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Creativity of SM3T Participants at Riau University in Developing Knowledge Using Project-Based Learning at Lany Jaya, Papua, Indonesia

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ABSTRACT

This study examined the creativity forms as applied to the teachers teaching at SM3T regions using Project-Based Learning (Pj-B) and learners' academic achievement at Lany Jaya Regency, Papua, Indonesia. Total sampling technique was decided to be applied because of 100% attendance of learners throughout the course of lesson. 32 participants got involved in this study. They were dispersed in to 4-5 people in 7 districts at 7 elementary schools: 4 participants taught in Tiom district; 5 taught in Poga district; 4 in Nokapoka district; 5 in Maki district; 5 in Indawa district; 5 in Guapaka district and 4 in Dome district. The data were collected by test and questionnaire. The former was intended to the learners of 7 schools and latter was administered to the SM3T participants. Total population who test were 450 learners of first to fourth grade of 7 districts. Parameters applied in this research were: A) Creativity in developing knowledge that covers 4 indicators: 1. Forms of innovations, 2. Idea originality, 3. Idea varieties B) Learners' achievement. Data on creativity were collected in form of observation sheet based on peer assessment. Meanwhile, the learners' achievement were gathered by test sheets. It was analyzed by referring to the score ranges, then the scores were converted and tabulated, finally they were descriptively discussed. Findings indicate that four creativity indicators were grouped in to good level. This study concluded that Project-Based Learning model was proved to be effective to build creativity of SM3T participants and improve the learners' achievement at Lany Jaya Regency, Papua Province, Indonesia

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INTRODUCTION

Unitary state of Indonesia covers a wide archipelago area with ethnic and cultural diversity. Some parts of regions are categorized as 3 T (*terdepan, terluar dan tertinggal*): frontier, outlying and underdeveloped regions. Problems encountering these regions are among others: shortage of teachers, unbalanced distributions of facilities and teaching staff, under standard qualification, low competence and mismatched educational background of teaching staff. Another obstacle encountering the underdeveloped regions is the high rate of school dropouts. In addition, the awareness of participating in education is still low.

As integral part of Unitary State of Indonesia Republik, education improvement in 3T regions need to be managed carefully and seriously in particular to solve the problems so that slow progress regions may develop well together with others. Such issue have received much attention from the Ministry of Education considering the strategic role of these

regions in strengthening the national defence and security as well as supporting the Unitary State of Indonesia Republic. The policy of Ministry of Education to accelerate education development in underdeveloped regions is actualized in program of so called Bachelors graduates teaching in frontier, outlying and underdeveloped regions translated in Indonesia *Sarjana mengajar di daerah terdepan, terluar dan tertinggal* (SM3T) with bearing a mission in a motto: "Going a head together to enlighten Indonesia". Such program is a sort of community service of bachelors graduates in education to participate in acceleration of education development in 3T regions for one year as the preparation of professional teachers. As the continuation of this program, there will be one more year program called Teachers Professional Education. At end these two programs, all of participants will be awarded a certificate which is used as the requirement of professional teachers with all of privileges and responsibilities conferred on them.

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Papua Province is one of underdeveloped regions in Indonesia which has been one of target areas in this program. Low education quality is still perceived as crucial problem in Papua that need to be urgently addressed. Academically, the SM3T participants who were prepared to teach at Lany Jaya regency, Papua, would be teachers for either Senior or Junior high Schools in in regency. However; due to the need on ground, they were placed at 7 elementary schools in seven districts of Lanny Jaya. Eventhough all of participants had neither experiences nor preparation to teach at elementary level, they were determined with utmost effort to accept the challenge. Some of problems observed in these 7 districts at Lani Jaya Regency are illiteracy, math incompetence as well as lack of a sense of nationalism to the unitary state of Indonesia Republic. Besides, the lack of means and infrastructures in education sector, lack of parents' motivation and participation, the far distance from residence to the schools, tribal war as well as inconducive security have contributed to be the threats to the instructional process. Given the very far distance from the participants' province to their target area in Papua, it is interesting to discover the effectiveness and efficiency of program in form of creativity evaluation and the academic achievement evaluation in underdeveloped region.

In handling the weaknesses and troubles facing these seven districts, Project –Based Learning had been applied in this program. the ministry of education (2013) stated there are 6 stages in PJ-BL which enable to help learners work on project: determining basic questions, designing the project plan, setting up the schedule, monitoring the learners and the project progress, measuring the product and evaluating the experience.

One of job area covered in this program is to encourage the teaching innovation programs at elementary schools. It needs to be urgently implemented to accelerate the process and the outcome or product in order to meet the purpose of program. Project- based learning was therefore introduced to the participants of SM3T. SM3T participants were distributed into 4-5 people in 7 districts at 7 schools and were assigned to design and apply the teaching innovations.

Santayasa (2006); Made Wena (2009) said that Project Based Learning teaching put the emphasis on contextual learning which allow learners to develop problem solving skill and lead them to be creative and active. To implement the Pj-BL (Project-Based Learning), there are 6 stages should be practiced: determining basic questions, designing project plan, preparing schedule, evaluating both the learners and project progress, measuring the products and evaluating the experiences (Ministry of Education, 2013). Thus, the creativity of SM3T participants, Riau University are expected to play paramount role in improving the learners' achievement.

These six stages seems to have provided the descriptions on plan, process and product that are observed from the SM3T participant's activities in target areas. From the stages of Project-Based Learning, the creativity behaviour evaluation of SM3T participants on ground throughout their service duty could be monitored.

Based on aforementioned, this study aims to evaluate the creativity behaviour of SM3T participants of Riau University and the outcome (quality change) of education which had been implemented by SM3T-UR members at Lani Jaya-Papua Regency. the creativitiy progress of SM3T participants of Riau University were expected to be fully evident and that efectivity and efficiency of SM3T activity programs can be observed which in turn may give contribution to the acceleration of education development at 3T areas.

Research Questions:

This study seeked to answer these following questions:

1. What are the significant progresses achieved by learners at 7schools of 7 districts in Lany Jaya regency, Papua after being taught using Project-Based Learning?
2. What are the teaching innovations created by SM-3T participants at 7 schools of 7 districts in Lany Jaya regency, Papua?

Method:

This is descriptive research conducted from 2 November to 7 August 2014. the location for data gathering is in Lanny Jaya regency, Papua province, Indonesia. Total sampling technique was used in this study where the populations are 32 SM3T partipants of Riau University consist of 12 males and 20 females. They were dispersed in 7 districts: 4 in Tiom; 5 in Nokapoka; 5 in Poga; 5 in Indawa; 5 in Maki; 5 in Indawa and 6 in Guapaka. Another population were 450 school learners at 7 districts in Lany Jaya Papua: Tiom, Poga, Nokapaka, Indawa, Guapaka, Maki and Dome. the activity procedure was project-based which was to establish project and product (in form of both reports and narrative accounts). the parametes of this study were: A). Creativity in developing knowledge. It covers 4 indicators: 1.innovation, 2. idea originality, 3. idea varieties 4. the appropriatness of idea with implementation. B). Students' learning achievement. the creativity data of SM3T participants, Riau University were collected using observation sheet with peer assessment. the students' achievement data was gathered in form of closed essay questions.

Total sampling of learners' population had been used due to100% attendance of learners in course of lessons handled by SM3T participants, Riau University. Total number of learners were 450 of 7 districtricts at 7 schools comprising 30 learners from



the 4th grade, 60 learners of 3rd grade, 150 of 2nd grade and 210 of 1st grade. Of 450 learners, they were classified in to different groups: those whose inability in reading and writing, incompetence in math, and lack of knowledge and information on Unitary of Indonesia Republic. There were three periods of evaluation: the test of early program, the first program 1st monitoring (after three months of instructional of SM3T participants) and 2nd monitoring (6 months after the instructional of SM3T participants) the data were analyzed from the score ranges and then to be converted (referring to the Ministry of Education Evaluation 2013) and tabulated and then descriptively discussed.

The assessment procedure and work performance monitoring were conducted based on group/district. Total Number of SM3T-UR participants were 32 comprising 12 males and 20 females. the participants were spread at 7 districts: Tiom, Poga, Nokapaka, Makki, Indawa, Guapaka and Dome districts. the activity procedure was in form of project-based which were to determine the tasks, report format and reporting technique, assessment schedule and monitoring and the graded components, i.e. creativity, instrument and assessment technique which evaluate the creativity behaviour using the questionnaire sheet with peer assessment in group. Analyzing the behaviour evaluation is the modification of assessment which refers to 2013 curriculum (Ministry of Education, 2013)

Research Findings And Discussion:

A) Creativity of SM3T Participants, Riau University:

The findings demonstrated that creativities produced by SM3T Participants, Riau University at these 7 schools of these 7 districts, Lanny Jaya regency consist of:

1). Forms of learning innovations:

The Innovations which had been produced are in forms of reading day, young tutors, environment-oriented media, care and empathy, library love, class grouping, intensive class, homogenous classes, nationalism building strategy. Following are the descriptions of these teaching innovations:

A).Reading day:

Is a day where the young tutors taught their peers who were not able to read with 5 members in each study group. the group were divided into some parts: first, learners who were learning to identify letters. second, learners who were learning how to spell two vocal sounds. third, learners whose incompetence to read fluently and fourth, those who were able to read fluently. Each of young tutor is responsible to lead and teach their peers.

B).Young tutors:

Are female/male learners which had been selected during the reading day. These young teachers were prepared to help regular teachers teach reading during the reading day, library love and grouping class . In order to differentiate the young teachers from the learners, teachers pinned up ribbon on their shirt.

C). Environment-Oriented Media:

Is an activity by making use of surrounding environment in course of math instruction such as gravel and utilization of variety of surrounding flora in identifying parts of plants to practice reading, writing and speaking competence.

D). Care and empathy Learning:

In this activity, the learners were trained how to care about the cleanliness and healthy life especially on ways of treating and maintaining hygiene and sanitation in everyday life.

E). Class Grouping:

This was conducted in teaching hours where the young teachers came to the second grade class to help the teacher teach. Young tutors served as a teacher in a group comprising 5 persons. Some of them refreshed the learners' mind with previous lessons they had learnt from the regular class; the others listened to the students who were just able to read sentences. This class grouping demonstrated that those who were slow in reading appeared to have been more fluent in reading than before and the young teachers competence in reading improved well.

F). Intensive class:

Is one of teaching innovations to resolve the reading incompetence of learners. the existence of this class not only to accelerate learners' competence in reading, but also to anticipate the complex and multy problems facing each learners in acquiring reading skill. the learners' requitment of this intensive class was based on recommendation of each class teacher with 2 (two) maximum number of learners. This class was effectively operated after the breaktime until the after shool hours. Learners who demonstrated significant progress in reading would be returned to their regular class.

G). Library Love:

No time without reading thorough out this program. In a remote area, the opportunity is severely limited if any to expect children acquiring reading competence as they usually spend the time helping their parents and playing after school. Half hours before the break time was used as good as possible to read. Such program was called library love which was part of teaching innovation process. the learners who were short listed in this library love



program were those appointed as young teachers and each of them had one learners from each class who had passed good spelling and reading sentences skill. the children were allowed to choose the reading books available at library which also served as teaching staff room. This program seemed to have motivated the other learners to acquire reading competence as the prerequisite to read at library.

H). *Morning-afternoon hours:*

Was performed on efective week at end of academic 2013. Precisely on 9 – 12 December 2013. the learners were required to bring their packed lunch which they consumed at every break time in afternoon (12.30 WIT). Those who brought raw casava and corn for their lunch package were allowed to cook at kitchen belong to their SM3T teachers. After noon class started at 14:00-15:30 WIT. the goal of this innovation is to increase learners's reading and writing skill through out the long holiday season.

I). *Homogeneous class:*

Was therefore thought to have been a a very brilliant solution to facilitate the heterogeneous learners. In addition, grouping learners with same competence in one class was expected to accelerate the signifiant progress on part of homogeneous group. The scheme was in form of grouping the learners in to some criteria determined before based on recommendation of class teachers. Learners who had demonstrated significant progress were promoted to the higher homogeneous class

J). *Nationalism building strategy:*

This program was in form of knowing the national symbol, flag, national anthem, the diversity of ethnic in Indonesia which was conducted at time of the raising flag ceremony training, arts (singing and dancing of traditional dance and songs in NKRI (the Unitary States of Indonesia), as well as during sports and gymnastic program.

In addition to these 10 learning innovations, articipants of SM3T were also required to be creative in publishing every product of their teaching innovations in public media (local paper) like Warta Papua, Wamena Post, and the others. the publication of these teaching innovation as a way to motivate other teachers, particularly the other participants of

SM3T who had dedicated themselves and encountered the same obstacles in Papua.

2) *idea originality:*

This includes individual-based ideas development, group-based ideas development, modifying the existing ideas that meet the needs and making use of existing ideas; 3) Idea varieties which were either performed or documented through videos, publication (printed media), photos, social networks, clippings, bulletins, seminars, other social and cultural occasions related to education fields

Of other five items, idea originality tends to be low due to a number or reasons: it was developed in group or merely modifying the existing ideas that adapt to the needs. In this respect, it is noticeable that by developing good team work and contributing ideas each other proved to be effective in accelerating quality education in frontier, outlying and underdeveloped regions. It was observed that solid coordination in given programs either in plan or in practice which in turn result in positive effect. In implementation of SM3T program therefore, internal coordination (among the SM3T participants, Riau University) and support and approval of head teacher, education office and local administration is very crucial. Such program gives the top priority on solid team workd which is in accordance with SM3T motto” Going a head together to enlighten Indonesia”.It firmly implies that SM3T program put the emphasis on kinship among participants by bearing a mission to develop education in Indonesia (Diktendik, 2012).

The detailed assessment result is illustrated in Table-1. the participant's creativity evaluation of 7 districts demonstrates that tendency is at good level with range of minimum score from 3,08 to 3,33 . Interestingly, there are two districts are categorized as excellent in producing creativity: Nokapaka with minimum range score (3,5) and Dome, with minimum range score (3,67). In general, it shows at good category. From the six items of assessment, the minimum range score (3.33) tends to be high in idea implementation and appears to be low at item 2 which is the idea orginality with minimum range score (3,08). Below is the table of complete evaluation in these 7 elementary schools of 7 regency:

Table 1: the SM3T- participants' creativity evaluation, at Lanny Jaya- Papua.

No.	Districts	Innovation Forms	Idea Originality	Idea Variety	Idea Implementation	Mean	Category
1	Tiom	3	3	3	3	3	B (Good)
2	Poga	3	2.75	3	3	2.94	B (Good)
3	Nokapaka	3.5	3.5	3.5	3.5	3.5	A- (Excellent)
4	Makki	3	3	3.1	3.58	3.17	B (Good)
5	Indawa	3.8	3.1	3	3.25	3.27	B (Good)
6	Guapaka	3.3	3.3	3.3	3.3	3.3	B+ (Good)
7	Dome	3.9	3	3.8	4	3.67	A- (Excellent)
Mean score		3.31	3.08	3.21	3.33	3.23	B (Good)



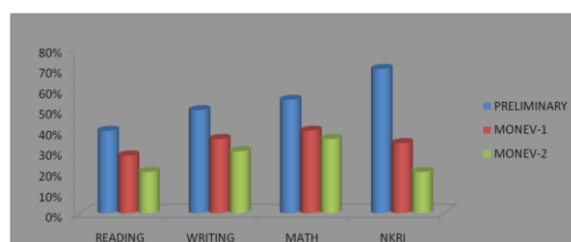
Ideas implementation possessed highest range score compared to the others due to the forms of learning innovations and idea varieties enable to adapt to the learning needs in local areas. It was also assisted with good scheduling and effective program operational as well as good team work coordination which are categorized in to the good level.

Of other five items, idea originality tends to be low due to a number of reasons: it was developed in group or merely modifying the existing ideas that adapt to the needs. In this respect, it is noticeable that by developing good team work and contributing ideas each other proved to be effective in accelerating quality education in frontier, outlying and underdeveloped regions. It was observed that solid coordination in given programs either in plan or in practice which in turn result in positive effect. In implementation of SM3T program therefore, internal coordination (among the SM3T participants, Riau University) and support and approval of head teacher, education office and local administration is very crucial. Such program gives the top priority on solid team work which is in accordance with SM3T

motto” Going a head together to enlighten Indonesia”. It firmly implies that SM3T program put the emphasis on kinship among participants by bearing a mission to develop education in Indonesia (Diktendik, 2012).

B. Students’ Academic Achievement Profile throughout SM3T Program, Riau University at Lanny Jaya- Regency, Papua, 2013-2014:

Referring to the report analysis of SM3T participants-UR 2013-2014, the learners’ academic achievement was observed in 3 stages: 1) learners’ academic achievement from the pre-test administered by SM3T participants in Lany Jaya, Papua dated from 16 to 30 September 2013, from the test result on reading, writing, mathematic and knowledge and information on Unitary State of Indonesia (NKRI); 2) learners’ academic achievement evaluation after implementing 3 months of instructional process; 3) learners’ academic achievement evaluation in 2nd monitoring after 6 months of instructional process. Picture 1 below provides the complete results of learners’ academic achievement progress.



Picture 1: Histogram: Illiterate, incompetent in math and lack of knowledge on NKRI of learners from 1st to 4th grade, elementary school, Lanny Jaya Regency-Papua 2013-2014 Data source: the Educational and Cultural Service of Lanny Jaya Regency, 2013



Document-1: Briefing on introduction of local culture to the participants of SM3T-UR by regency administration secretary, Lanny Jaya regency- Papua (18-9-2013) in Wamena.

In picture-1 above indicates that learners’ academic achievement at pre-test dated from 16-30 September 2013, of 450 learners, they were grouped from the first to the fourth grade, the incompetence in reading reached 38-40%, and writing incompetence from 40-50%, math incompetence about 55% and lack of knowledge about NKRI

(Nationalism, national symbol, national flag and national anthem) about 60 -70%

In data of 1st monitoring dated from 02 to 08 February 2014, there has been improvement where the inability of learners in reading is 26% ; in writing is 36%.; incompetence in math is 40% and the lack of knowledge and information on Unitary State of

Indonesia Republic: Nasionalism, nationa symbol, national flag and anthem had decreased to 34%. Finally, the 2nd monitoring data from 28 April – 03 Mei 2014 demonstrates that of 450 learners, the inability of reading had decreased to be 20% ; writing inability is 30% ; incompetence in math is 36% and the lack of knowledge and information on unitary state of Indonesia Republic (Nationalism, national symbol, national flag and anthem) is 20%.

Discussion:

Lanny Jaya District is a conflict region due to its instable security which may flare up any time. There were mixed-up feeling of insecure, scary and tense of SM3T participants at certain time that they were forced to be evacuated by local administration to the safer place. the local administration was very committed to guarantee security and comfortness to the SM3T participants.

Despite the low progress and limitations of learners, means and infrastructures in education which are severely limited and are left behind compared to the participants' home town, the willingness, motivation, high determination and spirit value of learners to reach school and attend the class has touched the SM3T's participants feeling to devote their time and energy to give more and build up their creativity.

Creativity is a value which is shown in form of thinking competence and acting something in order to produce a way or a new product which have been existed and owned (Ministry of Education, 2010). Mihardi (2013) are in favour of perception saying that creativity always occurs when human beings are given trust and chance to develop their competence. Furthermore, creativity may be practiced effectively in a conducive atmosphere (feeling secure and the necessity to act on something). Implementing project-based learning is one of ways of providing ample opportunities for learners to explore and utilize any media to improve their learning achievement. Learners may develop their self-confidence from which they enable to build their awareness of responsibility, discipline and motivation to improve themselves (Bell, 2010). Larmer and Mergendoller (2010) argues that learners-oriented in project based learning will automatically contribute to the high level of creativities and ideas.

The tendency to implement ideas were higher than the other five items. It was because of scheduling and licence program as well as team work coordination were categorized at good level. Of other five items, idea originality tends to be low. This service program prioritize a solid team work which is in accordance with SM3T motto " Going a head together to enlighten Indonesia"

Phil and Robert (2004) say the science approach contextually allow to accomodate the participant's competence in constructing new ideas attained from

the early experience. This may encourage more varied creativity in course of lesson which were related to the undergoing Project-Based Learning

Hafis (20013) explained projects in PJBL assigned to the SM3T participants put the emphasis on the participant's personal aspect, encouragement, process and product. It implies here that by appreciating the members' personality, supporting as well as providing opportunities to perform any creative programs, a great deal of creativities and innovations will be automatically demonstrated. A sense of togetherness and the support from the local administration to build a conducive atmosphere contribute to awaken the creativiy spirit of SM3T members.

This fact is in line with statement of Steinberg (1998) saying that creativity exists as a complex concept which is related to the role of environment, cognitive perspective and psychomotoric and that creativity will not be solely evident as the act of individual independency. Constructing the knowledge of learning is an important unit in developing creativity and creating the appropriate motivational climate to learn.

Munandar (1999) states in order to awaken creativity, children need to be given ample chances to get involved in a range of creativity programs. Teachers should give pupils freedom to express themselves creatively. Slavola *et al* (2007) aded that increasing adult learners' learning achievement depends on creativity building in course of lesson.

Munandar (*ibid*) furthermore affirms creativity is someone's ability to create a new thing and it is a combination of prior collected data and information which is realized in an idea or factual product.

Supriadi (2001) argues someone's intelligence can be observed in his/her competence in problem solving and constructing a new product which own cultural value (creativity). the creativity and innovations in learning of SM3T members therefore inderectly has given postive impact on learning development and achievement of learners.

The inaccuracy of schedule planning in several occasions have resulted in mismatch between the fixed schedule and the operational of programs. Such obstacle however was not really a matter on ground due to a sense of kinship and responsiblity of SM3T participants.

The change of result (Learners' academic achievement) toward positive which signifies that there have been improvements of learners (reading, writing, math and knowledge on Unitary state of Indonesia (NKRI) from the beginning to the first and second monitoring. It indicates that activity programs of SM3T had given significant contribution to the acceleration of education development of learners in Lanny Jaya.

Conclusion:

Creativity of SM3T members who had performed community service at Lanny Jaya Regency, Jaya Pura is categorized in to good level. It has achieved 10 learning innovations which seem to be effective to improve the reading, writing, math competence and knowledge on Unitary State of Indonesia (NKRI). Furthermore, with all of these brilliant achievement, central and local administration have awarded SM3T program, Riau University at Lany Jaya Regency, Papua, as the most creative and most innovative SM3T program in Indonesia.

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Recommendation:

We expect that SM3T program will be held sustainably so that all of efforts may achieved the optimal result as mentioned in SM3T motto. Besides, rograms of SM3T had provided valuable multy contribution such us building the sense of nationalism to NKRI, accelerating information on education at 3T regions, romotion and culture assimilationa and health. Local curriculum load need to be developed which has been the trade mark of Lanny Jaya. Based on our observation, there has

been an indication of local potentials at Lanny Jaya which should receive top priority for instances football, running and the other arts. In addition, the emphasis on character education need to be optimized in order to build up the mindset in accelaration of development at Lanny Jaya

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