

**Intelligence, Financial Literacy, and Financial Behavior:
A Study on Generation Z**

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Abstract: Financial behavior plays an important role in determining individual welfare. A person will behave financially well when he understands the concept of finance well. In addition, each individual is also endowed with intelligence to help him in carrying out every activity that will be carried out. The purpose of this study is to examine the role of financial literacy on financial behavior in Generation Z and also to examine intelligence as a moderating role. The analysis used was the SEM-PLS approach. We collected 400 respondents using an online questionnaire. The results of this study indicate that financial literacy has a positive effect on financial behavior and intelligence has a positive impact on financial behavior. However, intelligence cannot strengthen the influence between financial literacy and financial behavior. The financial behavior of Gen Z needs to get more attention from the government considering that Indonesia is now entering the demographic bonus era where this generation dominates the overall population.

Keywords: financial literacy, financial behavior, intelligence, gen z

Abstrak: *Perilaku keuangan memiliki peranan penting dalam menentukan kesejahteraan individu. Seseorang akan berperilaku keuangan dengan baik tatkala ia memahami konsep keuangan dengan baik juga. Selain itu, setiap individu juga dianugerahi kecerdasan untuk membantunya dalam menjalankan setiap kegiatan yang akan dilakukan. Tujuan penelitian ini adalah untuk menguji peran literasi keuangan terhadap perilaku keuangan di generasi Z dan juga menguji kecerdasan sebagai peran moderasi pada literasi keuangan dan perilaku keuangan Generasi Z. Analisis yang digunakan adalah dengan pendekatan SEM-PLS. Peneliti mengumpulkan 400 responden dengan menggunakan kuesioner secara online. Hasil penelitian ini menunjukkan bahwa literasi keuangan berpengaruh positif terhadap perilaku keuangan dan kecerdasan berpengaruh positif terhadap perilaku keuangan. Namun, kecerdasan tidak mampu memperkuat pengaruh antara literasi keuangan dan perilaku keuangan. Perilaku keuangan Gen Z ini perlu mendapatkan perhatian lebih dari pemerintah mengingat di Indonesia sekarang memasuki era bonus demografi yang mana generasi ini mendominasi populasi secara keseluruhan.*

Kata kunci: literasi keuangan, perilaku keuangan, kecerdasan, generasi z

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INTRODUCTION

Financial literacy measures individual understanding and also confidence and skills in personal financial management (OJK, 2016). Those knowledgeable and comfortable about financial services are considered to have a high level of financial literacy. Additionally, they exhibit positive attitudes, skills, and behaviors when utilizing financial products and services. The results of the 2022 SNLIK (National Survey of Indonesian Financial Literacy and Inclusion) showed that the financial literacy index of the Indonesian people was 49,68 percent, an increase compared to 2019, which was only 38,03 percent. The level of individual financial literacy will be influenced by demographic factors such as age, gender, education level, income level, region of residence and so on. Still, based on a survey from OJK in 2022, the financial literacy index of men is higher than women, which is 86,28 percent for men and 83,88 percent for women. Based on education level the higher a person's education level, the higher the financial literacy index. Based on region, the financial literacy index of urban communities is higher than rural communities, where the figures are 50,52 percent and 48,43 percent, respectively.

Financial literacy can support the growth of an individual's financial wealth. With sufficient financial literacy, a person can make smart financial decisions such as managing money effectively, making a good budget, controlling savings and loans, and making the right investment decisions. This will have an impact on the level of welfare that is increasing. Several previous studies have shown that there is an influence between financial literacy and individual financial management (Arceo-Gómez & Villagómez, 2017; Awais et al., 2016; Engels et al., 2020; Grohmann et al., 2018; Lusardi & Mitchell, 2011; Menkhoff et al., 2014; P.R. Andarsari, 2019; Rai et al., 2019; Servon & Kaestner, 2008). Everyone needs professionalism in managing finances, especially in the digital era like today. With the rapid development of technology, it will be difficult for individuals to refrain from following the current era's trends, such as the temptation to shop, which is greatly facilitated by e-commerce.

Good financial behavior in its application requires additional abilities that can support it, one of which is intelligence. Intelligence itself is divided into 3 types, namely intellectual intelligence (Intelligence Quotient-IQ), emotional intelligence (Emotional Quotient-EQ), and spiritual intelligence (Spiritual Quotient-SQ). Several previous studies have stated that human intelligence affects a person's financial behavior (Asandimitra & Kautsar, 2019; Claudia & MN, 2019; Dwiastanti & Wahyudi, 2022; Fauziyah & Aty Ruhayati, 2016; Rozaini et al., 2018; Setyorini & Usman, 2022). The intellectual intelligence that a person has will be able to support critical and analytical thinking, which will have a good impact on his financial strategy.

In its application, intellectual intelligence in information processing does not use emotions. Ackert et al., (2020) describe IQ as the cognitive ability to perform a task and make decisions. Furthermore, according to Goleman (1999) emotional intelligence is used to indicate the ability to manage emotions for motivation, achieving goals, and planning as well as skills to accurately assess personal and other people's emotions. Emotional intelligence and intellectual intelligence can be integrated with spiritual intelligence (Gabritha, 2014).

Generation Z or post millennial generation is a generation that is accustomed to the existence and benefits of technology. Born in the digital era, this generation can easily adapt to any situation. With this adaptability, this generation has broad horizons, ambitious careers, and a tendency to think instantly. In addition, this generation seeks recognition, loves freedom, appreciates differences and is meticulous about details. Based on the results of a survey conducted by Katadata, this generation tends to be impulsive when shopping and rarely saves. This is none other than because this generation often feels fear of missing out (FOMO) where this condition arises when someone is afraid of being said not to be updated, not slang, and out of date.

Currently, Malang City is the city in East Java with the 3rd highest population density according to data from www.jatim.bps.go.id. By the end of 2021, the number of Generation Z in Malang City will reach 260,356 people according to data from www.malangkota.bps.go.id. According to the Central Bureau of Statistics (2021), in the next 7 years, all Generation Z will be in the productive age population group. Demographic factors greatly affect the level of financial literacy of an individual. Generation Z can be said to be a tech-savvy generation, but they lack problem-solving skills. In addition, generation Z has not shown skills in terms of seeing context and situation, analysis and decision-making (Rachmawati, 2019). Many previous studies have linked emotional intelligence with financial behavior according to Bialowolski et al., (2021); Gabritha (2014); Kartika et al., (2018); Handayani, (2020); Vohra, (2016) but there are still very few that use all three dimensions of intelligence at once (intellectual, emotional and spiritual).

LITERATURE REVIEW

Financial Behavior

Financial behavior is based on the desire of a person to meet their needs by the level of income earned. Financial behavior is aimed at someone to be responsible for planning, budgeting, managing, organizing, and storing their finances so that they can be used effectively and as needed without causing problems for the individual. Someone who has responsibility for their financial behavior will use money effectively by budgeting, saving money and controlling expenses, investing, and paying debts on time (de Bassa Scheresberg, 2013; Galapon & Bool, 2022; Gordillo Kontio & Tapio, 2017; Pham et al., 2012).

Several previous studies have shown several antecedents that make a person have good financial behavior, one of which is financial literacy. The existence of qualified knowledge related to financial literacy will help anyone to be more skillful in managing their finances. One of them is planning and knowing how to utilize financial products and services (Allgood & Walstad, 2016; Masrurun & Yanto, 2015; Menkhoff et al., 2014; Ningtyas, 2019; P.R. Andarsari, 2019).

Financial Literacy

Four categories comprise the level of financial literacy of Indonesians. These are: Financial Literacy is defined as the knowledge, skills, and beliefs that affect attitudes and behaviors to improve the quality of decision-making and financial management to achieve prosperity (POJK, 2016). The financial literacy level of the Indonesian population is divided into four parts, the first part is well literate (21,84%), which means knowing and trusting in financial service providers and their offerings, including their features, advantages, and risks as well as the rights and responsibilities associated with them. The second part is sufficiently literate (75,69%), having confidence and understanding of financial service providers, financial goods, and services, including their characteristics, advantages, and hazards, as well as the rights and responsibilities associated with them. The third is less literate (2,06%), having limited understanding of financial services, products, and institutions. The last part is not literate (0,41%), lacks expertise in using financial products and services, lacks awareness of financial service organizations, and lack confidence in financial products and services.

Intellectual Intelligence

Intellectual intelligence according to Robbins & Judge (2008) is the skill to solve problems and conclude and process information to become real in carrying out thinking activities. Intellectual intelligence has 7 dimensions according to Robbins (2001), the first dimension is numerical intelligence, skills in calculating quickly and precisely. The second dimension is verbal understanding, skills in understanding what is heard and read. Furthermore, the third dimension is the speed of perception, and skills in recognizing similarities and differences quickly and precisely. The next dimension is Inductive reasoning, skills in recognizing the logical sequence of problems and solving these problems. In addition to inductive reasoning, there is also the dimension of deductive reasoning, skills in using logic and assessing an argument. The next dimension is spatial visualization, the skill of describing an object that will appear if there is a change. The last dimension is memory, the ability to remember and retain past experiences.

Previous studies have shown that the more someone is said to be intellectually intelligent, the better his financial behavior will be. This is because this intelligence describes the cognitive ability to perform a task and make decisions so that even in a financial context, he will make wise financial decisions (Ackert et al., 2020).

Emotional Intelligence

According to Goleman (1999) emotional intelligence is used to indicate the ability to manage emotions for motivation, achieving goals, and planning as well as skills to accurately assess personal and other people's emotions. Emotional intelligence is a person's ability to accept, assess, manage, and control the emotions of himself and others around him. Emotional intelligence or what is commonly called Emotional Intelligence (EQ) includes the ability to interact socially, manage one's own emotions, and the ability to motivate oneself. An individual with high emotional intelligence tends to strive for happiness, change something bad into something positive, and try to create balance within themselves. Several previous studies have shown that emotional intelligence affects financial behavior. This indicates that students' emotional intelligence can significantly and positively influence their financial behavior, particularly when it comes to how they decide how to use the money they have for necessities. With good emotional intelligence, they will tend to be able to control themselves such as being wise in using money, and being able to control themselves when associating with others (Dwiastanti & Wahyudi, 2022; Lamichhane, 2023; Pantha, 2023; Pulungan et al., 2018).

Spiritual Intelligence

Spiritual intelligence is a complex and multidimensional intelligence, involving the ability to give spiritual meaning to thoughts, behaviors and activities. Spiritual intelligence can also be defined as the ability to give and understand spiritual meaning in one's life. A person will be able to deal with problems well if they have good spiritual intelligence. Emotional intelligence and intellectual intelligence can be integrated with spiritual intelligence. SQ focuses more on a bound and deep relationship between humans and their surroundings (Gabritha, 2014). Several previous studies have shown that spiritual intelligence affects financial behavior. This intelligence gives meaning to life so that it will encourage noble goals. When it comes to personal financial behavior, this intelligence will encourage avoiding biased ways of financial accumulation. Furthermore, spiritual intelligence will maximize financial freedom and contribute to beneficial attitudes like accountability, self-reliance, honesty, and responsibility. It will also help people make wise financial decisions and prevent poor financial management. (Dwiastanti & Wahyudi, 2022; Rozaini et al., 2018).

RESEARCH METHOD

The population in this study consisted of all Generation Z in Malang City which amounted to 260,356 people (www.malangkota.bps.go.id). The sampling technique in this study was purposive sampling with the following criteria: 1) Generation Z; 2) Domicile in Malang. The samples in this study are men and women aged 18-27 years. By using the Slovin formula, the sample in this study amounted to 400 respondents. We used a questionnaire to obtain data. Financial literacy consists of 15 indicators adapted from (Chen & Volpe,

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1998). Intelligence consists of Intellectual Intelligence (7 indicators), Spiritual Intelligence (9 indicators), and Emotional intelligence (10 indicators) adapted from Robbins (2001), Goleman (1999), and Zohar & Marshall (2000). Financial behavior consists of 12 indicators adapted from Nababan & Sadalia (2013). The scale on the questionnaire uses a Likert scale of 1-5 (Strongly Disagree-Strongly Agree). We used Google Forms which were distributed through several social media platforms such as Facebook, Telegram, and Twitter. We analyzed data using SEM-PLS to answer several research questions.

RESULT AND DISCUSSION

The following is a brief description of the respondent profile based on their demographics:

Table 1. Descriptive Statistics

Demographic		Total	Percentage
Gender	Male	113	28,3
	Female	287	71,8
Age	18-20	71	17,75
	21-23	312	78
	24-27	17	4,25

Based on Table 1 above, the number of respondents based on gender is 287 women and 113 men. When viewed from age, it can be seen that most respondents are in the range of 21-23 years old with a total of 312 respondents.

First, we evaluated the measurement model (outer model testing). This test specifies the relationship between latent variables and their indicators and items. The measurement model is assessed using validity and reliability. Items that have a loading factor value $<0,5$ will be removed from the structural model. These items are LK2, LK5, LK7, KE7, KS1, KS6, KS7, KS9, PK2, PK5, and PK10, leaving items that are classified as valid (Appendix 1). Next, we measure convergent validity by looking at the cross-loading value. The results show that the loading value of each item on its construct is greater than the cross-loading value (Appendix 2). It can be concluded that the items used in this questionnaire are valid. Furthermore, we made measurements by looking at the Cronbach Alpha and Composite Reliability values. The test results show the Cronbach Alpha and Composite Reliability values $> 0,7$ so it can be concluded that these variables are reliable.

After the items and variables are said to be valid and reliable, we continue to evaluate the structural model (inner model testing). This measurement model is assessed by R-Square and Path Coefficient. The measurement results show an R-squared value of 50,2%. This shows that all exogenous variables, namely financial literacy, intellectual intelligence, emotional intelligence, and spiritual intelligence, can explain the endogenous variable, namely financial behavior, by 50,2%.

Table 2. Hypothesis Testing

Panel A	T Statistics (<i>p-value</i>)
Financial Literacy → Financial Behavior	9,911*** (0,000)
Intelligence → Financial Behavior	8,014*** (0,000)
Financial Literacy x Intelligence → Financial Behavior	1,137 (0,256)
Panel B	
Intelligence → Emotional Intelligence	99,849*** (0,000)
Intelligence → Intellectual Intelligence	35,717*** (0,000)
Intelligence → Spiritual Intelligence	114,035*** (0,000)

Table 2 above shows the estimation of the path coefficient. Intelligence consists of 3 dimensions, namely Intellectual Intelligence, Emotional Intelligence, and Spiritual Intelligence. In PLS, we use a second-order construct approach. It can be seen in the table above that each dimension of Intelligence (that consists of emotional, intellectual, and spiritual) has a significant p-value (See Panel B). This shows that the three dimensions can describe the Intelligence variable well. Furthermore, the Financial Literacy variable has a positive influence on Financial Behavior. However, moderation between intelligence and financial literacy shows an insignificant p-value. So, it can be concluded that Intelligence is not able to strengthen the influence of Financial Literacy on Financial Behavior (See Panel A).

Financial Literacy Towards Financial Behavior

Financial literacy has a positive effect on financial behavior. This means that the higher the level of individual Financial Literacy, the better the financial behavior. If Generation Z understands financial concepts such as savings, loans, insurance, investment and personal financial management, they will be able to make a priority list of consumption needs, pay debts on time, make a budget, provide emergency funds and shop according to the plan and priority needs. When Generation Z understand the concept of the time value of money where money will be eroded by inflation, then they will look for alternatives to grow their wealth, namely by investing. (Cheng et al., 2018; van Rooij et al., 2011). Furthermore, literate individuals will tend to avoid high-cost borrowing Lusardi & Scheresberg, (2013); Scheresberg & Lusardi,(2014) and fraudulent investments (Engels et al., 2020). As the results show, financial literacy impacts financial decision-making with implications that apply to individuals, communities, countries, and society as a whole. Given the lack of financial literacy among the population, it may be important to remedy this by adding financial literacy to the school curriculum.

Intelligence Towards Financial Behavior

The test results show that the high level of intelligence consisting of intellectual intelligence, emotional intelligence, and spiritual intelligence possessed by Generation Z can have an impact on the wiser their financial behavior. Individuals with high intellectual intelligence will be able to think

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critically and think cause and effect so that they can make wise decisions in life. The same logic applies to better financial decisions such as participating in the capital market. The same goes for the other sides of intelligence. Individuals with high emotional intelligence are characterized by self-awareness and self-control. This emotional intelligence plays an important role in the effective decision-making process because they will think about what they want before acting and try not to do things that are negative or even impulsive. And in the end, this will have an impact on their increasingly wise financial behavior (Asandimitra & Kautsar, 2019; Bialowolski et al., 2021; Fauziyah & Aty Ruhayati, 2016; Gabritha, 2014; Lamichhane, 2023; Munir et al., 2018).

Generation Z is also able to understand the level of self-emotion and try to restrain excessive emotions so as to make them shop according to plans and priorities that have been made before. On the last side of intelligence, spiritual intelligence is characterized by a high level of self-awareness, the ability to face difficulties, being able to improve the quality of life through vision and mission and being able to think holistically. These abilities have an impact on individuals who can control their lust in the context of managing expenses and income. The individual will be able to think clearly, whether the money he spends is useful or not. Certainly, individuals with high spiritual intelligence will always consider the good and bad of every decision they make. Therefore, this spiritual intelligence has a positive effect on financial behavior (Mansour & Jlassi, 2014; Rozaini et al., 2018; Setyorini & Usman, 2022; Yeni et al., 2023).

The Moderation of Intelligence and Financial Literacy Towards Financial Behavior

Our test results show that intelligence is not able to moderate the influence between financial literacy and financial behavior in Generation Z in Malang City, which means that intelligence is not able to strengthen knowledge related to financial concepts in Generation Z. This indicates that other factors strongly influence the financial behavior of Generation Z, namely the demands of needs that are borne. This indicates that other factors strongly influence the financial behavior of Generation Z, namely the number of demands that must be borne. According to the OCBC Financial Index & Nielsen IQ study in 2021, only around 16% of Indonesians have emergency funds. This means that there are still many young people who have not been able to set aside their income to become an emergency fund (OCBC, 2021). Another study from Deloitte in 2022 found that almost half of Generation Z (46%) and millennials (47%) in the world are living off of their paychecks and are worried they won't be able to cover their expenses.

The same study found that more than a quarter of Gen Z (26%) and millennials (31%) in the world are not confident they can retire comfortably. This means that the current young generation's finances are mostly used to finance current living needs and have not been set aside for future needs (Deloitte, 2022) so even with a high level of intelligence, it is not able to lead this generation to become a generation that has good financial behavior.

CONCLUSION

Based on the description of the results and discussion above, it shows that Financial Literacy has a positive influence on the Financial Behavior of Generation Z in Malang City. This shows that the higher the level of individual financial literacy, the broader the insight into finance so that financial behavior will be good. Intelligence which consists of intellectual intelligence, emotional intelligence and spiritual intelligence also has an important role in determining whether someone is wise in financial behavior. However, intelligence here cannot moderate the influence between financial literacy and financial behavior. The limitation of this research is that respondents are still in the Malang City area. This study has not considered control variables such as gender, total income and domicile (urban or rural), and so on. Suggestions for further research to be able to consider the factors previously mentioned. This research provides practical implications in the form of suggestions for financial institutions (such as OJK) and also to consider the level of intelligence (both intellectual, spiritual, and emotional) so that the level of financial literacy of the younger generation increases.

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Appendix 1. Discriminant Validity Test

Variable	Item	Loading Factor	Keterangan
Financial Literacy	LK.1	0,592	Valid
	LK.3	0,584	Valid
	LK.4	0,713	Valid
	LK.6	0,636	Valid
	LK.8	0,663	Valid
	LK.9	0,776	Valid
	LK.10	0,760	Valid
	LK.11	0,828	Valid
	LK.12	0,768	Valid
	LK.13	0,779	Valid
	LK.14	0,811	Valid
	LK.15	0,747	Valid
	LK.16	0,663	Valid
Intellectual Intelligence	KI.1	0,669	Valid
	KI.2	0,762	Valid
	KI.3	0,777	Valid
	KI.4	0,832	Valid
	KI.5	0,828	Valid
	KI.6	0,670	Valid
	KI.7	0,578	Valid
Emotional Intelligence	KE.1	0,655	Valid
	KE.2	0,627	Valid
	KE.3	0,701	Valid
	KE.4	0,763	Valid
	KE.5	0,712	Valid
	KE.6	0,739	Valid
	KE.8	0,724	Valid
	KE.9	0,760	Valid
	KE.10	0,790	Valid
	Spiritual Intelligence	KS.2	0,755
KS.3		0,901	Valid
KS.4		0,859	Valid
KS.5		0,805	Valid
KS.8		0,751	Valid
Financial Behavior	PMK.1	0,669	Valid
	PMK.3	0,741	Valid
	PMK.4	0,614	Valid

Variable	Item	Loading Factor	Keterangan
	PMK.6	0,675	Valid
	PMK.7	0,776	Valid
	PMK.8	0,707	Valid
	PMK.9	0,741	Valid
	PMK.11	0,711	Valid
	PMK.12	0,731	Valid

Appendix 2. Convergent Validity test

	Financial Literacy	Intellectual Intelligence	Emotional Intelligence	Spiritual Intelligence	Financial Behavior
LK.1	0,592	0,379	0,346	0,301	0,498
LK.3	0,584	0,404	0,405	0,398	0,481
LK.4	0,713	0,259	0,189	0,272	0,493
LK.6	0,636	0,393	0,389	0,387	0,580
LK.8	0,663	0,358	0,282	0,291	0,358
LK.9	0,777	0,248	0,133	0,205	0,390
LK.10	0,761	0,218	0,083	0,184	0,394
LK.11	0,828	0,241	0,122	0,250	0,475
LK.12	0,768	0,321	0,192	0,270	0,435
LK.13	0,779	0,221	0,092	0,204	0,381
LK.14	0,811	0,233	0,152	0,245	0,440
LK.15	0,747	0,272	0,202	0,228	0,414
LK.16	0,663	0,270	0,203	0,237	0,319
KI.1	0,344	0,669	0,402	0,364	0,340
KI.2	0,272	0,762	0,509	0,469	0,293
KI.3	0,288	0,777	0,453	0,408	0,293
KI.4	0,390	0,832	0,560	0,548	0,345
KI.5	0,356	0,828	0,505	0,512	0,357
KI.6	0,281	0,670	0,449	0,406	0,234
KI.7	0,174	0,577	0,461	0,399	0,223
KE.1	0,154	0,399	0,655	0,427	0,272
KE.2	0,126	0,306	0,627	0,428	0,257
KE.3	0,223	0,382	0,701	0,472	0,346
KE.4	0,263	0,447	0,763	0,547	0,410
KE.5	0,306	0,452	0,712	0,566	0,393
KE.6	0,174	0,464	0,739	0,520	0,301
KE.8	0,217	0,555	0,724	0,494	0,336
KE.9	0,284	0,596	0,760	0,605	0,377
KE.10	0,221	0,553	0,790	0,568	0,350
KS.2	0,246	0,519	0,706	0,755	0,372

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	Financial Literacy	Intellectual Intelligence	Emotional Intelligence	Spiritual Intelligence	Financial Behavior
KS.3	0,345	0,526	0,610	0,901	0,441
KS.4	0,279	0,468	0,594	0,859	0,379
KS.5	0,363	0,461	0,537	0,805	0,497
KS.8	0,308	0,502	0,507	0,751	0,406
PMK.1	0,363	0,337	0,385	0,413	0,669
PMK.3	0,400	0,245	0,299	0,259	0,741
PMK.4	0,357	0,384	0,448	0,455	0,613
PMK.6	0,467	0,213	0,216	0,288	0,677
PMK.7	0,499	0,306	0,336	0,443	0,777
PMK.8	0,356	0,303	0,377	0,327	0,706
PMK.9	0,443	0,235	0,279	0,316	0,739
PMK.11	0,460	0,325	0,428	0,407	0,711
PMK.12	0,582	0,273	0,270	0,370	0,732

Appendix 3. Reliability test

Variable	Cronbach Alpha	Composite Reliability
Financial Literacy	0,920	0,931
Intellectual Intelligence	0,856	0,891
Emotional Intelligence	0,884	0,906
Spiritual Intelligence	0,873	0,908
Intelligence	0,946	0,951
Financial Behavior	0,875	0,898