learning students. This education serves as a crucial foundation that equips students with the structural knowledge to create budgets, manage emergency funds, and make rational financial decisions amidst increasing economic uncertainty.

**The Dual Role of Digital Financial Behavior:** Digital financial behavior is also proven to have a positive and significant effect in shaping financial literacy. Students' active engagement with digital financial services (such as e-wallets and mobile banking) provides practical experience (an enabling factor) that sharpens their financial monitoring skills.

**Risks Behind Digital Convenience:** On the other hand, the mixed-method approach in this study confirms that exposure to digital financial services is a double-edged sword. Without being supported by an adequate understanding of financial education, the convenience of digital transactions carries a high risk of triggering consumptive behavior, impulsive decision-making due to online promotions, and the risk of default when utilizing credit services like paylater.

Overall, the integration of financial education and the experience of using digital financial services accounts for 63% of the variance in students' financial literacy, emphasizing the importance of these two elements going hand in hand.

### **Recommendations**

Referring to the conclusions above, this study recommends several strategic steps:

#### **For Educational Institutions and Policymakers:**

Educational institutions, particularly distance learning providers, are advised to integrate digital-based financial literacy modules into their curriculum or student extracurricular programs. The educational programs provided must be adaptive, focusing not only on conventional saving theories but also encompassing digital risk management, wise strategies for using paylater, and the mitigation of consumptive behavior within the e-commerce ecosystem.

#### **For Students:**

Students are expected not to solely rely on the convenience of financial technology but must also proactively improve their financial literacy capacity. The awareness to distinguish between needs and wants must consistently be applied before executing digital transactions to ensure that financial resilience is maintained in uncertain times.

#### **For Future Researchers:**

Since this research model explains 63% of the variance in financial literacy, it is recommended that future researchers explore other external factors comprising the remaining 37% that have not yet been examined, such as socio-economic backgrounds, psychological factors (e.g., lifestyle or peer pressure), and institutional policies. Furthermore, the use of longitudinal methods is suggested to observe the long-term impact of financial education on changes in digital financial behavior.

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