Diagnosing Poverty Eradication Through Literacy: Analysis from Indonesia National Socioeconomic Survey

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Abstract

Literacy can be interpreted as a tool for the development of global society. However, the low literacy rate in Indonesia obstructs the quality of human resource improvement in education. Based on data from the PISA (2019), Indonesia is ranked 62nd in the literacy level from 70 countries. Quality of education is one of the economical ways to reduce the illiteracy that is interrelated to poverty. A question arises as to whether literacy-based cognitive abilities can reduce poverty . Previous studies on education for poverty eradication were limited to the regular cognitive domain. This study attempts to fill that gap. A Probit regression model was used with the probability of becoming poor as the dependent variable. A set of literacy-based cognitive abilities, such as age, gender, education level, and geographical factor are used as explanatory variables. According to 2019 National Socioeconomic Survey data, the analysis indicated that literacy-based cognitive abilities have a significant negative impact on poverty. Literacy has often been limited to the ability to read, write, and perform basic arithmetic. In order people to function effectively in their communities, the government should put focus on education attainment that cultivates functional literacy. It refers to the practical skills needed to read, write, and perform math for real-life purposes.

1. INTRODUCTION

Poverty has been linked to a variety of negative outcomes, including poor health, a low level of education or skills, an inability or unwillingness to work, a high proportion of disruptive or disorderly behavior, and impoverishment. This research concern is the low level of education that keeps people in poverty trap. From the 17 Goals of Sustainable Development Goals that has been created as a common goal from countries all over the world, there is goal 1 that said "No Poverty" which is about ensuring social protection for all children and other vulnerable groups, and it is critical to reduce poverty. The SDGs goal 1 is subdivided again into seven targets that varies from eradicate extreme poverty to make strong policy framework that can accelerate investment in poverty eradication (National Secretariat of SDGs Indonesia, 2022). This research aims to develop human capital in Indonesia to support accelerated investment in poverty eradication actions through literacy-based cognitive ability for the purpose of high quality of education.

Many countries, both developing and developed countries, continue to strive achieving universal basic education. However, in a higher

level of education, if it is not accompanied by an improvement in the quality of education, it cannot function effectively as a tool to stem the transmission of poverty from one generation to the next generation (Santos, 2011). According to the National Research Council, one of the skills that need to be improved in the 21st century is cognitive skills (problem-solving, critical thinking, and systematic thinking). The educational process is not only concerned about subject matter, but also it must cultivate thinking skills and develop literacy.

Literacy represents one of the most influential cultures as a tool for the development of a global society. However, the low literacy rate in Indonesia obstructs the quality improvement of human resources in education. Indonesia has a target that they will reach proportion of 9th graders who reach the minimum reading proficiency standard by 50%, and minimum numeric proficiency by 38% in 2030 (National Development Planning Agency, 2019). However, it is still challenged by poor achievement nowadays. Based on 2019 Program for International Student Assessment (PISA) data, Indonesia ranks 62nd in the literacy level out of 70 countries. The learning outcome which is not aligned with a number of resources that have been spent by the government in the education sector indicated that there is a need to allocate resources more effectively (Idem).

Indonesia as a developing country still have to face the poverty problem which is one of the greatest threat for human in modern times.
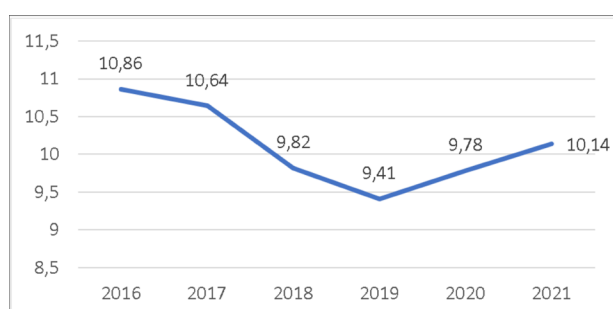

Fig 1. Poverty Rate in Indonesia 2016-2021 (%)
Source: BPS 2021, processed.

Based on data from the Central Bureau of Statistics (BPS), in March 2021 the poverty rate in Indonesia reached 10.14%, or 27.54 million Indonesians were poor. The poverty rate in Indonesia showed decreasing trend until 2019. However, in 2020 when Covid-19 pandemic arose which required people to work and study from home, the poverty rate started to increase.

Poverty reduction aims to reduce unemployment, cultivates self-sufficient youth, and makes positive contributions to society. In order to reduce poverty, it is necessary to improve the quality of human capital which can be done through fixed investment in education (Olopade et al., 2019). The question that arises on this paper is whether development of literacy-based cognitive ability could reduce poverty or could not. Previous studies have found about poverty eradication strategies through education investment as one of the early childhood development interventions (Richter et al., 2017). However, previous studies were limited to the level of education and years of schooling. This study tries to fill these gaps by using literacy as a measurement of education.

Literacy can be defined as the ability to identify, understand, interpret, create, communicate, and compute, using printed and written materials associated with varying contexts (Silvia Montoya, 2018). Comprehensibly, reading or writing words are not enough to assess literacy. People need to be able to understand and use the literacy ability for practical purposes or tasks that related to the real world experiences. This broader definition of literacy is called functional literacy which refers to the practical skill set needed to read, write, and do math for real-life purposes, so people can function effectively in their community (UNESCO, 2020). Functional literacy also can be defined as the ability to operate a saving account and access the internet for functional purposes. Functional literacy relates more to the levels of skills that individuals or populations needed to complete some specified real-life experiences (Kenneth S. Goodman and Yetta M. Goodman, 2013). For the example, literacy ability is essential to achieve the outcomes in the job, transportation, economics, and digital world. Therefore, people who have literacy ability that can use internet or people who have literacy ability that are financially literate can be called as having functional literacy.

In a recent study, after considering for a range of socioeconomic characteristics and the invested amount, they found that financial literacy has a significant relationship with households' individual returns on savings accounts: a one-standard deviation in a higher advanced financial literacy is associated with approximately 29 basis points higher interest rate, which represents an increase of 12% compared to the median interest rate (Deuflhard et al., 2019).

Many countries currently provide a framework for enhancing financial literacy and financial inclusion, or for focusing on the financially excluded framework for financial education (Atkinson, 2013). In the previous study, Mhadhbi (2014) that uses the literacy rate as a proxy for human capital concludes that the literacy-financial development interaction statistically has a significant positive association with economic development. Furthermore, a study from Sivachithappa (2013) found that people who are able to operate and create saving account have a significant impact on recipient's economic activity and decrease the level of poverty because the majority of loaner from economically disadvantaged backgrounds did not know the terms and conditions of bank loans, including interest rate, repayment schedule, and installment amount. Therefore, it is proven that functional literacy can eradicate poverty through an increase of returns on savings accounts due to having financial literacy. When we are measuring the impact of cognitive ability on SDG 1 "No Poverty", it has been estimated that if adults aged 15+ had just two more years of schooling, nearly 60 million people would be liberated from poverty. Moreover, achieving universal primary and secondary attainment in the adult population would help to liberate more than 420 million people from poverty, thus it could reduce the number of poor people worldwide by more than half (UIS, 2017).

Another factor related to poverty is age. The relationship between age and poverty cannot be separated from the retirement phase. According to a recent calculation, if everyone had a high retirement age as the most educated quintile of the population, the costs of decline in production and expenses for the health system and income transfer payments could be reduced by an amount equal to 5.8% of the European Union's Gross National Product (GNP) (EU) (F Diderichsen et al., 2012). Another study, (Silas I. Abu, 2019), found that whereas age has a positive link with the likelihood of being an older person in poverty, the probability of being an older person in poverty is inversely correlated with educational attainment.

The level of educational represents a major step forward to fulfill one of the primary objectives of SDGs 1, "No Poverty". The level of education is also a crucial factor in poverty eradication Among the most notable studies on the linkage between the education level and poverty eradication are by Ataguba et al. (2013). The study indicated that education level is a significant determinant of poverty rate and shall be included while assessing the struggle with poverty. Furthermore, these findings were supported by study from Bilenkisi et al. (2015). They conclude that as the education level increases, the probability to remain below the poverty line diminishes. These important studies indicate that educational level provides a cognitive advantage and plays an important role in poverty eradication strategy. Another studies that using mincer model show that there is a higher average rate of return on education in a high economic group and urban areas in Indonesia due to the differentiating factors such as the area of the residence, socio-economy, education level, and the absorption rate of workers from the level of education (Martak & Chotib, 2021; Psacharopoulos & Patrinos, 2018).

A study by Hendajany et al. (2016) found that there is gender inequality problem in the quality of education in Indonesia. Gender inequalities are not only an issue of moral and social, but also an issue of a critical economic challenge. If female population who account for almost half of Indonesia's population do not achieve their potential, the economy will suffer (Firmansyah & Sihaloho, 2021).Female are disproportionately represented among the poor, the Indonesia's Central Bureau of Statistics reported a higher

rate of female's poverty rate compared to men in 2020 with the number of 9.96% compared to 9.56% (Central Bureau of Statistics, 2021). An OECD report comes to the statement that the better use of female population will reduce poverty and increase economic growth (Thévenon, 2013). Another research suggests a positive impact of female labor market participation on growth, but there is limited indication that sectoral expansion is the primary driver of female's economic engagement (Gaddis & Klasen, 2014).

Internet access has been considered as the key enabler of development, especially in developing countries. Access to information and communication technologies (ICT) and broadband Internet in particular has the potential to serve as a major development accelerator. Access to affordable Internet is increasingly a development priority and even considered as a basic right. Based on the data from Indonesia's Central Bureau of Statistics, ICT sector in Indonesia has contributes for 4.25% of Indonesia's GDP, the Internet user in Indonesia has also grown and reached the number of 196,7 million people (Directorate General of Informatics Applications, 2020).

2. RESEARCH METHOD

This study uses cross sectional data from the 2019 National Socioeconomic Survey. It was a survey conducted by The Indonesian Central Bureau of Statistics (BPS), which aimed to collect data on the socio-economic conditions of the community relating to the fields of education, health/nutrition, housing, socio-cultural activities, consumption/expenditure and household income, travel, and opinion regarding the welfare of their household. The 2019 National Socioeconomic Survey data collected by BPS on March 2019 covered all 34 provinces in Indonesia with 320,000 household sample sizes that scattered on 514 district and representative of the entire population of Indonesia.

For this study the sample is limited only to individuals who aged over 5 years old, and from that 1,018,844 individuals used as usable samples are utilized for the study. Subsequently, a maximum likelihood method using Probit regression model estimated based on this data with the probability of an individual becoming poor as the dependent variable and a set of literacy-based cognitive abilities along with socio-economic factors as explanatory variables. The descriptions of each variable are shown on the table 2.1 below:

Table 2.1 The Description of All Variables

Variables	Operational Definition	Category / Value
Poor	Dummy variable for becoming poor (expenditure per-capita is below the minimum province of poverty line)	1 = Poor Individual 0 = otherwise
Can read & write	Dummy variable for literacy ability (read and write sentence)	1 = can read and write sentence 0 = otherwise
Internet Access	Dummy variable for using internet access in the last 3 months	1 = use internet 0 = otherwise
Saving Account	Dummy variable for having bank's saving account	1 = Having bank's saving account 0 = otherwise
Literacy*Saving Account	Dummy variable interaction between can read and write sentence with having bank's saving account	1 = Literate and have bank's saving account 0 = Otherwise
Use Mobile Phone	Dummy variable for using mobile phone in the last 3 months	1 = using mobile phone 0 = otherwise

Variables	Operational Definition	Category / Value
Use Computer	Dummy variable for using computer (PC, Laptop, Tablet) in last 3 months	1 = using computer
		0 = otherwise
Education	The highest level of complete education	Elementary - Magister
Age	Age	Years
Agesq	Age squared	Years
Male	Dummy variable for male	1 = Male
		0 = Female
Urban	Dummy variable for geographical factors	1 = Live in urban area
		0 = Live in rural area

Based on the selection of these variables, the study specifies the econometric model for estimation as such:

Model 1

$$P\ (poor_i = 1|X_i) = \Phi\ (\beta_0 + \beta_1\ abletoread\ \&\ write_i + \beta_2\ internetaccess_i + \beta_3\ savingaccount_i + \beta_4\ literacy\#savingaccount + \beta_5\ usemobilephone_i + \beta_6\ usecomputer_i + \beta_7\ schoolcompleted_i + \beta_8\ age_i + \beta_9\ agesq_i + \beta_{10}\ male_i + \beta_{11}\ urban_i + \varepsilon_i) \quad (1)$$

Further analysis is to analyze the effect of literacy-based on cognitive abilities to poverty status in two regions, namely urban and rural areas

Model 2 (urban and rural)

$$P\ (poor_i = 1|X_i) = \Phi\ (\beta_0 + \beta_1\ abletoread\ \&\ write_i + \beta_2\ internetaccess_i + \beta_3\ savingaccount_i + \beta_4\ literacy\#savingaccount + \beta_5\ usemobilephone_i + \beta_6\ usecomputer_i + \beta_7\ schoolcompleted_i + \beta_8\ age_i + \beta_9\ agesq_i + \beta_{10}\ male_i + \varepsilon_i) \quad (2)$$

The parameters of these models are estimated by using the maximum likelihood estimation specifically Probit regression. Analysis on Model 1 will utilize all useable data. Analysis on Model 2 will consider each geographical residence area, and the number of observations will be adjusted for the needs of this analysis. All statistical analysis use STATA 14 software.

3. RESULT AND DISCUSSION

3.1 Result

Table 3.1 The Descriptive Statistics of Each Variable

Variables	Category	N	%	Composition (%) Rural	Composition (%) Urban
Poor	1 = poor	111,980	10.99	14.05	6.79
	0 = non-poor	906,864	89.01	85.95	93.21
Can read & write	1 = can read & write	998,700	98.01	97.4	98.88
	0 = cannot read & write	20,144	1.98	2.6	1.12
Saving Account	1 = Have Bank's Saving Account	337,901	33.17	48.2	51.8
	0 = Not Having Bank's Saving Acc.	680,943	66.83	37.3	62.7

Variables	Category	N	%	Composition (%)	
				Rural	Urban
Literacy*Saving Account	1 = Able to Literate and Have Bank's Saving Account	335,920	32.97	48	52
	0 = Otherwise	682,924	67.03	62.7	37.3
Internet Access	1 = using internet in past 3 months	432,597	42.46	31.84	57.04
	0 = not using internet	586,247	57.54	68.16	42.96
Use Mobile Phone	1 = using mobile phone	779,461	76.5	71.6	83.24
	0 = not using mobile phone	239,383	23.5	28.4	16.76
Use Computer	1 = using computer	142,071	13.94	8.89	20.89
	0 = not using computer	876,773	86.06	91.11	79.11
Age	Continuous	1,018,844	-	57.87	42.13
Agesq	Continuous	1,018,844	-	57.87	42.13
Male	1 = male	514,960	50.54	50.92	50.02
	0 = female	503,884	49.46	49.08	49.98
Urban	1 = live in urban area	429,282	42.13		
	0 = live in rural area	589,562	57.87		
Education	Elementary – Magister/ Specialist	1,018,844	-	-	-

Source: STATA 14, processed.

The table above shows the descriptive statistics of each variable. We can see that 10.99% of the sample has an average expenditure below the poverty line, or it categorizes as poor. In addition, the population of poor individual are higher in rural area than in urban area. Furthermore, 98.01% of total sample are already can read and write. From the 1.98% participants who cannot read and write, 76% or 15,333 people out of 1.98% are live in rural area while the rest of them, 24% or 4,811 people, live in urban area. The huge number of illiterates – cannot read and write – person in rural area indicates the disparity in education both in term of education quality and the coverage of education itself. The high number of non-literates and low adaptation of technology such as internet and gadget, may be one of the reasons why poor population is also higher in rural area.

On the table 3.2 below, it presents the results of probit regression which estimates from the determinant model of literacy-based cognitive abilities and the socio-economic factors to the probability of individual becoming poor. Three probit regression models with estimated coefficients and the marginal effect are presented on the table below.

Table 3.2 The regression results

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All	Marginal	Rural	Marginal	Urban	Marginal
Can	-0.235***	-0.0437***	-0.236***	-0.0547***	-0.222***	-0.0282***
read & write	(0.0109)	(0.00231)	(0.0123)	(0.00318)	(0.0237)	(0.00353)
Internet	-0.409***	-0.0632***	-0.432***	-0.0808***	-0.381***	-0.0429***

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All	Marginal	Rural	Marginal	Urban	Marginal
Access	(0.00495)	(0.000739)	(0.00628)	(0.00106)	(0.00816)	(0.000974)
Saving Account	-0.0885**	-0.0139***	-0.0712*	-0.0143*	-0.118	-0.0124
	(0.0348)	(0.00537)	(0.0393)	(0.00773)	(0.0759)	(0.00785)
Literacy*Saving Account	-0.0900**	-0.0141***	-0.0762*	-0.0153**	-0.118	-0.0124
	(0.0351)	(0.00541)	(0.0396)	(0.00778)	(0.0763)	(0.00788)
Use Mobile Phone	-0.355***	-0.0645***	-0.394***	-0.0886***	-0.253***	-0.0309***
	(0.00427)	(0.000876)	(0.00501)	(0.00123)	(0.00819)	(0.00115)
Use Computer	-0.375***	-0.0500***	-0.345***	-0.0595***	-0.392***	-0.0350***
	(0.00812)	(0.000867)	(0.0112)	(0.00158)	(0.0119)	(0.000851)
Education	-0.0100***	-0.00161***	0.0114***	0.00232***	-0.0516***	-0.00551***
	(0.00181)	(0.000290)	(0.00224)	(0.000457)	(0.00312)	(0.000331)
Age	0.00474***	0.000760***	0.00121**	0.000247**	0.0129***	0.00138***
	(0.000425)	(6.82e-05)	(0.000509)	(0.000104)	(0.000781)	(8.33e-05)
Agesq	-0.000177***	-2.84e-05***	-0.000134***	-2.74e-05***	-0.000272***	-2.91e-05***
	(5.63e-06)	(9.03e-07)	(6.75e-06)	(1.38e-06)	(1.03e-05)	(1.10e-06)
Male	0.0202***	0.00324***	0.0196***	0.00401***	0.0207***	0.00221***
	(0.00348)	(0.000558)	(0.00422)	(0.000862)	(0.00618)	(0.000660)
Urban	-0.230***	-0.0361***				
	(0.00382)	(0.000583)				
Constant	-0.351***		-0.321***		-0.690***	
	(0.0114)		(0.0129)		(0.0247)	
Observations	1,018,844	1,018,844	589,562	589,562	429,282	429,282

Standard Error in parentheses * p<0.01, ** p<0.05, *** p<0.1
Source: STATA 14, processed

3.2 Discussion

From the regression result, we can see that all literacy-based cognitive abilities and the socioeconomic factors which are included in the model have significant effect on the probability of individual becoming poor. Have an ability to operate mobile phone as one of the proxies for functional literacy has the highest effect on reducing probability of poverty incidence in overall model and in rural area, while in urban area internet access gives highest effect on reducing probability of becoming poor.

First variable of literacy based cognitive ability, which can read and write, shows significant and negative effect on poverty incidence in all models. In overall model, the probability of becoming poor on average 4.37 percentage point is lower for individual who can read and write, ceteris paribus, than individual who cannot read and write. The effect is slightly bigger in rural area than urban area with 5.47 percentage point lower probability of becoming poor if the person can read and write. On the other hand, The effect of ability to read and

write in urban area reduce the probability of becoming poor by 2.82 percentage point, ceteris paribus. this result shows that literacy cognitive ability can help to reduce the poverty. As an essential skill, reading and writing skills are fundamental to many daily activities, thus the absent of these skills can be a major cause for limiting the opportunity to improve quality of life. Previous research by O'Connor et al. (2014) demonstrated that poor readers tend to become less responsive to intervention as they grow older, and their difficulties increase. Each reader passes on the reading abilities and aspirations to the next generation, and it can potentially end the cycle of illiteracy and change its pernicious correlation – poverty (Wolf et al., 2014).

We use ability to access internet, to use mobile phone, to use computer, and bank saving account ownership as the proxy for functional literacy, since most contents on internet and gadget include text which requires reading and writing ability (constructing sentence). The estimation found that being able to access internet is significant and negatively correlated with variable poor. The likelihood of becoming poor is 6.32 percentage point lower for those who can access internet, ceteris paribus. This effect is higher for those who live in rural area and can access internet than for those who live in urban are. These finding is in line with previous research by García-Mora & Mora-Rivera (2023), who found that internet access can be seen as an additional mechanism which raises the living standards of Mexico's rural population, thus lowering the likelihood of being multidimensionally poor. Furthermore, The World Bank Group (2023) also argues that internet access enables broader access to markets and information, increases the competitiveness of poor individuals, and facilitates the creation of new employment opportunities.

Variable ability to use mobile phone and variable ability to use computer also have a significant predictor in all models. The marginal coefficient of use mobile phone in overall model

shows that the probability of becoming poor is 6.45 percentage point lower for individual who can use mobile phone, ceteris paribus, than for individual who cannot use mobile phone. Variable use computer in overall model shows that the probability of becoming poor is 5.0 percentage point lower for individual who can use computer than who cannot use computer. Study by Zang (2019) showed that rural computer penetration tends to increase rural residents' net income over time. Mobile phones and computers, serving as devices for internet connectivity, play a significant role in poverty reduction through their contributions. They expand and reinforce social networks, decrease travel expenses, enhance temporal accessibility, increase activity efficiency, and lower business costs (Sife et al., 2010).

Bank saving account ownership also utilized as a proxy for functional literacy, as it requires individuals to possess a basic understanding of numerical functionality in order to effectively use their savings account. Owning bank account decrease the probability of individual becoming poor by 1.39 percentage point in overall model, ceteris paribus. In addition, we also interact variable bank saving account ownership with literacy variable. The estimation shows consistently negative significant result meanwhile the interacted variable reduces the probability of individual becoming poor. Coefficient result for rural area is higher than coefficient for urban area. Cavoli et al. (2021) found similar result that having bank account has a positive and significant effect on reducing poverty, furthermore, active usage of bank accounts would lead to further reductions in poverty levels. Saving account ownership acts as a gateway to a range of financial services that support everyday life like helps families and businesses plan for everything from long-term goals to unexpected emergencies, and it's allow people to use other financial services, such as credit and insurance, to start and grow businesses, educational or healthcare investments, manage risk, and build

resilience against financial shocks, which can improve the overall quality of their lives (The World Bank, 2022). Literacy based cognitive ability is closely related with education level. The estimation shows significant and negative relation between education and poverty. Higher educational level leads to a lower probability of becoming poor by average 0.16 percentage point, ceteris paribus. This effect is higher for individual who lives in rural area than for individual who lives in urban area. A better education raises the probability of becoming non-poor because it creates a wider opportunity for getting a better job and for having a higher income. As found on research by Artha et al. (2018) and Shasta et al. (2020), education is an important human capital to expand employment opportunities and to live a better life, and thus to avoid poverty in any form.

Age and age square variables are significant, and an increase in age will increase the probability of individual becoming poor until they reach 13 years old, after that an increase in age will decrease the probability of becoming poor. Young and child labor tend to work in vulnerable sectors due to lack of skills qualifications, lack of experience, and tend to have low educational level. So that conditions in vulnerable sectors contributes to the worst position of younger workers. The probability of being poor decreases when individual reach productive age, one of the reasons is experience and promotion opportunities increase with age, but after reach a certain level of age it will start to decline (Aisa et al., 2019).

On the gender side, female with financial literacy skills are more likely to increase welfare and reduce poverty (Dono et al., 2020). In line with that, the estimation result from this study found that male person has average 0.32 percentage point higher probability of becoming poor compared to female, because the positive effect of literacy and education is much stronger for women than for men, so that literacy and education for women can break the cycle of poverty (Zulu, 2013). In overall models,

when we include geographical factor (variable urban) as explanatory variable, the result shows that the probability of becoming poor is 3.61 percentage point lower for those who live in urban area than for those who live in rural area, ceteris paribus. As explained in other research the relationship between urban area to individual income (further poverty incident) is indirect through its significant effects on employment and the effect of employment on income, and the causal direction is from urban density to employment to incomes (Hummel, 2020).

4. CONCLUSIONS

To deliberate ideas and solve issues, people must be able to comprehend the language and numbers. Indonesia must improve functional literacy, as children with high quality education are more likely to have a better life expectancy, better job opportunities, and an increased political participation to accomplish SDGs 1 goals by 2030. The majority of policy implementation about literacy rules is unenforced and needed to be improve. In the future, language literacy curriculum will create linkages between learning groups. As the next generation, we must build an effective functional literacy approach by using links between diverse learning communities to inspire deeper understanding between children in various regions of Indonesia, especially rural areas. The government should give funds for teacher in order to provide training class, to create reading materials and to design an effective learning approach for students in Indonesia. Consequently, collaborative effort between policymakers, literacy activists, and the public will help children develop life skills. This implies the following objectives: 1) increasing the quality of functional literacy in primary schools (including poor households), and 2) enhancing elementary school graduates' cognitive capacities as evidenced in the National Assessment of Progress in Education results.

This research has shown that the ability to read and write variable as the representation of

literacy-based cognitive ability has a negative correlation with poverty. The internet access variable is negatively correlated with the probability of becoming poor variable. Having Bank's saving account, operating mobile phones, and accessing computer have a negative impact with the probability of becoming poor variable. In addition to that, there is a negative correlation between education and the probability of becoming poor variable. Besides that, age and age square variables also indicate that an increase in average age will increase the probability of individual becoming poor until they reach 13 years old. After that, an increase in age will decrease the probability of becoming poor. From all the independent variables used on this model, all of them have a significant impact on influencing the dependent variable on this model. There are interesting findings that the ability to read and write, the ability to access internet, and the ability to use mobile phones & computer have higher impact on reducing poverty in rural areas compared to urban areas. Therefore, the policy intervention to improve literacy-based cognitive ability in rural areas will provide more outcome if it is compared to the urban areas. However, further study could provide more insight if there is a data that represent the establishment of functional literacy in the country.

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