

Increase The Financial Literacy of Small and Medium-sized Enterprises (SMEs) Through Game-based Learning

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Abstract

Muara Kuin is a boardgame used to teach financial literacy through game-based learning to SMEs owners around Special Region of Yogyakarta. The purpose of this study was to determine the impact of Muara Kuin on people's financial literacy abilities and knowledge. This study is a quantitative and qualitative research project that collected 30 samples from the general public. Data was collected through a survey used random sampling, an interview used purposive sampling, and tested by Paired Sample T Test. Following that, 5 people are chosen to be interviewed about their ability to manage finances while playing the game. According to the findings of the study, Muara Kuin give impact to financial literacy knowledge and ability of strategy financial literacy.

Keywords; financial literacy, game-based learning, SMEs

Introduction

Money is one of the assets of life that is extremely required for economic activities at the present time. But money can be beneficial or a threat to the owner, depending on how they manage their money. The science and art of managing money that affects everyone's life and any organization is called "financial." The term "financial" refers to the process, institution, market, and instrument that are involved in money transactions between both individuals and between business and government (Barlian, 2012, 34).

Since 2016 until now, the ministry of education and culture always activate the national literacy movement (Gerakan Literasi Nasional/GLN) as part of the implementation of the regulation of education and culture minister number 23 for 2015 about the growth of manners. GLN is divided into the family literacy movement (Gerakan Literasi Keluarga/GLK), the school literacy movement (Gerakan Literasi Sekolah/GLS), and the public literacy movement (Gerakan Literasi Masyarakat/GLM). GLK that focuses on growing basic literacy in the family environment. GLS focuses on growing basic literacy in the school environment, and GLM focuses on growing basic literacy in the public environment in general. Basic literacy was designed to include read and write literacy, numeration literacy, digital literacy, cultural and citizenry literacy, and financial literacy.

According to a study conducted by MasterCard (2013), one of the multinational corporations in the finance sector in the United States, Indonesia ranks 14th out of 16 states that work with the corporation, Indonesia left behind far to Malaysia which ranks 6th.

Through its financial services authority (Otoritas Jasa Keuangan/OJK), Indonesia also conducts research to determine the level of financial literacy among the general public. According to the findings of a MastedCard study, an OJK survey conducted in 2014 revealed that only 21,84% of Indonesian citizens understood financial literacy, and financial literacy is only 15,68% among Small and Medium-sized Enterprises (SMEs) owners. From the information, it can be seen that the financial literacy of the Indonesian people is still low. Low literacy financial decisions cause wrong economics and could potentially lead to economic failure (Murniatiningsih, 2017), so education about financial literacy was needed. In order to teach financial literacy for enabling individuals to participate in economic life as well as addressing questions of injustice, we suggest that financial teaching should include content features found in all citizen conceptions provided (Björklund & Sandahl, 2020). Hastings (2013) interprets financial literacy as the ability to use knowledge and expertise to manage money resources effectively.

However, when financial literacy education is provided through seminars or workshops that only describe the subject, many people find it boring. According to Amalia, et. al (2014, 120), learning using the lecture method, which is a method of using only explanations from the teacher (speaker), is considered dull and makes students (audience) passive in following the learning. One alternative way to understand the concept of financial literacy is through a game. Games are something enjoyable that used to be fun (Santrock, 216, 2007). Game-based learning appears as a term in the educational sector to develop the learning process using learning media (Gunanto 2021, 72). Game-based learning is not just creating games for students to play, it is designing learning activities that can incrementally introduce concepts, and guide users towards an end goal (Pho & Dinscore, 2015). Based on the results of research in scientific literature done by Divjak and Tomić (2012), 43 of 52 articles in journals reviewed, supported the conclusion that game based learning provides a positive effect on motivation and learning achievements. Game-based learning has proven to be extremely effective in the classroom, particularly for children. This is in accordance with the Mu'min's (2013, 94) opinion that game media are frequently used as a medium capable of allowing learners to progress at their own pace and in a pleasant manner. The involvement of willing and viable people makes learning operate effectively. Financial literacy can be learned in most ways. According to Chung et. al (2017), financial literacy can be learned through game education.

A person's behavior, especially their financial behavior, is formed by their habits. For example, someone used to set aside their paycheck for charity first. This charity activity is an act which always repeated routinely and has fused on themselves. Another example is that when someone is short on cash, they will always borrow money from a friend or sibling. Halim et. al (2015) said that when the act continues to be repeated, it will create a behavior. Began from the often play a game about financial literacy, people will get used to manage their financial.

Muara Kuin (Fig. 1) is a boardgame developed by a games company that applies financial literacy concepts. Because GLN, which is promoted in the school environment, made Muara Kuin playable by students, early financial literacy education was created. Muara Kuin imparts the concept of the management of money as given, kept, and spent. Players can exercise their financial management skills by giving alms, saving money, and spending money on daily necessities. This piqued the researcher's interest in learning about the effects of the

boardgame Muara Kuin on people's financial literacy knowledge and ability to manage money, especially for Small and Medium-sized Enterprises (SMEs) owners. Figure 2 shows charts that show the researcher's thoughts on the research.



Figure 1. Boardgame Muara Kuin

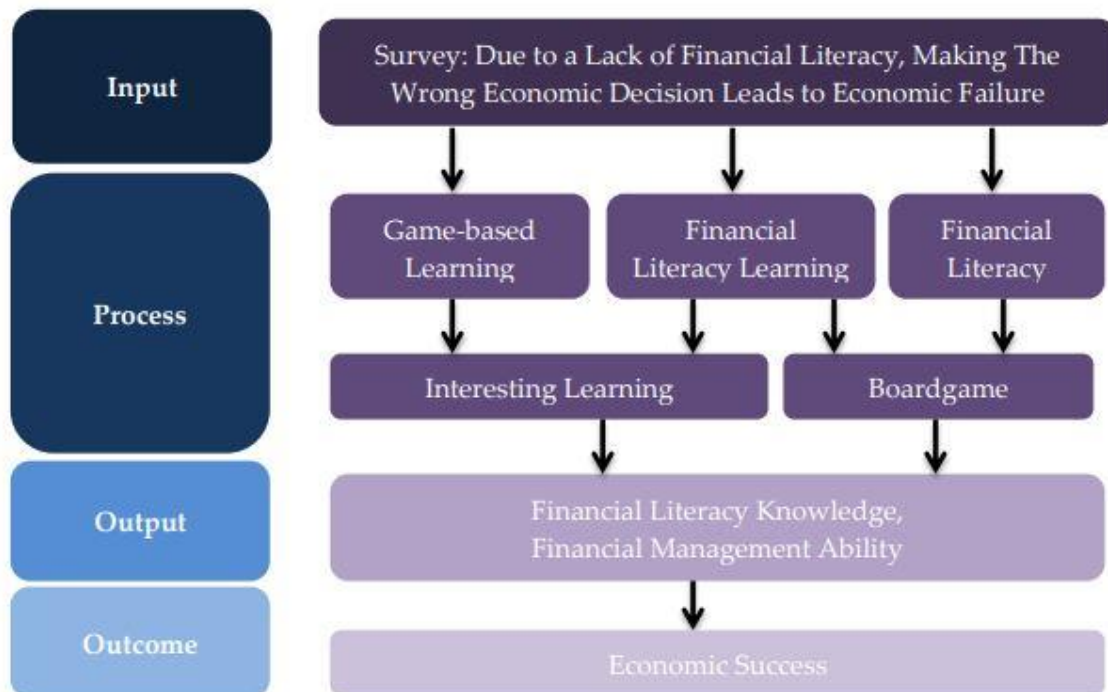


Figure 2. Research Roadmap

Method

This study combines quantitative and qualitative methods, with quantitative methods used to determine people's knowledge about financial literacy, especially for SMEs owners

after playing the board game Muara Kuin, and qualitative methods used to determine people's financial management ability in playing the board game Muara Kuin.

The quantitative methods explain the influence between Paired variables and dependent variables. A Paired variable in this study is the board game Muara Kuin (X), and a dependent variable is knowledge about financial literacy (Y). The study was held on Small and Medium-sized Enterprises (SMEs) owners around Special Region of Yogyakarta, Indonesia. The data collected using the questionnaire in question has a score of 10 if the answer is right and a score of 0 if the answer is wrong. Questions on the questionnaire in this study are shown on Table 1. After the data was collected using a questionnaire, then the data was processed using some tests in data analysis, such as the normality test, homogeneity test, and comparison test (t-test).

Tabel 1. Questions on the questionnaire of Financial Literacy Knowledge Test

	Question	Option
1	Financial literacy is the knowledge and skill to apply an understanding of the concept of risk and the necessary skills to make effective financial decisions. Is it true or false?	A. True B. False
2	Where can I invest my emergency funds?	A. Emergency funds should not be invested, but allowed to be used for personal needs or education. B. Emergency funds can be invested in buying goods property or stock because it can increase the value of our money. C. Emergency funds should not have been invested. These funds must continue to be available and will be easily distributed. D. Emergency funds can be lent to others with the condition that they will return it on time.
3	One advantage of understanding financial literacy is the ability to select and use products and services based on need, as well as the ability to make financial plans. Is it true or false?	A. True B. False
4	How do I determine the budget expenditure each month?	A. Allocating 60% of income each month to daily needs, 30% for savings, and 10% for emergency funds. B. Allocating 30% of income each month to daily needs, 5% for savings, 40% for emergency funds, and 25% for entertainment funds.

		C. Allocating 70% of income each month for savings, because we never know what we will need in the future, and 30% of income each month to daily needs.
		D. Allocating 50% of income each month to daily needs, 30% for savings, and 20% for emergency funds.
5	Financial inclusion is people's limit ability to access financial products, so they do not have access to financial products to satisfy their needs. Is it true or false?	A. True B. False
6	What financial allocation must be prepared?	A. Tertiary needs funds, primary needs funds, and secondary needs funds. B. Capital funds, transportation funds, protection fund, and social fund. C. Private funds, family funds, social funds, and business funds. D. Daily needs funds, insurance funds, education funds, emergency funds, investment funds, credits, and entertainment funds.
7	If we have money and the opportunity to invest, do that while we are capable. Although the debt was not paid off, the possibility of profiting from investments did, which can help pay off the entire debt. However, we must continue to prioritize debt repayment first so that our debt does not grow. Is it true or false?	A. Right B. False
8	What does the meaning of "priority scale" mean in financial management?	A. A priority scale is used to prioritize needs based on their severity and determine which must be met first. B. A priority scale is a subdivision of the order of time in spending money and investing. C. A priority scale is the preparation of reports on the realization of finance in accordance. D. A priority scale is the preparation of the many funds invested.
9	Savings funds for education are saved on their own or at home, which are then used in our time of need. Use of funds for education for investment. Is it true or false?	A. Right B. False

10	Mentions the step to have good financial planning!	<p>A. Brace yourself for taking risks when you invest. Raising capital by means of debt. Determine financial goals without a clear idea.</p> <p>B. Understand the monthly import and export, set financial goals, reduce risk when investing, and seek information as if you were investing.</p> <p>C. Determine the amount of debt to be used. Ignoring emergency funds. Chose to save money rather than invest.</p> <p>D. Using the emergency fund to invest in. Make plans based on your financial needs from last year. Make entertainment a priority.</p>
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Then, the qualitative method explained how knowledge of financial literacy and the ability to handle finances were obtained by the community after playing the board game muara kuin. As many as four samples were taken using purposive sampling of the criteria, such as; 1) Small and Medium-sized Enterprises (SMEs) owners, 2) has already played a boardgame muara kuin, and 3) willing to become speakers interview. Semistructured interviews are used in data mining techniques, and they are analyzed using nonstatistical methods such as reduction, presentation, and conclusion.

Result and Discussion

Questionnaire Result

The researcher has already distributed a questionnaire to 30 respondents who are ordinary people who own Small and Medium-sized Enterprises (SMEs) around Special Region of Yogyakarta. Subjects were given pretests and posttests to assess their financial literacy knowledge. Then, the data was collected through some statistical tests, with the results as follows.

Normality Test Result

Data obtained from the results of the processed using SPSS 20. The first test after the data is collected is the Normality Test, with the result shown in Table 2. The hypotheses that are used in the Normality Test are:

H_0 : The data sample came from a population with a normal distribution.

H_1 : The data sample came from a population with an abnormal distribution.

Tabel 2. Normality Test Result using SPSS 20

	Tests of Normality					
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Posttest	0,186	30	0,062	0,928	30	0,054
Pretest	0,158	30	0,054	0,932	30	0,057

By using standard significance 5%, if use Kolmogorov-Smirnov Test obtained the value of statistic test for post test is 0.186 with sig. 0.062. Because of sig. value is more than = 0.05 , so H_0 accepted. If use Shapiro-Wilk Test obtained the value of statistic test for post test is 0.928 with sig. 0.054. Because of sig. value is more than = 0.05 , so H_0 accepted. Furthermore, if use Kolmogorov-Smirnov Test obtained the value of statistic test for pre test is 0.158 with sig. 0.054. Because of sig. value is more than = 0.05 , so H_0 accepted. If use Shapiro-Wilk Test obtained the value of statistic test for pre test is 0.932 with sig. 0.057. Because of sig. value is more than = 0.05 , so H_0 accepted.

Because of H_0 acceptable, we can conclude that the data sample came from a population with a normal distribution. Thus, the instrument of the pretest and the posttest used to measure the financial literacy knowledge of the public was neither too hard nor too easy, so it successfully measured financial literacy knowledge.

Homogeneity Test Result

The next prerequisite test after passing the Normality Test is the Homogeneity Test, which was computed using SPSS 20 and the results are shown in Table 3. The hypotheses that are used in the Homogeneity Test are:

$H_0 : \sigma_A^2 = \sigma_B^2$ (The data sample came from a population with a homogen distribution)

$H_1 : \sigma_A^2 \neq \sigma_B^2$ (The data sample not came from a population with a homogen distribution)

with

σ_A^2 = the variance score of the pretest of financial literacy knowledge

σ_B^2 = the variance score of the posttest of financial literacy knowledge

Tabel 3. Homogeneity Test Result using SPSS 20

Test of Homogeneity of Variances			
Score			
Levene	df1	df2	Sig.
Statistic			
1,871	1	60	0,177

By using standard significance 5%, obtained the statistical tests using The Levene Test is 1.871 with sig. 0.177. Because of sig. value is more than = 0.05 , based on criteria for decision-making so H_0 accepted.

Because of H_0 acceptable, we can conclude that the two datasets are homogeneous or have the same varieties, and the next test can be done. The next test is Paired Sample T Test.

Paired Sample T Test Result

Paired Sample T Test was calculated using SPSS 20 and the results are shown in Tabel 4. The hypotheses that are used in the Paired Sample T Test are:

$H_0 : \mu_A = \mu_B$ (There aren't significant differences between the pretest and the posttest score.)

$H_1 : \mu_A \neq \mu_B$ (There are significant differences between the pretest and the posttest score)

with

μ_A = the average score of the pretest of financial literacy knowledge

μ_B = the average score of the posttest of financial literacy knowledge

Table 4. Paired Sample T Test Result using SPSS 20

		Paired Samples Test								
		Levene's Test for Equality of Variances			t-test for Equality of Means					
		F	Sig.	t	df	Sig. 2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Valu	Equal variances assumed	1,87	0,18	-3,92	60	0,00	-14,00	3,58	-21,16	-6,84
	Equal variances not assumed			-3,92	58,32	0,00	-14,00	3,58	-21,16	-6,84

By using standard significance 5%, because the variance both homogeneous population then t-test used is the value of the line "Equal variances assumed", which is the value of $t_{count} = -3.92$, $df = 60$ with sig. (2-tailed) is 0.00. The two parties test using value sig. less than = 0.05, based on criteria for decision-making so H_0 rejected. It means that there are significant differences between the pretest and the posttest score. The average of posttest score is 78 which is more than the average of pretest score is 64, so there was a significant increase in knowledge about financial literacy.

Interview Result

After 30 subjects do the pretest financial literacy knowledge, play the boardgame Muara Kuin, and posttest, we chose five people to be interviewed about their ability to manage finances while playing the game. Based on the findings of an interview with five SMEs owners, we discovered that they all agree that the boardgame Muara Kuin is so fun to play and can help develop financial literacy knowledge. The boardgame Muara Kuin also practice their management financial strategy, how manage their incomes and fund allocation, decide what they must buy and must not, and remember to always devide money into three categories, such as giving, saving, and spending.

Conclusion

According to the findings of the research, learning about financial literacy through game-based learning is very effective. It is proven by questionnaire results about financial

literacy knowledge given to 30 people who own Small and Medium-sized Enterprises (SMEs) around the Special Region of Yogyakarta. The questionnaire result is processed using SPSS 20 with through some test as Normality Test, Homogeneity Test, and Paired Sample T Test by using standard significance 5% so obtained the value of statistic test is $t_{count} = -3.92$. Because of sig. value is less than $= 0.05$, based on criteria for decision-making so H_0 rejected. It means that there are significant differences between the pretest and the posttest score. The average of posttest score is 78 which is more than the average of pretest score is 64, so there was a significant increase in knowledge about financial literacy. Then, the interview supports the result that people claimed that by playing boardgame Muara Kuin, they feel trained in financial management strategy and remember to always divide money into three categories, such as giving, saving, and spending.

Acknowledgment and Limitation

The authors would like to acknowledge Interns in PT Sebangku Jaya Abadi, for the contribution of designing Muara Kuin.

Author/Editor Information

Rizky is a lecturer at Amikom Yogyakarta University as well as the CEO of PT Sebangku Jaya Abadi. Senie Destya is a lecturer at Amikom Yogyakarta University as well as the HRD of PT Sebangku Jaya Abadi, and Wiji Nurastuti is the director of PT Nazma. Muara Kuin, an educational game about financial literacy, was created by them. Ayu May Lestari is conducting research on the game's impact in collaboration with them.

Appendix A Section title of first appendix

Muara Kuin, the game, was made to increase financial literacy knowledge. For the next research project, other researchers can research the impact of the game on students.

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