

The Determinants of Active Instruction at Indonesian Elementary Schools as Perceived by Teachers

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Abstract. Considerable studies on learning so far had been much on limited terms of learning outcomes, curriculum, theories of learning, teaching methods and teacher competencies. Only a handful information on school and classroom contexts, and relevant expressions of teacher perceptions were provided to explain the instructional process. Therefore, this study aimed at examining the effectiveness of constructs on active instruction at the elementary schools. This research was a causal-correlational type using a sample of 1026 elementary school teachers who spread across six provinces, namely West and Central Java, West and East Nusatenggara, South Celebes, and South Borneo. Data accessed from the MGPBE program sponsored by the European Union. Statistical modeling through multiple regression analysis, estimated effect size and determinant coefficients were calculated and used. It found that there were discrepancies in the picture of active instruction between schools in the mainland and outside of Java except for NTB; related constructs on classrooms were significant and had an effect of about fifty per cent, while the institutional level constructs were not significant, the geographical disparity between locations had significant effects although of around three per cent. These findings had an impact on education policies to determine strategies for improving instruction at elementary school classrooms.

Keywords: Active Instruction, Contextual Factors, Effect Size, Elementary School, Teacher Perception.

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INTRODUCTION ~ Reflection on international assessment made the public understood that the quality of education in Indonesia was unsatisfactory. As illustrated by the results of several international assessments such as PISA, TIMSS, and PIRLS the achievement position of Indonesian students remained in the bottom ten positions for the last two decades (Mufiroh & Listyorini, 2016; Septiana & Ibrahim, 2020; Yusuf & Lestari, 2015). One of the problems facing our world of education was on the weakness of the learning process. In the learning process, children are less encouraged to develop their thinking skills. The learning process in the classroom was directed at the pupils' ability to memorize information, the child's brain was forced to remember and

hoarded various information without being required to understand it. As a result, when the children graduate from school, they are theoretically smart but poor in the application.

Generally, the symptoms of the results were in the learning process. The learning process at school was too crowded where children's brains with various teaching materials that must be memorized; the learning process was not directed at building and developing character and potential; In other words, the learning process had never formed intelligent humans who had the ability to solve life's problems, and were not directed to form creative and innovative humans. The solution was that teachers were required to have extensive

knowledge about the types of learning, as well as the internal and external conditions of students, and also to create active, innovative, creative, effective and joyful learning (Cintia, Kristin, & Anugraheni, 2018; Nurdyasyah, 2016).

Many researchers attempted to do research on learning methods. Based on previous studies, many methods or learning models have been tried to be studied (Maulana, Helms-Lorenz, Irnidayanti, & van-de-Grift, 2016; Maulana, Opdenakker, den-Brok, & Bosker, 2012; Azkiyah, Doolaard, Creemers, & van der Werf, 2012). One of them was the conventional learning method which was often used as a comparison for other learning methods. Conventional learning was learning that did not pay attention to the individual differences of students and was based on the wishes of the teacher. Conditions like this resulted in not obtaining completeness in learning, so that the learning system was completely neglected. This proved the failure in the learning process at school (Hartono, 2008).

The use of conventional learning could be seen from the lack of student activity during the teaching and learning process, students tended to be silent and even talked to themselves when the teacher delivered the material. This situation showed that the atmosphere of the teaching and learning process was less pleasant so that students seek their own pleasure rather than just listening to the material. As a result, it affected their unsatisfactory learning achievement. The low competence of Indonesian students was due to the absence of a meaningful learning

process that was able to optimize aspects of student development so that their achievement was not optimal (Rosada & Kumara, 2004). Realizing this reality, experts seek to find and formulate strategies that could embrace all the differences that students have. The learning strategy offered was an active learning strategy (Hartono, 2008).

In addition, generally in research, learning activities were associated with student achievement, with the curriculum, with the teacher's teaching strategies (Ismail, 2016; Nurdyansyah, 2016). However, it has been still difficult to find research in the country that considered contextual aspects not only at the student level but also at the class and school level. Teachers' perceptions also influenced the success of their practice at schools. This study focused more intensive attention on the teacher's perception by exploring contextual elements.

Therefore, the main problem of this study was on disclosing the factors that determine active learning in the classroom. This focus is translated into the following two research questions. By controlling for geographical conditions, how much is the determinant of each construct on the perception of effective learning?

LIRERATURE REVIEW

Learning is a complex process that occurs in everyone throughout his life. The learning process occurs because of the interaction between a person and his environment (Arianti, 2017; French, Imms, Mahat, 2019). Therefore, learning can happen anytime and anywhere. One sign that someone has learned is a change

in behaviour in that person which may be caused by changes in the level of knowledge, skills, or attitudes (Arsyad, 2009). Likewise, the opinion of Jihad and Haris, (2009) states that learning is a process activity and is a very fundamental element in the implementation of various types and levels of education.

Psychologically, learning is a process of change, namely changes in behaviour as a result of interaction with the environment in meeting their needs (Chang & Lin, 2018; Indrilla, 2018). These changes are evident in all aspects of behaviour. In another sense, learning is a process of effort by a person to obtain a new behaviour change as a whole, as a result of his own experience in interaction with his environment (Slameto, 2003). While learning is a process of interaction between teachers and students, students with students, as well as between students and their environment (Sanjaya, 2009). Therefore, teachers are expected to be able to choose appropriate learning strategies and methods.

Teaching is an attempt to create environmental conditions or environmental systems that support or allow for the learning process to take place. Teaching is conveying knowledge to students in the hope that an understanding process will occur (Cintia, Kristin, & Anugraheni, 2018; Sardiman, 2007). Teaching is part of learning (instruction), where the teacher's role is more emphasized on how to design or arrange various resources and facilities available for students to use or use in learning something. In addition, teaching in the context of education is defined as the process of regulating the environment

so that students learn or often termed learning.

Active learning is intended to optimize the use of all potential possessed by students, so that all students can achieve satisfactory learning outcomes according to their personal characteristics (Hartono, 2008; Widyaningsih & Rosidi, 2015). Active learning basically strengthens the stimulus and response of students in learning, so it doesn't become boring for them. The basic idea is that students gain understanding in learning through their interactions with their environment, and that students are involved in constructing their knowledge (Kumara, 2004).

Active learning as an approach that leads to independent learning, the activities are designed to actively involve students. Students not only listen to information from the teacher, but also see what the teacher explains and the last student activity is to do or try it directly (Konopka, Adaime, Mosele, 2015; Muyasaroh, 2019).

The practice of teaching and learning activities characterizes a student-centered approach which includes applying various teaching and learning techniques and media; allowing students to work independently; allowing students to express their initiatives freely; showing student work; promoting interaction between students; active, fun, creative and effective learning.

Active learning is perceived as an ideal practice for successful teaching in schools. Basically, for teachers, learning in the classroom is influenced by four groups of factors that contain professional development, teaching motivation, teaching assignments, and

social conditions of the school climate. In professional development, professional understanding and training are the most popular efforts for teachers in the country. Teacher teaching motivation is indicated through a sense of job satisfaction and willingness to carry out remediation activities when unsatisfactory things are revealed. When carrying out teaching tasks, teachers cannot avoid planning and evaluating teaching activities. Both of these activities are mandatory tasks that must be carried out and shown by the teacher to their leaders. The school situation is an inevitable condition for teaching. The school situation is reflected through an open school climate, the climate in the classroom, and school discipline (Indrilla, 2018; Selvianiresa & Prabawanto, 2017; Teodorović, 2011). In addition to active learning, this study raised six components of context, namely the benefits of training, lesson plans, use of materials/media, evaluation of learning, classroom atmosphere, and student satisfaction (Lindacher, 2020; Nurdyansyah & Toyiba, 2016; Saputra & Suhito, 2015).

Talking about the portrait of the education, geographical coverage often reveals the success of education nationally. This is very common, especially when the results of the national exam were highlighted. As if the maximum progress occurred in mainland Java compared to the areas outside of Java. Outside Java, there were still differences between the western and eastern parts of Indonesia. However, until now, the description of learning in these different geographical environments has not been revealed validly. This study raised geographical scope as one of the baseline variables as a controller which was taken into account before including independent factors into the model. This current study raised eight factors (Yulianti, Kaluge, Fernandez, & Pratiwi, forthcoming) that became the main concern, namely the six components of the learning context (at the grade level), school climate, the geographical scope of the school represented by the province as the initial distinction, and the teacher's perception of active learning as the dependent variable.

Conceptual Frame for the Current Study

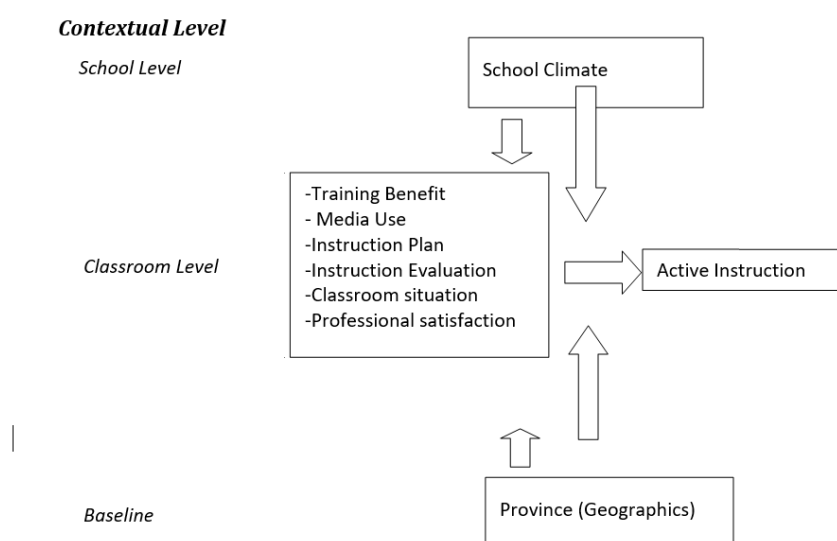


Figure 1. Conceptual Framework

METHODS

This section discusses the research design, sample and data, and statistical analysis. Instruments and data collection processes are not discussed because this study uses secondary data that has been collected.

Research Design

This study compared data from geographically varied regions. The overall focus of the analysis was on teachers' perceptions of active learning in schools. The methodology was adopted from the 'educational effectiveness' approach in which the 'effect size' of each component variable at different levels was considered separately. This approach has been commonly discussed internationally to consider tiered effective schools. All explanatory factors were tested and controlled one by one before arriving at the final analysis result which compiled the net findings in total. Six types of explanatory factors served as an analytical framework (illustrated in Table 2). First, geographic variation was treated as a baseline. Second, tested the group of the factors at the class level. Third, examined factors at the school level which were reflected in the school climate. Fourth, combined the three previous stages.

It should be noted at this point, it was not possible to adjust (statistical adjustment) all factors outside the school's control

because of the data structure. Therefore, stepwise analysis was applied as optimally as possible according to the available data.

Data

This study used a sample of data that had been randomly collected from seven provinces by UNICEF sponsored by the European Union for mainstreaming good practices of basic education. Because basic education, especially elementary school, after obtaining permission to access the data, researchers sorted out only elementary school data.

The involved provinces were East Nusa Tenggara, West Nusa Tenggara, South Celebes, Central Java, West Java and South Borneo. These six provinces (Table 1) were selected as areas that were often used as places for implementing basic education innovation trials through the government with foreign donor funds over the last two decades. The uniqueness of each province was clarified in the form of dummy variables. The existence of dummy variables was used in the analysis as a baseline before entering the next number of constructs. The number of items in every construct were 4 to 6, and Cronbach's alphas ranged between 0.667 to 0.827. By and large, all the constructs were valid and reliable (see Yulianti, Kaluge, Fernandez, & Pratiwi, forthcoming).

Table 1. Description of sample in each province

<i>Province</i>	<i>Frequency</i>	<i>%</i>	<i>% cumulative</i>
East Nusatenggara (NTT)	209	20.4	20.4
South Celebes (Sulsel)	121	11.8	32.2
West Nusatenggara (NTB)	241	23.5	55.7
Java (West & Central)	296	28.8	84.5
South Borneo (Kalsel)	159	15.5	100
Total	1026	100	

Analysis

To the research questions, the answers were obtained by conducting modeling analysis. For obtaining an optimal model of the effectiveness, the analysis used modeling techniques in stages. With this technique, multiple regression is gradual. In accordance with the research design above, it was pursued through the

analysis of the four modeling stages described in Table 2.

In each model, in addition to paying attention to the magnitude of the effect and its significance, the magnitude of the determinant becomes the focus for estimating the effectiveness of each stage.

Table 2. Strategies for Modeling

Level	Variable	Model 1	Model 2	Model 3	Model 4
School	School climate			X	X
Classroom	Training benefit		X	X	X
	Media use		X	X	X
	Instruction plan		X	X	X
	Instruction eval.		X	X	X
	Classroom situation		X	X	X
	Profesn'l satisfction		X	X	X
Province	Java (West, Central)	X			X
	NTT	X			X
	NTB	X			X
	South Celebes	X			X
	South Borneo	X			X

RESULTS AND DISCUSSION

Findings

The main problem of this research is, "by controlling for geographical conditions how big was the determinant of each construct on the perception of effective learning"?

As usual, before entering into regression analysis, it was necessary to describe the variables (referred to in Table 3) as an illustration to determine the accuracy of their further use.

Table 3. Variable Description

	Minimum	Maximum	Mean	Std. Deviation
-training benefit	1.00	4.00	3.5254	.57566
-active instruction	1.56	4.00	3.2137	.50669
-media use	1.33	5.00	2.2427	.36813
-instruction plan	1.00	22.00	3.1937	.88362
-instruction evaluation	1.40	4.00	3.0074	.52133
-classroom situation	1.50	4.00	3.2118	.50934
-professional satisfaction	1.00	4.00	2.4995	.58447
-school climate	1.29	4.00	3.2214	.60174

The eight variables in Table 3 reflected that the central tendency was not exactly in the middle position between the minimum and maximum values, but was still reasonable because of the position within the standard deviation range. Therefore, there was no extreme bias which was often feared to interfere with the following inferential analysis. Testing the basic assumptions for linear regression described the normal distribution of the dependent variable, there was no chance of multicollinearity, heteroscedasticity, and non-linearity between independent and dependent variables. The four models that had been planned, the results were presented in a row in following Table 4 to 7.

Model 1: It was found in Table 4, that there were significant disparities between provinces in Java and outside Java except for NTB. The provinces with the highest score above Java were South Celebes followed by NTT, while Borneo with a negative dummy score indicated that it was in the lowest position. Differences in active learning processes due to geographical disparities could not be underestimated for policy considerations in improving the educational process in primary schools. Furthermore, in the following analysis (model strategy 4) the provincial variation was maintained as a dummy variable for the basis for controlling other variables.

Table 4. Active Instruction at Primary Schools across the Provinces

Variable	Estimation		Significance		
	B	SE B	Beta	t	Signif t
East Nusatenggara	.226	.226	.169	4.886	.00*)
West Nusatenggara	.082	.082	.065	1.855	.064
South Celebes	.385	.385	.232	6.981	.00*)
South Borneo	-.183	-.183	-.123	-3.633	.00*)
Intercept =3,141 (SE= 0.030); R ² = 0.093; F = 27.312 (df = 4), p ≤ 0,0000					

Note: * t ≥ ± 1,96 signifikan (p < 0,05). Variables in dummies, West and Central Java as the base.

Taking into account the geographical effect of 9.3%, it said that this influence was not high but it did not mean that it deserved to be underestimated. According to the initial design, the findings of geographical conditions deserved to be used as a baseline as a controller to pay attention to the influence of other variables in the school context.

Model 2: It turned out that the context effect is 50%, much higher than just the effect of geographic differences between schools in mainland vs outside Java. Until

this stage, geographical considerations had not been included in the strategy of the second model, which was to check the effect of the six class-level dimensions on active learning itself. The results of the analysis in Table 5 showed that the dimensions of learning planning and evaluation, use of teaching media, classroom situations and professional satisfaction had significant positive effects on active learning in the classroom. Meanwhile, a number of trainings for teachers which were suspected to improve the teaching

abilities of teachers did not have a significant effect. This needed to be looked at more closely, because large funds had been devoted to training

activities without any results felt by the teachers. The analytical model required that readers be careful in drawing conclusions.

Table 5. The Effect of Classroom Constructs

Variable	Estimation			Significance	
	B	SE B	Beta	t	Signif t
1 Training benefit	.033	.031	.026	1.071	.284
2 Instruction plan	.087	.024	.092	3.626	.00*)
3 Media use	.239	.027	.242	8.733	.00*)
4 Instruction Evaluation	.141	.029	.132	4.797	.00*)
5 Classroom Situation	.148	.028	.132	5.282	.00*)
6 Professional satisfaction	.389	.032	.337	12.219	.00*)

Intercept =0,000 (SE= 0.127); $R^2= 0.500$; $F = 171.559$ (df = 6), $p \leq 0,0000$

Note: * $t \geq \pm 1,96$ signifikan ($p < 0,05$).

It turns out that the context effect is 50%, much higher than just the effect of geographic differences between schools in mainland vs outside Java. Until this stage, geographical considerations have not been included in the analysis model, so the reader needs to be careful in drawing conclusions.

Model 3: The third model design involves the influence of class and school level

dimensions (school climate) in the analysis. Table 6 shows that there are similarities with the previous analysis where the five significant dimensions remain the same and remain significant. In addition, the school climate and training for teachers do not have a significant effect. Once again, these findings need to be observed with caution so as not to provoke a distorted interpretation.

Table 6. Testing the effect of School and Classroom Variables for Active Instruction

Variable	Estimation			Significance	
	B	SE B	Beta	t	Signif t
1 Training benefit	.027	.031	.022	.886	.376
2 Instruction plan	.085	.024	.091	3.569	.00*)
3 Media use	.241	.027	.244	8.791	.00*)
4 Instruction Evaluation	.137	.030	.128	4.620	.00*)
5 Classroom Situation	.135	.029	.120	4.599	.00*)
6 Professional satisfaction	.384	.032	.333	12.040	.00*)
7 School climate	.036	.024	.038	1.499	.134

Intercept =-0,026 (SE= 0.0128); $R^2= 0.500$; $F = 147.551$ (df =7), $p \leq 0,000$

Note: * $t \geq \pm 1,96$ significant ($p < 0,05$).

It appeared that the effect of school and classroom context remains at 50%. It

meant that the dimensions of the school climate influence were not only

insignificant but also very small (under 1%). Once again, these findings needed to be handled carefully in order to avoid the possibility of error.

Model 4: Finally, we arrived at the analysis and summary findings, namely model 4. In this last model, designed by controlling for geographical (provincial) conditions, it examined the influence of classroom context variables and school institutions. Generally, the four class level variables remained significant except for

the effect of teacher training, the institutional climate remains insignificant. An interesting finding in Table 7 was that the province of NTB which in model 1 was not significant turned out to be significant in model 4; this implied a discontinuity in one of the independent variables, the possibility of a non-linear relationship, and/or an interaction between the baseline variable and other variables. Such opportunities were new problems for further research.

Table 7. Province, School and Classroom contexts for Active Instruction

Variable	Estimation			Significance	
	B	SE B	Beta	t	Signif t
NTT	.019	.036	.014	.524	.600
NTB	.077	.034	.061	2.263	.024*)
South Celebes	.084	.043	.051	1.967	.049*)
South Borneo	-.046	.039	-.031	-1.201	.230
Training benefit	.015	.031	.012	.484	.629
Instruction plan	.085	.024	.090	3.503	.00*)
Media use	.228	.028	.231	8.108	.00*)
Instruction Evaluation	.136	.030	.127	4.529	.00*)
Classroom Situation	.133	.029	.118	4.522	.00*)
Professional	.380	.032	.329	11.832	.00*)
satisfaction	.040	.025	.041	1.634	.103
School climate					
Intercept =,044 (SE= 0.135); R ² = 0.505; F = 95.953 (df = 11), p ≤ 0,000					

Note: * t_± 1,96 significant (p <0,05).

If all dimensions were included together in the regression analysis, the effect of determination increased to 50.5%. It would be said that the baseline contributed 0.05% and the dominant portion in the classroom context dimension was 50%. Thus, the findings of the three previous models were still quasi-nature but to be taken into consideration for further careful interpretation.

Discussion

The analysis of the set of constructs to determine the meaningful determinants of active learning at schools illustrated four interesting findings. First, there were disparities in teacher perceptions of active learning between those in mainland Java and other parts of Indonesia. This may be due to cultural differences, uneven development, community mobilization, decentralization policies, differences in access to education, awareness of educational practices as revealed by

several previous researchers (Doriza, Purwanto, Maulida, 2013; Masfufah, 2013). Second, the activeness in learning was successively influenced by professional satisfaction, use of teaching media, classroom situation, learning evaluation, and teaching preparation. This was in line with the theory of educational effectiveness and findings in school effectiveness studies (Boonen, van Damme, Onghena, 2013; Baroody, 2017). Unexpectedly, training that often costed a lot of time and money turned out to be ineffective and less useful for teachers. Third, the school climate did not have a significant effect on active learning in the classroom. Of course this finding was not consistent with research elsewhere (Konopka, Adaime, & Mosele, 2015; Curby, Rimm-Kaufman, & Abry, 2013; Strohl, Schmertzling, Schmertzling, & Hsiao, 2014; Kraft & Papay, 2014).

Fourth, overall portion of the biggest factor group for the success of active learning was constructs on the classroom context. Once again this finding had been confirmed by previous studies (Rosada & Kumara, 2004; Baroody, 2017; Indrilla, 2018). The findings of the determinants were not without limitations when related to the development of current research. There were at least two things that had not been fulfilled in this study. The first was related to data management and analysis because it does not use a hierarchical approach. The use of ordinary regression called Ordinary Least Square was not able to reveal the effect of independent variables at different levels, if it failed to reveal it, the researcher slips into findings that are flat or flat. The second thing related to the analysis of the covariance structure which also failed to arrange it hierarchically. Structural

equation modelling (SEM) analysis which was still respected in the country at this time was not able to parse findings that were tiered. Therefore, the findings of this study still had the potential to contain errors to be considered in further research.

CONCLUSION

With the theme of active learning in the classroom, three main conclusions were drawn. Firstly, there was a picture of the disparity in active learning between schools in mainland and outside Java except in NTB; controlling for geographic position, a significant determinant of fifty percent applied to the seven dimensions of active learning.

Secondly, the institutional level construct, namely the school climate was not a significant determinant that needed to be considered.

Thirdly, the most dominant were classroom related determinants. The findings of the determinants would have an impact on the formulation of educational policies to determine strategies for improving teaching in elementary school classrooms. This research was an initial study that had not tested the possibility of non-linear relationships and interactions between independent variables. This gap should be considered by further research.

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