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The Different Effect of Active Learning on Student Learning Outcomes in Intervention and Control Schools

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Abstract

The purpose of this research is to know the effect of the differences in the implementation of active learning to mathematics and science scores in interventional schools and control schools as well as the cohort effectiveness interventions to improve student learning outcomes. This is a quantitative research experiment conducted in 7 provinces in Indonesia consisting of 50 districts and cities. Total samples of 1,075 schools consisting of 569 partner schools are intervened and 506 control schools. Test the average difference using Mann Whitney. To determine the cohort effective intervention used MANOVA. The results showed that mathematical and science scores were better in interventions school compared to the results in control schools. Bonferroni test the mathematical score suggests that the best intervention is the third cohort. The Bonferroni test of the science score shows the second cohort intervention and the third cohort is equally good.

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INTRODUCTION

The signal to the teachers to apply active learning was delivered by the Chinese philosopher Confucius in the 5th century BC by saying "What I hear I forgot, what I see I remember, and what I do I understand". This means that teachers not only told to students, but they should allow students to do or try what teachers are presenting. In the 19th and 20th centuries, philosophers such as Montessori and Piaget continued to campaign for active child-centered learning.

The great teacher who able to encourage the students from the lowest ladder that is the work avoider to become active learners, the fully active learners (Harmin, 2006).

The active learners stay on the highest position of the Active Learning Ladder introduced by Harmin. Before getting to the 4th staircase, the great teacher should be able to bring the students to the 3rd ladder of the responsible students i.e. students who are ready to enter the classroom to do whatever the teacher asks, but not more than that. Before a teacher went to the 3rd embankment, the teacher had to be able to motivate the students who were on the 2nd stairway of the student as a halfhearted worker who worked with full of carelessness.

The process of education should be able to develop students to learn a high level called meaningful learning. Students will achieve meaningful learning if they can use or apply his knowledge to solve problems (Michael; Modell, 2003).

Therefore, 21st-century learning must be conducted interdisciplinary, collaborative, contextual, transparent, project-based, and utilizing information technology to do critical thinking skills and solve the problem (Joyce, 2011).

Today's education must provide provision to future generations. Therefore, today's education must provide provisions for 21st-century students. In addition to giving the core themes of 21st-century subjects, the students also have to study life and career skills; learning and innovation skills; and information, media, and technology skills (Whitehead; Jensen; Boschee, 2013).

Innovation education in Indonesia to improve the quality of education is pursued through two sides, namely government policy and community empowerment. The Government's policy states that teachers should be teaching with active learning implicitly in the national education system. One of the principles of education is mentioned in chapter III of article 4 paragraph (4) which states the following (Indonesia, 2003).

"Education is organized with giving you the transparency, building a willingness, and developing learners' creativity in the learning process".

Government Regulation No. 19 of 2005 on national standards of education expressly encourages the need for teachers to apply active learning. It is contained in chapter IV of article 19 below (Indonesia, 2005).

"The learning process in the education unit is organized interactively, inspiring, fun, challenging, motivating learners to actively participate, and providing ample space for initiatives, creativity, and independence according to the students' talents, interests, and physical development and psychologically".

The above article demonstrates that the learning process in Indonesia must apply active learning. Since it is believed that active learning will improve student learning outcomes.

Many foreign donor agencies have assisted in the implementation of active learning such as UNICEF, JICA, AusAID (now DFAT), and USAID. The assistant for basic education from the American Government through USAID (United States Agency for International Development) in

Indonesia has lasted about 15 years through three types of assistance schemes, namely USAID MBE (Managing Basic Education), USAID DBE (Decentralized Basic Education), and USAID PRIORITAS (Prioritizing Reform, Innovation, and Opportunities for Reaching Indonesian Teachers, Administrators, and Students). In addition to the assistance to improve the quality of basic education, there is a program for higher education, namely the HELM that partnered with 50 universities in Indonesia for 5 years (2012-2016). USAID also provided support for research and higher education worth 21.2 million USD in 2015-2019 through the SHERA Program.

The USAID MBE Program from 2002-2007 is held in 23 regencies and cities in Indonesia, spread over three provinces: East Java, Central Java, and Aceh. The aim is to develop examples of good practices in the management of resources and funding of education at the district and city-level governments. At the school level, the goal is to develop good examples in school-based management (SBM), community participation, and active learning. The results of the monitoring and evaluation of the MBE program show that student learning outcomes are better at partner schools.

The USAID DBE Program of 2005-2012 is held in 50 districts and cities in 7 provinces, namely Aceh, North Sumatera, Banten, West Java, Central Java, East Java, and South Sulawesi. Aims to improve the quality of basic education in Indonesia through decentralized management and basic education services that more effective. Also to improve the quality of learning and improve the relevance of education to the younger generation. The results of monitoring and evaluation also showed that students' learning outcomes are better at partner schools compared to control schools.

USAID PRIORITAS Program was held in 2012-2017 in 98 districts and cities and 44. Beside it collaborates with the Teacher Training Institute (in Indonesia is called LPTK) in 9 provinces namely Aceh, North Sumatera, Banten, West Java, Central Java, Central Java, East Java, South Sulawesi, Papua, and West Papua. The USAID PRIORITAS Program is the largest basic education aid with a capitalization of 88.2 million USD. The program has trained 232,600 teachers and educational personnel, with 34,700 recipients of education units and reached 8.9 million students.

Although the government and donor agencies have encouraged and implemented active learning, to date many teachers have not yet applied it. One of the evidence reported that in the learning process, teachers are still less creative and their learning and evaluation models are still conventional (Wenno; Suparno, 2014).

There are many studies discussing the application of active learning in basic education (Wahyudi; Siswanti, 2015); (Santiana; Sudana; Garminah, 2014); and (Kristanto; Susilo, 2016). Similarly To Secondary Education (Arini, 2019); (Carnawi; Sudarmin; Wijayati, 2017); (Putratama; Sutriyono; Pratama, 2019); (Edriati, 2016); (Triani; Wahyuni; Purwanti; Hudha *et al.*, 2018); (Fitriani, 2016); and (Hadiyanta, 2013). Also in higher education (McCarthy; Anderson, 2000); (Freeman, 2014); (Acharya, 2018); and (Hackathorn, 2011). hey agreed that the application of active learning could improve student learning value. Similarly, the application of active learning for mathematics and science can improve the students' score of mathematics and science.

One of the methods of active learning is the method of inquiry which is different from traditional learning methods, namely direct learning. The results of the study showed that the method of learning inquiry is better than a direct learning method (Ginanjar, 2015). But there is no interaction between learning methods and grades of students. The learning motivation of students taught by learning methods is better than students who were taught with direct learning methods.

Unfortunately, the above-mentioned studies are all based on the results of applying on a small scale with a small number of samples in one school or just a few schools. No research found with large sample sizes with large scale coverage, e.g. national.

This article is based on broader research that includes 1,075 Elementary schools either ordinary school or madrasah in 7 provinces consisting of 50 districts and cities in Indonesia from the USAID PRIORITAS program. Another novelty in this article is to find out how the effective cohort aid intervention of the donor agency.

Therefore, this article aims to find out: (a) the difference influence of active learning implementation on mathematics and science learning outcomes in intervention schools and control schools, and (b) the effectiveness cohort of interventions on the outcome of student learning.

METHODS

This research is a quantitative approach of experimental types conducted in the year 2018/2019 by enumerators in 7 provinces. The research samples consist of 1,075 elementary schools in the province of Aceh, North Sumatera, Banten, West Java, Central Java, East Java, and South Sulawesi. If viewed from the spread of districts and cities there are 50 districts and cities. The intervention school as much as 569 schools and 506 control schools. Based on the cohort of the intervention, 542 schools were intervened on cohort 1 (5 years), cohort 2 (4 years) of 477 schools, and cohort 3 (3 years) of 56 schools.

Interventions schools or experiment schools are schools whose teachers receive intensive training and mentoring from district facilitators. School partners apply fully active learning. Meanwhile, the control schools or schools of dissemination are schools that teachers receive training and assistance from local facilitators. They applied partial active learning. Local facilitators were previously trained in active learning by district facilitators. Meanwhile, the district facilitator receives training in active learning from the national facilitator prepared by the USAID PRIORITAS program.

Math and science test questions have been nationally standardized by mathematicians and have been tested and developed based on the results of the trial, thus the question has been tested for validity and reliability.

Data analyzed with SPSS the research hypothesis testing was conducted in two phases. First, test the average difference in math scores and science scores performed in partner schools and school controls. Since data does not meet the requirements of homogeneity, the statistical test used is Mann Whitney's test. Furthermore, the MANOVA test was conducted to determine the cohort effectiveness of active learning interventions toward student learning outcomes. Meanwhile, to perform a multivariate analysis requires testing multivariate normality with the receipt of H0, which means that the data is the normal distribution of multivariate. The test results from 0.05 of the normality of the Kolmogorov-Smirnov with a sig value of < 0.05, which means that the data is distributed normally. Multivariate analysis also requires a test of homogeneity with the receipt of H0, which means its data homogenized (Santoso, 2018). Due to normal and homogeneous research data, Post Hoc tests using the Bonferroni test.

RESULTS AND DISCUSSION

The differences effect of active learning implementation towards mathematics and science learning outcomes in partner schools and control schools.

The mandate for teachers in Indonesia to apply active learning as a form of educational innovation contained in government regulation No. 19 the year 2005 on national education standards. It is written in article 19 that the essence of the learning process is actively, creatively, effectively, inspiring, interactive, and enjoyable.

Another mandate to implement educational innovations in other forms is to implement school-based management (SBM) formally contained in article 51 of Law No. 20 of 2003 on the national education system. Stated that education management is implemented by the principles of SBM. Explained in Government regulation No. 19 of 2005 that the implementation of SBM is characterized by independence, partnership, participation, openness, and accountability.

Active learning refers to techniques or approaches (Michael, 2006) and (Silberman, 2006). Some refer to them as learning strategies (Uno; Mohamad, 2011) and (McCarthy; Anderson, 2000).

On active learning, students must perform many tasks such as solving problems, reviewing ideas, applying what they learn. Active learning is fun, passionate and passionate, fast-moving, and thinking loudly (Silberman, 2006). Active learning can be applied to preschool students to higher education and is known by hundreds of techniques and strategies. The characteristic of active learning focuses on ideas or concepts, the main activity is that students learn about doing. With the idea that material and process is an inseparable component of learning (Michael, 2006).

The meaning of active learning is what is required by Law No. 20 year 2003 on national education system and government regulation of Indonesia No. 19 year 2005 which was revised government regulation No. 13 year 2015 on national education standard.

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Active learning is one strategy to optimize the learning process. The teacher acts as a facilitator, while the student is an active learner. Students learn from their experience, learn to solve problems, and learn while doing. Up to now, there are dozens of active learning strategies (Uno; Mohamad, 2011).

Active learning strategies refer to a variety of collaborative classroom activities. Active learning techniques such as students-centered; Maximize participation; Teachers motivate students; Teachers provide life skills and contextual subject matter (McCarthy; Anderson, 2000).

Description of mathematics and science scores for each partner school group and Control school are clearly shown in the following table 1.

Table 1. Scores of mathematics and science in school partners and controls

	Kind of intervention	N	Mean Rank	Sum of Ranks
Mathematis score	Intervention schools	569	572.42	325705.50
	Control schools	506	499.30	252644.50
	Total	1075		
Science score	Intervention schools	569	575.64	327538.00
	Control schools	506	495.68	250812.00
	Total	1075		

Mathematics score in intervention school better than control school.

School Partners (school interventions) with N = 569 have an average math score of 572.42 and an average score of science 575.64. Meanwhile, the control school with N = 506 got an average score of mathematics 499.30 and the average science 495.68 score. Based on the data it is known that scores of mathematics and science in partner schools or school interventions are better than the average score of mathematics and science in control schools.

Based on Mann Whitney's Test on table 2, mathematical scores gained the significance of ASYMP. Sig. (2-tailed) amounted to 0.00 < 0.05, so H1 is accepted. This means that there is a

significant influence of the implementation of active learning on the value of mathematics in partner schools compared to the control school.

This is in line with the results of previous research such as (Wahyudi; Siswanti, 2015), (Santiana; Sudana; Garminah; 2014), and (Edriati, 2016) stated that mathematics learning with active student models gives a higher learning score compared to conventional learning models.

Results of previous studies stating that the application of active learning has a positive impact on the score of mathematical learning outcomes. Two studies at the basic level of education by (Wahyudi; Siswanti, 2015) and (Santiana; Sudana; Garminah; 2014) received the same results.

The implementation of an active learning model on elementary School 5-grade mathematics subjects showed that the average experimental grade mathematics score was 80.84, higher than the control class which received a mathematics score of 71.75 (Wahyudi; Siswanti, 2015).

Meanwhile, the previous research results show that there is a significant difference in student learning outcomes taught with an active learning model compared to conventional learning models. The active learning model here uses the Cooperative learning model NHT (Numbered Heads Together) which has a positive result that affects students' mathematical learning outcomes in Grade 5 elementary schools (Santiana; Sudana; Garminah, 2014).

The results of the study at the secondary level showed that there was an increase in the mathematics learning performance of the class XI SMK students after following the learning process using the teaching model Quantum. Quantum learning models are one of the most active learning models (Edriati, 2016).

Table2. Mathematics and Science Score

	Mathematics score	Science score
Mann-Whitney U	124373.500	122541.000
Wilcoxon W	252644.500	250812.000
Z	-3.855	-4.216
Asymp. Sig. (2-tailed)	.000	.000

a. Grouping Variable: kind of intervention

Science score better in intervention school than in control school.

Likewise, the outcome of the Mann Whitney score for science acquired the significance of Asymp. Sig. (2-tailed) amounted to 0.00 < 0.05, so H1 is accepted. This means that there is a significant influence over the implementation of active learning on science scores in partner schools compared to the control school.

Research findings on the influence of active learning on the science score are also in line and reinforce the results of previous research stating that the use of active learning has a positive impact on the results of the science of science learning scores founded by previous researchers (Kristanto; Susilo, 2016), (Rapi, 2016), (Triani; Wahyuni; Purwanti; Hudha *et al.*, 2018), (Fitriani, 2016), and (Fatimah, 2012).

The students' critical thinking skills taught using an inquiry learning model get better scores (65.96) significantly different from students taught using conventional learning models (58.23). Besides, the results of learning in science experiment 50.8 classes are significantly different from the control class score (39.5) in the science school grade VII subjects. Note that inquiry learning is one of the active learning models that teach students to discover what they learned (Kristanto; Susilo, 2016).

There are differences in science learning outcomes between students who follow the model of inquiry learning and conventional learning models. Similarly, the previous results of the study showed that the implementation of active learning with ICARE assisted by practicum can improve the results of animal network material as much as 20 points for class XI SMA students. ICARE is one of the

active learning models that allow students to experience what they are studying (Triani; Wahyuni; Purwanti; Hudha *et al.*, 2018).

Another results of the research (Fitriani, 2016) show that the results of the chemistry study for students taught by teachers with active learning of CTL (Contextual Teaching and Learning) models are better than the student learning outcomes taught by conventional learning teachers with LKS (student worksheets). This is in line with other research that applying Contextual Teaching and Learning models can improve student PKn's learning outcomes. Contextual learning is one of the active learning models that connect lesson materials to the context of the learning environment so that it becomes meaningful learning for students (Hadiyanta, 2013).

Similarly, the research results on other schools showed that the learning of physics using a Cooperative Learning model of FSLC type significantly affects student learning achievements. This research aims to determine the differences and responses of physics Learning with the model of Cooperative Learning type FSLC and SGD subject to vibration and wave of learning achievement of class VIII students (Fatimah, 2012).

The results of international research on higher education levels in different subjects showed similar results, the implementation of active learning resulted in a higher study score than conventional learning. The study was conducted by (Freeman, 2014), (Mccarthy; Anderson, 2000), (Acharya, 2018), (Hackathorn, 2011), and (Michael, 2006).

ased on the meta-analysis of 225 studies, the results show that the score of STEM exam (science, technology, engineering, and mathematics) increased by 6% on subjects that applied active learning while applying traditional learning, the lecture would reduce the score by 1.5 times compared to the active learning score (Freeman, 2014).

In the course of history and political science, the grades of students taught by lecturers with active learning models have a higher value than the grades of students taught by lecturers with traditional learning models (McCarthy; Anderson, 2000).

he students taught by teachers who apply role-playing teaching techniques get a better study result of 45% compared to student learning outcomes with techniques Traditional teaching (Acharya, 2018).

The active learning techniques help improve student learning outcomes. Activities in active learning classes improve the overall score of student learning outcomes compared to conventional techniques (Hackathorn, 2011).

In comparing the learning outcomes of students taught traditionally and constructively. One section is taught in a traditional way that centers on teachers, while other parts are taught in a way that is based on constructive ideas. A contractive learning model is one of the active learning models applied in the experiment group. The experiment Group results were significantly higher than the control group (Michael, 2006).

Good learning outcomes after applying active learning prove the argues that they have become the highest active learners, are ready and dive into school assignments. More interestingly, students in this category may not be the smartest in the class and they may not get the highest Test score. But they have high motivation and are ready to do the best job (Harmin, 2006).

The effectiveness of cohort intervention in active learning towards mathematics and science score.

The description of the mathematics score for each group of old interventions in the application of active learning is as follows. The average value of mathematics that is intervened in cohort 1 is 0.4492 with N = 542. The average mathematical value of cohort 2 is 0.4420 with N = 477. The average mathematical value that was intervened during cohort 3 was 0.5264 with N = 56. Based on the highest average mathematical score there is in a group that was intervened for 3 years.

The average value of science that is intervened in cohort 1 is 0.4046 with N = 542. The average value of science that is intervened in cohort 2 is 0.3937 with N = 477. The average value of science that is intervened in cohort 3 is 0.4504 with N = 56. Based on the highest science average score was in the group intervened for 3 years.

The average score of mathematics and science shows that the highest score is on intervention in cohort 3. It can be explained as follows. Firstly, the intervention is performed wavy i.e. waves 1.2, and 3. Wave 1 was given for 5 years, Wave 2 for 4 years, and Wave 3 for 3 years. Secondly, the number of samples on the third wave intervention lasts for the last 3 years, so the intensity of the experiment is more concentrated. Thirdly, because it occurs on the third wave, so the mistakes in the first and second waves are not repeated so that it is more efficient and effective from the time side, energy, and cost.

F MANOVA test results in table 3 shows 4 types of influences that provide a P-value for 4 different multivariate tests (sig. 0.00 < 0.05). This indicates that there is a significant overall impact of the length of intervention on mathematical scores and the science score significantly at the confidence level of 95%

Tabl3. Test Multivariate

Effect		Value	F	Hypothesis df	Error df	Sig.	Noncent. Parameter	Observed Power[d]
Intercept	Pillai's Trace	.806	2221.565[b]	2.000	1071.000	.000	4443.129	1.000
	Wilks' Lambda	.194	2221.565[b]	2.000	1071.000	.000	4443.129	1.000
	Hotelling's Trace	4.149	2221.565[b]	2.000	1071.000	.000	4443.129	1.000
	Roy's Largest Root	4.149	2221.565[b]	2.000	1071.000	.000	4443.129	1.000
Cohort Intervensi	Pillai's Trace	.015	4.017	4.000	2144.000	.003	16.068	.912
	Wilks' Lambda	.985	4.026[b]	4.000	2142.000	.003	16.103	.913
	Hotelling's Trace	.015	4.035	4.000	2140.000	.003	16.139	.914
	Roy's Largest Root	.014	7.726[c]	2.000	1072.000	.000	15.453	.950

a. Design: Intercept + years

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

d. Computed using alpha = .05

The test results of the F ANOVA in the MANOVA as follows: (a) The duration of the intervention significantly affects the mathematical score with the P-value 0.000 which means H0 rejected or H1 accepted; (b) The duration of the intervention significantly affects the science score by P-value 0.024 which means H0 rejected or H1 accepted as seen in table 4.

The next question is how much the most effective intervention cohort is shown with the highest score?

Table 4. Inter-subject effect test

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Noncent. Parameter	Observed Power[c]
Corrected Model	Math score	.358[a]	2	.179	7.689	.000	15.378	.949
	Science score	.168[b]	2	.084	3.744	.024	7.488	.686
Intercept	Math score	92.192	1	92.192	3958.057	.000	3958.057	1.000
	Science score	71.525	1	71.525	3196.264	.000	3196.264	1.000
Cohort Intervention	Math score	.358	2	.179	7.689	.000	15.378	.949
	Science score	.168	2	.084	3.744	.024	7.488	.686
Error	Math score	24.969	1072	.023				
	Science score	23.989	1072	.022				
Total	Math score	243.042	1075					
	Science score	198.010	1075					
Corrected Total	Math score	25.327	1074					
	Science score	24.157	1074					

a. R Squared = .014 (Adjusted R Squared = .012)

b. R Squared = .007 (Adjusted R Squared = .005)

c. Computed using alpha = .05

Based on the Bonferroni test in table 5, a mathematical score indicates that there is a difference in scores based on the duration of the intervention. The difference is five years with three years and four years with three years. The best intervention is three years, both of which get an average star difference of 0.0772 * and 0.0845 *.

The Bonferroni test on the science score also shows there is a difference in scores based on the duration of the intervention, which has a cohort difference of 2 and cohort 3. The intervention of Cohort 2 and cohort 3 is equally good, which each has one star, that is. 0567 *. Meanwhile, the five-year intervention does not have a star at all, which means that the intervention has a lesser influence than the 2 cohorts and cohort 3.

Regarding the duration of aid program intervention, until now there has been no study of how many years the most effective impact on student learning outcomes. Therefore, the results of this research are new findings. These findings are also a referral for donors that help improve the quality of education in Indonesia.

However, the three important notes above why those 3 cohorts intervention has the highest value are unacceptable. Because in management, the implementation factor is an important variable that affects the outcome.

Table 5. Multiple Comparisons

Dependent Variable		(I) Cohort Intervention	(J) Cohort Intervention	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Math score	Bonferroni	Cohort 1	Cohort 2	.0073	.00958	1.000	-.0157	.0302
			Cohort 3	-.0772*	.02142	.001	-.1286	-.0258
		Cohort 2	Cohort 1	-.0073	.00958	1.000	-.0302	.0157
			Cohort 3	-.0845*	.02156	.000	-.1361	-.0328
		Cohort 3	Cohort 1	.0772*	.02142	.001	.0258	.1286
			Cohort 2	.0845*	.02156	.000	.0328	.1361
	Games-Howell	Cohort 1	Cohort 2	.0073	.00960	.730	-.0153	.0298
			Cohort 3	-.0772*	.02129	.002	-.1282	-.0262
		Cohort 2	Cohort 1	-.0073	.00960	.730	-.0298	.0153
			Cohort 3	-.0845*	.02149	.001	-.1359	-.0330
		Cohort 3	Cohort 1	.0772*	.02129	.002	.0262	.1282
			Cohort 2	.0845*	.02149	.001	.0330	.1359
Science score	Bonferroni	Cohort 1	Cohort 2	.0109	.00939	.735	-.0116	.0334
			Cohort 3	-.0457	.02100	.089	-.0961	.0046
		Cohort 2	Cohort 1	-.0109	.00939	.735	-.0334	.0116
			Cohort 3	-.0567*	.02113	.022	-.1073	-.0060
		Cohort 3	Cohort 1	.0457	.02100	.089	-.0046	.0961
			Cohort 2	.0567*	.02113	.022	.0060	.1073
	Games-Howell	Cohort 1	Cohort 2	.0109	.00935	.472	-.0110	.0329
			Cohort 3	-.0457	.02239	.110	-.0994	.0080
		Cohort 2	Cohort 1	-.0109	.00935	.472	-.0329	.0110
			Cohort 3	-.0567*	.02250	.037	-.1106	-.0027
		Cohort 3	Cohort 1	.0457	.02239	.110	-.0080	.0994
			Cohort 2	.0567*	.02250	.037	.0027	.1106

Based on observed means

The error term is Mean Square (Error) = .022

*. The mean difference is significant at the .05 level

CONCLUSION

The main conclusion that there were differences affect the implementation of active learning to improve student learning outcomes in the intervening/partner schools with the control school were proven. Cohort 3 intervention is the best scheme, beyond preparation and follow-up.

The implementation of active learning proved effective to improve student learning outcomes for mathematics and science subjects. Therefore, governments need to continue to encourage all teachers to apply active learning in every learning process to all subjects. During this time active learning is widely applied to basic education, while active learning is also proven effective in secondary education and higher education.

The implementation of active learning cannot stand alone as a policy of the government but must be accompanied by community participation to improve the quality of education (Masino; Niño-Zarazúa, 2016). The intervention of the supply side alone will not be effective if it is not accompanied by the participation of the community that has been implemented in Indonesia. The implementation of active learning has been guaranteed in the National Education System Act and the Government regulation of the Republic of Indonesia on national education standards.

The existence of international donors such as USAID Indonesia to help improve the quality of education in Indonesia is still indispensable. Education aid remains significant from time to time. The results of research on the importance of human capital investment, remain significant and constant. Investing in education continues to bring monetary and nonmonetary benefits (Heyneman, 2015).

The existence of educational development organizations has been successful primarily in improving access to education, but still lacking in helping to improve the quality of education. Therefore, the focus of donors must be on a long-term goal to improve the quality of students, teachers, and education staff. Donor agencies should work together to improve the quality of education globally (Birchler, 2016) and (Riddell; Niño-Zarazúa, 2016).

The intervention of donor agencies in an area should pay attention to the findings of this research, i.e. the most effective intervention is 3 years effective. By calculating the 0.5 to 1 year preparation period and the evaluation and follow-up period of 0.5 to 1 year, the collaboration of donor agencies with one district or city is at least between 4-5 years.

To ensure a change in education quality, donor agencies should be prudent with no incentives to the government or local governments that are managed by implementing partners. The incentives have no impact on the implementation of assistance and expected outcomes (Olken; Onishi; Wong, 2014).

This is because governments and local governments have a routine agenda to run. Education staff at the government level and local governments should also be targeted to increase the capacity of education quality improvement.

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