

The Effects on Problem Based Learning Strategy, Direct Learning and Learning Activeness towards Learning Academic Skills Five Grader Of SDK STA. Maria Assumpta Kupang

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Abstract: learning paradigm embraced by teachers as the learning tools appear at learning strategy applied in managing learning. The application of learning strategies that are less precise, rarely involve learners to be active in the learning process, and learning that tends to be monotonous will affect the learning outcomes of learners in the subjects studied. This study purposed to determine the extent of the main influence and interaction influence of learning strategies and learning activeness towards academic skills of learners. The study implemented is a quasi-experimental, with the research design version *nonequivalent control group design*. Subjects of the research were learners in class V SDK Sta. Maria Assumpta Kupang amounted to 102 people (3 classes). The data collected were processed by using the technique of inferential statistics using analysis of variance (Anova) two lanes 2 x 2. The results of this study showed that: (1) there are differences in academic skills between groups of learners that learned using a strategy of problem-based learning with group of learners that learned using direct learning strategy, (2) there are differences in academic skills between groups of learners who have high learning activeness with groups of learners who have low learning activeness, and (3) there is no interaction between learning strategy and the learning activeness towards academic skills of learners.

Keyword: problem based learning, direct learning, learning activeness, academic skills

The implementation process of learning requires interaction between the teacher to learner, learner to learner, and learner with other learning sources. Learners should actively improve their creativity in finding and controlling learning material as well as able in finishing the problem. Learning is only happens if learners experience the active learning by themselves. Learning is cannot be forced by others, and cannot be overwhelmed to others (Arifin, 2012). Learners are not in passive situation, but must actively pursue the process of their own learning (Purwanto, 2013).

Basically, learners are an active human being who has motivation to do something, have desire and their own aspiration. Learners have innate curiosity and continually trying to understand the world around (Piaget, in Ibrahim and Nur, 2000). Based on Vygotsky, child (as a learner) is an active knowledge founder, trying to construct or to build his own knowledge based on his daily experience (Suyadi and Ulfah, 2013). Mc. Keachie states that individual is an active learning and curious (Dimyati and Mudjiono, 2002).

In constructive learning where the learning activity centralizes on learning, teacher is only acts like mediator, facilitator, and learning source. Primary task has by the teacher is to motivate and guide the learners to build up the knowledge as well as to improve their self-suitable with the competence they had.

But, the fact show that in the basic level of education generally, the teachers are tending to implement direct learning strategy, where the learning activity is emphasize on the teacher, so the learners only listen, write, and memorize the materials explained by the teachers. Direct learning consists of five stages, they are: determine the goal, explanation and or demonstration, practice guiding, feedback, and practice development (Arends, 2004). The implementation of such learning practice ensue the emerge of common symptom in learners environments, such as less studious, lazy thinking, tend to cheat, rarely express their opinions, and do not make their own analysis.

If the situation persists, the learners will face problems in applying and implementing the knowledge and skills they got at class in their daily life. Therefore, teacher must be able to choose and apply the learning strategy that can motivate the learners to be more active to increase learners' ability in understanding learning material concepts and improve or construct their own knowledge.

Problem based learning strategy is an alternative that can be one of the solutions to stimulate the learners to think and try to find out by themselves. Learning based problem can: (1) create meaningful learning, where the learners could solve the problem faced by their own way suitable with their knowledge and experience, then implement them in their real life; (2) interpret knowledge and skills simultaneously and apply them the relevant contest; (3) improve critical thinking ability and develop initiative in working; and (4) bring out the internal motivation in learning, and develop interpersonal relation in group working (Suyitno 2011; Warsono dan Hariyanto, 2013).

If the problem based learning strategy applied effectively, so the learners actively conduct various learning activities, critical thinking, and find out as well as develop their own knowledge based on their learning experience. Therefore, learning activity become meaningful and improve learning academic ability, that is ability to think in high level owned and learner mastered after learn the specific learning material.

METHOD

Research Design

The research was conducted by a quasi-experimental research design, with draft version of the study was nonequivalent control group design. Based on the plan of experiment nonequivalent control group of, so the factorial design 2 x 2 that used in this research follows the pattern as shown in figure 1. By the factorial plan, so the primary effect can be determined and interaction effects between variables of the research.

		Learning strategy	
		PBM	SPL
Learning Activeness	KBT (1)	Y _{1.1.1} , Y _{1.1.2} ,...	Y _{1.2.1} , Y _{1.2.2} ,...
		Y _{1.1.n}	Y _{1.2.n}
	KBR (2)	Y _{2.1.1} , Y _{2.1.2} ,...	Y _{2.2.1} , Y _{2.2.2} ,...
		Y _{2.1.n}	Y _{2.2.n}

Figure 1. Pattern of factorial experimental design 2 x 2
Note:

PBM : Learning Based Problem
SPL : Direct Learning Strategy
KBT : Activeness of High Learning
KBR : Activeness of Low Learning
Y : Academic Proficiency
n : Subject n

Based on figure 1, learning strategy variable and learning effectiveness studied in this research individually has two dimensions. Dimension of problem based learning strategy (PBM) and direct learning strategy (SPL). While the learning was activeness of dimension categorized based on the activeness of high learning. Learning strategy dimension that analyzed is problem based learning strategy and direct learning strategy (SPL). While learning was dimension activeness categorized based on the activeness of high learning (KBT) and the activeness of low learning (KBR).

Research Subject

Subject in this research was the learners of V SDK at of Sta Maria Assumpta Kupang were 102 learners (3 classes). The sample of this research was chosen by using technique samples of random groups, where the class was chosen randomly. There were two groups of learner; they were experiment group and control group. These two groups were given the questionnaire and pre-test (O_1 experiment group) and (O_3 control group) to know the level of learning activeness (the activeness of high learning and activeness of low learning) and their early ability. After the pre-test, experiment group was given a treatment (X_1), where the learners were taught by applying the problem based learning strategy. Whereas for controlling group, the learners were taught by using direct learning strategies (X_2). Then, after the learning process to both of the groups were done, post-test done (O_2 for experiment group) and (O_4 for controlling group), to know the improvement of academic skills after the treatment.

Research Variable

Some variables was considered in this research is: (1) Independent variable is problem based learning strategy and direct learning strategy, (2) dependent variable is academic capabilities, and (3) moderator variable is learning activeness. The model of conceptual relation between variable that analyzed drawn as follows.

Research Instrument

There were two research instruments used in this research, they were: (1) instrument to measure the learning activeness in form of questionnaire, and (2) instrument to measure the learning of learners' academic skills in form of learning test score. Before these two instruments used in collecting the data, try out or test is need to be done firstly. The result of test instrument processed and analyzed to know the level of instruments' validity and reliability in order to be able to be used.

Data collected were processed by inferential statistic using variant technique analysis (anava) two ways 2×2 .

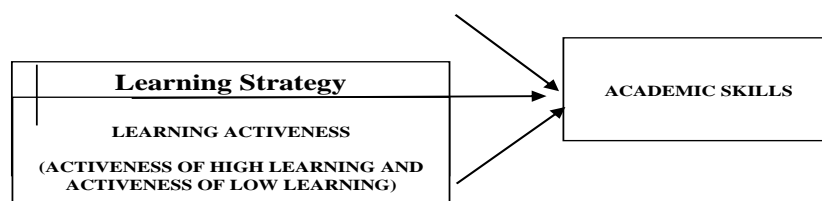


Figure 2. Model of Conceptual Relation between Research Variable

Factorial anova or also known as double anava is parametric technique statistic that is used to test the differentiation between groups of data from two independent variables or more (Winarsunu, 2006).

RESULT AND DISCUSSION

The Analysis result of Applying Learning Strategy and Learning Activeness

The aimed of undertaken this research is to know the effect of problem based learning strategy (PBM) and direct of learning strategy (SPL) toward the learners academic activeness. Number group of learners that were taught by PBM is 35 learners (50,72%), and group of learners that were taught by SPL is 34 learners (49.28%).

Data of effectiveness learning obtained by giving the questionnaire to the subject is 69 learners of VC as experiment class and VA class as controlling class. The same questionnaire were given to both of the teachers' class guardian to evaluate the learners' learning activeness under their control/guides. The result of descriptive analysis shows that the numbers of learners who have the high learning activeness is 44 learners (63.77%), whereas the learners who has the low learning activeness is 25 learners (36.33%).

And then, data frequency explained and percentage of interaction between learners in each category of learning activeness (KBT and KBR), and learning strategy (PBM and SPL) that has calculated which is suitable with the determined score tension.

Tabel 1. Interaction of Treatment Group

Interaction	Frequency	Percentage
Learning Based Problem – Activeness of High Learning (PBM – KBT)	26 learners	37,68 %
Learning Based Problem – Activeness of Low Learning (PBM – KBR)	9 learners	13,04 %
Strategy of Direct Learning – Activeness of High Learning (SPL – KBT)	18 learners	26,09 %
Strategy of Direct Learning – Activeness of High Learning (SPL – KBR)	16 learners	23,19 %
T o t a l	69 learners	100 %

Based on table 1, it can be known that interaction between experiment group that was taught by using PBM cumulatively were 26 learners (37.68%) who have high learning activeness, whereas 9 learners (13.0%) who have low learning activeness. the controlling group that were taught by using SPL were 18 learners (26.09%) who have high learning activeness, whereas 16 learners (23.19%) who have low learning activeness.

Then, distribution of research subject based on learning strategy and learning activeness shows that in experiment group that were taught by using PBM cumulatively were 74.29% of learners who have high learning activeness, whereas 25.71% of learners who have low learning activeness by using SPL were 52.94% who have high learning activeness, whereas 47.06% who has low learning activeness.

The Analysis Result of Academic skills

In the first meeting before the treatment was given, pretest arranged to know the learners competence at first. From the pre test's result was obtained the average score for experiment class that were taught by using PBM was 52.83 with standard deviation was 10.72, whereas pre

test for controlling class that was taught by using SPL obtained the average score 55.76 and standard deviation 8.92.

After the two subject groups were given by applying PBM and SPL, so the pre test were done. Description of acquisition data of academic skills as the learners learning outcome group that was applying PBM obtained the average score 80.66 with Std. Deviation 10.21, whereas the average score of post test for academic skills in group of learner used SPL was 73.62 with Std. Deviation 8.06. If the result of post test compared with the result of pre test, there were improving with the average score obtained by the learners who were taught by using PBM was 27.82. Whereas for the average score from the learners who were taught by using SPL was 17.85.

Besides, if it was seen from the leaning activeness, found out that the average score of post test from the learning group that was taught by using PBM with high learning activeness was 84.65, with Std. Deviation = 8.41, and category of low learning activeness was 69.11, with Std. Deviation = 4.54. Whereas the average score of post test from group that was taught by using SPL with category of high learning activeness was 78.33, with Std. Deviation = 6.58, and category of low learning activeness was 68.31, with Std Deviation = 6.07.

The Difference of Learners Academic skills Considered from Learning Strategies

From the result of inferential statistical analysis found out that the difference of learners' academic skills that were given a treatment (PBM and SPL) was significant. It can be shown from ratio $C_{\text{calculate}}$ for statistic test obtained 3.818 with the value 0.015. This significance level is smaller from the significance level used, which is 5% or 0.05. This is shows that there were difference learners academic skills that was taught by applying PBM and learners learning academic capabilities that were taught by using SPL. Therefore, it can be conclude that these two learning strategies were having the same effects towards the learners' academic skills.

To know which learning strategies that has the most effect towards the result of learners' learning, so test in advanced was done by Least Square Difference (LSD). The result of LSD showed that PBM has a great difference that is 3.560 with SPL. The result of descriptive analysis showed the average score of learners academic skills that was taught by using PBM is 80.65, whereas the average score of learners academic skills that was taught by using SPL is 73.61. Therefore, it can be concluded that problem based learning strategy has a better effects rather then direct learning strategy towards learners academic skills.

Based on the result of statistic test descriptively obtained the average score of academic skills from the two groups, knew that group of learners who were taught by using PBM obtained the highest average score compared to the average score obtained by a group of learners who were taught by using SPL. It can be caused by he exist of others variables that can influence learning outcome (academic skills), yet not analyzed and controlled in this research. Those others variable can be an internal factors, such as the condition of psychology (mental and emotional) and physique, although external factors such as environment and learners' social condition.

Finding of this research is in line and strenghten finding of the research earliest. Finding of Redhana and Kartawasono (006) research showed that PBM could improve students' of university interest, ability in solving the problem, and their learning outcome. Whereas Raharso (2007) who did the research about implementation of problem based learning in university got the conclusions that learning process by using PBL strategy gave the more optimal result rather than conventional learning strategy.

This research was done by Tegeh (2009) to compare the result from students' university learning achievement who were taught by using problem based learning strategy with

exposition learning strategy conclude that applying the problem based learning strategy gave the highest influence towards the students' of university learning achievement in media of learning course rather than the use of exposition learning strategy.

Besides, finding from Yudiernawati's (2014) research about the effect of learning strategy and cognitive style towards learners' achievement found out that the use of PBM gave a better contribution and could improve learners' learning achievement rather than SPL. Whereas the research that was done by Sakti (2015) showed there was a strengthen effects of PBM towards the learners' learning concept understanding and critical thinking abilities compared with SPL.

Based problem learning strategy is one of the learning strategies founded on constructivism viewed. In constructivism point of view, learning is a process of developing knowledge by the learners based on their owned knowledge (Yamin, 2012). Aforesaid point of view emphasize more on how the learners' are learning, so essentially learning is helping the learners in constructing or developing their own knowledge.

Applying problem based learning strategy could activate learners in learning activity. The learners are giving a chance to solve the problem contextually and work collaboration in a group, and presenting the result of group working in front of the class in turn. This kind of learning activity is a meaningful learning, because not only accept and memorize the learning material that was given by the teacher.

Meaningful learning needs a special strategy in organizing the material and delivering strategy. In line with meaningful learning, Degeng (2013) states that presently, learning organizing often done based on unparallel assumption with learning nature, nature of learning, and nature of teaching, so insufficient in encouraging the meaningful learning.

The Difference of Learners' academic skills Viewed from Learning Activeness

Result of data analysis based on learners' learning activeness showed that the ratio of $F_{\text{calculate}}$ learning activeness was 49.227, with p – value 0.00. If this significance rank compared with the probability 0.05 so the significance rank is smaller than 0.05 (p value < 0.05), so it can be concluded that there were a difference of learners' academic skills who have high learning activeness with learners' academic competence who have low academic competence. Therefore, it can be said that learning activeness effects towards the learners' academic skills. The result of descriptive analysis showed that the average score of learners' academic skills who have high learning activeness was 81.494, whereas the average score of learners' academic skills who have low learning activeness was 68.712 (difference score is 12.72). Therefore, it can be conclude that the learners with high learning activeness obtained a better learning competence rather than the learners' with low academic skills.

Result of this research also found a fact that the learners with high academic skills gave contribution 63.76% and learners with low academic skills gave a contribution 36.24% towards the learners academic skills. This is shows that learners' activeness is one of the factors that effects learners' learning outcome. Other variable that effects of academic skills as the learners' learning outcome yet is not analyzed and controlled in this research, whether in form of internal or external factor.

Learning activeness is an important effort which is need in learning. Someone's learning outcome is tending to be affected by the level of learners' learning activeness in their learning activity. Activeness is one of the principles in learning that can be used as the basic in learning, for the learners in improving learning activities, or teacher as educator in applying their teaching strategy (Dimiyati and Mudjiono, 1994; Annurrahman, 2010).

Learner's learning activity cannot be forced by others and cannot be transfred to other. learning can only be done if the active learners realizing by themselves . John Dewey (in

Riyanto; 2012) states that learning is an activity that must be done by the learners for themselves, and because of their own initiative. Learners' activeness in learning process could stimulate and improve their talent, critical thinking, and could solve their daily problems (Yamin, 2012).

In line with the learning activeness, Mc. Keachie states that individual is an active learners, curious or inquisitive, and social (Dimyanti and Mudjiono, 2002). In every learning process always show learners' activeness. These learning activeness is various, start from physique activity that is easy to be observed to the physique activity which is difficult to be observed. Physique activity is can be in form of reading, listening, writing, practice specific skill, and many more. Whereas physique activity can be in form of using mastered valuable knowledge in solving the problems faced, compared one concept to other concepts, concludes the experiment's result and another kinds of activity.

In learning process, learning activeness is really needed because someone who has not had learning activeness, might not be able to obtain a maximal learning outcome. Some point of view about learning activeness can be concludes that learning activeness is an effort or activity which is done by the learners continuously and emphatically to obtain some information, knowledge, facts, and concepts about learning material from any sources based on their own willingness. The active learners always try to access any information, knowledge, facts, and concepts related with learning material through any kinds of learning sources, such as: books, library, laboratory, museum, source, mass media, and environment.

Interaction between Learning Strategy and Learning Activity towards learners' Academic skills

Based on the result of test between learning strategy with learning activeness could be known that ratio $F_{\text{calculate}}$ for statistic interaction test was 2.297 with p – value was 0.134. This rank of significance is bigger than 0.05, so can be calculated that there was not interaction between learning strategy (PBM and SPL) with learning activeness (KBT and KBR) towards the learners' academic skills. The analysis result showed that there was not interaction between PBM with KBT have the average score 84.65, and PBM with KSR have the average score 69.11. Whereas for SPL and KBT obtained the average score 78.33 and SPL with KBR have the average score 68.31.

Interaction is collaboration between two independent variables or more in effecting one dependent variable (Kerlinger, 1986). In line with Kerlinger's point of view, Ghazali (2009) states that the affects of interaction is the affect of two or more independent variables towards dependent variable. Interaction could be happened if independent variables were not bring the affects separately and individually. On the other hand, the interaction also could not be happened if independent variables bring out the affect separately and significantly.

Result of this research found a fact that interaction between learning strategy and learning activeness with a ration $F_{\text{calculate}}$ as big as 2.297 and $\text{sig.} = 0.134$. This is shows that there is no interaction between learning strategy and learning activeness viewed by learners' academic skills (learning outcome). The result mentioned is a cumulative contribution. Cumulative contribution mentioned is not as big as variable contribution of learning strategy or learning activeness, if analyzed partially. It considers that interaction between learning strategy and learning activeness can affect differently to different learners, or another expression, the collaboration's contribution between variable of learning strategy and learning activeness do not give a different affect to each learner.

The affect of learning strategy towards learners' academic skills that has been presented in the previous part showed that learning strategy give the primary strobg effect towards learners' academic skills. This is proven by the theory exist and the result of research that

supports the effects of problem based learning strategy (PBL) towards the learners' outcome. The supporting theory presented by Newby, et al (2000), Palmer (20012), and Arends (2004) stated PBM is a learning strategy that could improve the way of thinking, ability in solving the problem, intellectual skill, learn to act like an adult through the real situation, and become dependent learners.

Besides, result of the research about applying problem based learning strategy (PBL) and conventional learning strategy as independent variable showed that PBM gave a better effect towards the learners' outcome rather than SPL. The earliest researches such as: Redhana and Kartawasono (2006), Raharso (2007), Setiawan (2008), Tegeh (2009), Kharida and Rusilowati (2009), Yudiernawati (2014), and Sakti (2015) found out that learners' learning outcome who were taught by using based problem learning strategy (PBL) is highest compared with the learners' group working who were taught by using conventional learning strategy.

Besides the primary affect on variable of learning strategy towards the learners' academic skills, this result of research also shows that the primary affects on variable of learning activeness towards learners' academic skills. Learning activeness gave a strong affects towards the learners' academic skills support by theoretic study and empiric as presented at the earliest part.

Theoretic and empiric supports about the existence of the primary affect on learning strategy and learning activeness towards the learners' academic skills impacts on the weakness of interaction on learning strategy and learning activeness towards learners' academic skills. Finding of this research showed that there is no interaction between learning strategy (PBM and SPL) with the learning activeness (KBT and KBR) towards the learners' academic skills at class V of Sta Maria Assumpta Kupang in nature science.

CONCLUSSION AND SUGGESTION

Based on the description of research result and discussion that has been discussed earliest, can be concluded that.

1. There are differentiation of academic skills between a group of learner who were taught by using PBM and a group of learners who were taught by using SPL at V class of SDK Sta. Maria Assumpta Kupang. Implementing PBM gave a highest affect towards the learners' academic skills rather than using SPL.
2. There are differentiation of academic skills between a group of learners who have a high learning activeness and a group of learners who have low learning activeness at class V of SDK Sta Maria Ausmpta Kupang showed that there is a difference. Some theoretic study showed that learning activeness gave a positive affect towards the learners' learning outcome.
3. There is no interaction between learning strategy (problem based learning strategy and direct learning) and learning activeness (high learning activeness and low learning activeness) towards learners' academic skills at class V SDK Sta. Maria Assumpta Kupang.

Based on these finding and the conclusion of this research, there are some suggestion that can be delivered, as follows:

1. Teacher as the educator is expected to: (a) use PBM in teaching the material in the classroom, in specific course; (b) pay a close attention on the material of the courses, then select the basic thing in the materials contains the contextual problems appropriate with the real condition about the environmental; and (c) condition the activeness and dependence learners before, so the implementation of PBM could directly be fluent based on the lesson plan that has been settled before.

2. Learners as the students are expected to: (a) always persistent and seriously attempt in searching and finding a knowledge, information, theory, and concept relates with the course's material that is learned through various learning sources; and (b) take advantage of the facilities effectively and learning sources that supported the PBM implementation, so the learning process could running smoothly and obtained a maximal learning outcome.
3. Another researcher are expected to: (a) doing a farther study about the improvement of learning strategy through classroom action research (CAR); (b) doing a farther study by picking up another main point of the material in nature science's subject in the other class, or the subject in other material.

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