

# Creativity of SM3T Participants, Riau University, Indonesia 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 the learners throughout the course of the lesson. 32 participants got involved in this study. They were dispersed in to 4 to 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 gathered by means of test and questionnaire. The former was intended to the learners of the 7 schools and latter was administered to the SM3T participants. Total population of the learners followed the test were 450 learners comprising the first to the fourth grade of the 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. The data on creativity were collected in the 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. The findings indicated that the four creativity indicators were grouped in to good level. This study concluded that the Project-Based Learning model proved to be effective to build up the creativity of the SM3T participants and improve the learners' students achievement at Lanny Jaya Regency, Papua Province, Indonesia.

**Key words:** Developing knowledge, creativity, SM3T programs, Project-Based Learning

## INTRODUCTION

The unitary state of Indonesia covers a wide archipelago area with the ethnic and cultural diversity. Some parts of the regions are categorized as 3T (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 the integral part of the unitary state of Indonesia Republic, education improvement in the 3T regions need to be managed carefully and seriously in particular to solve the problems so that the slow progress regions may

develop well together with the 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 the Ministry of Education to accelerate education development in underdeveloped regions is actualized in the program of the so called bachelors graduates teaching in the 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 the acceleration of education development in 3T regions for one year as the preparation of professional teachers. In continuation of this program, there will be one more year program called Teachers Professional Education. At the end these two programs, all of participants will be awarded a certificate which is used as the requirement of professional teachers with all of the privileges and responsibilities conferred on them.

Papua Province is one of the underdeveloped regions in Indonesia which has been one of the 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, will be teachers for either Senior or Junior high Schools in the regency. However; due to the need on the 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 the elementary level, they were determined with the utmost effort to accept the challenge. Some of the problems observed in these 7 districts at Lani Jaya Regency are illiteracy, mathematics 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 the education sector, lack of parents' motivation and participation, far distance from residence to the schools, tribal war as well as uncondusive security have contributed to be a 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 the program in the form of creativity evaluation and the academic achievement evaluation in the 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 the 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 the 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 the 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.

Project Based Learning teaching put the emphasis on the contextual learning which allow learners to develop problem solving skill and lead them to be creative and active. To implement the PJ-BL, there are 6 stages to 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 the 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 the plan, process and product that are observed from the SM3T participant's activities in the target areas.

From the stages of the Project-Based Learning, the creativity behaviour evaluation of the SM3T participants on the ground throughout their service duty could be monitored.

Based on the aforementioned, this study aims to evaluate the creative 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 creativity progress of the SM3T participants of Riau University were expected to be fully evident and that the efectivity and efficiency of SM3T activity programs can be observed which in turn may give contribution to the acceleration of education development in 3T areas.

### Research questions

This study seeked to answer these following questions:

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

### METHODS

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 participants of Riau University consisting of 12 males and 20 females. They were dispersed in the 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 the form of both reports and narrative accounts). The parameters of this study were: (A) Creativity in developing knowledge. It covers 4 indicators: 1. innovation, 2. idea originality, 3. idea varieties 4. the appropriateness of idea with the 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 the form of closed essay questions.

Total sampling of the learners' population had been used due to 100% attendance of the learners in the course of the lessons handled by the SM3T participants, Riau University. Total number of the learners were 450 of the 7 districts at 7 schools comprising 30 learners from the 4th grade, 60 learners of the 3rd grade, 150 of the 2nd grade and 210 of the 1st grade. Of the 450 learners, they were classified into different groups: those that have inability in reading and writing, incompetence in mathematics, lack of knowledge and information on the Unitary of Indonesia Republic. There were three periods of evaluation: The test of the early program, 1st monitoring (after three months of instruction of SM3T participants) and 2nd monitoring (6 months after the instruction of SM3T participants). The data were analyzed from the score ranges and then 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 the group/district. Total Number of SM3T-UR participants were 32 comprising of 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 the form of project-based which were to determine the tasks, report format and reporting technique, assessment schedule and monitoring and the graded components, that is creativity, instrument and assessment technique which evaluate the creativity behaviour using the questionnaire sheet with the peer assessment in group. Analyzing the behaviour evaluation is the modification of the assessment which refers to 2013 curriculum (Ministry of Education, 2013)

## FINDINGS

### Creativity of the SM3T Participants, Riau University

The findings demonstrated that the creativities

produced by the SM3T Participants, Riau University at these 7 schools of these 7 districts, Lanny Jaya regency consist of:

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

(I) **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 the young tutor is responsible to lead and teach their peers.

(II) **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.

(III) **Environment-Oriented Media:** Is an activity by making use of surrounding environment in the course of mathematics instruction such as gravel and utilization of variety of surrounding flora in identifying parts of plants to practice reading, writing and speaking competence.

(IV) **Care and empathy Learning:** In this activity, the learners were trained how to care about the cleanliness and healthy life especially on the ways of treating and maintaining hygiene and sanitation in everyday life.

(V) **Class Grouping:** This was conducted in the 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 of 5 persons. Some of them refreshed the learners' mind with the 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.

(VI) **Intensive class:** Is one of the 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 multi problems facing each learners in acquiring reading skills.

The learners' recruitment of this intensive class was based on recommendation of each class teacher with the 2 (two) maximum number of learners. This class was effectively operated after the breaktime until the after school hours. Learners who demonstrated significant progress in reading would be returned to their regular class.

**Table1.** 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- (Excelent)
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- (Excelent)
<b>Mean score</b>		<b>3.31</b>	<b>3.08</b>	<b>3.21</b>	<b>3.33</b>	<b>3.23</b>	B (Good)

(VII) **Library Love:** No time without reading through 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 the 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 the library which also served as teaching staff room. The program seemed to have motivated the other learners to acquire reading competence as the prerequisite to read at the library.

(VIII) **Morning-afternoon hours:** This was performed on the effective week at the end of 2013 academic year. Precisely on 9 to 12 December 2013. The learners were required to bring their packed lunch which they consumed at every break time in the afternoon (12:30 WIT). Those who brought raw casava and corn for their lunch package were allowed to cook at the kitchen belonging 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.

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

(X) **Nationalism building strategy:** This program was in the form of knowing the national symbol, flag, national anthem, the diversity of ethnic in Indonesia which was conducted at the time of the raising flag ceremony

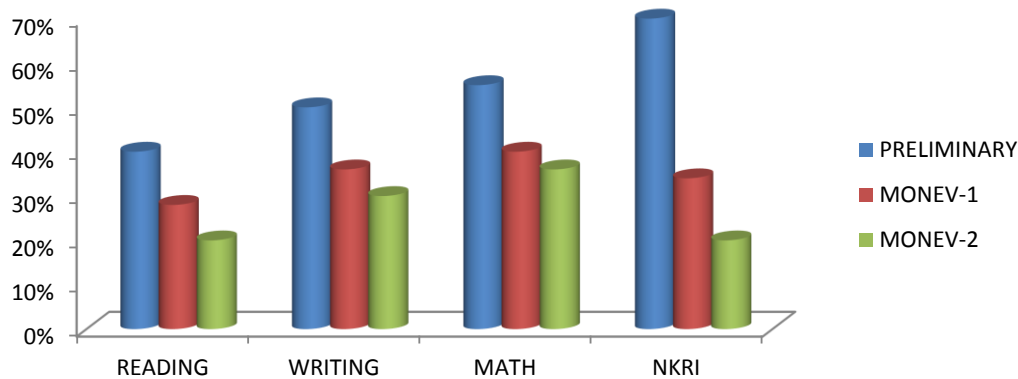
training, arts (singing and dancing of traditional dance and songs in NKRI (the Unitary States of Indonesia), as well as during sports and gymnastic program.

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

(B) **Idea originality:** This includes individual based ideas development, group-based ideas development, modifying the existing ideas that meet the needs and making use of the existing ideas. 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 the other five items, idea originality tends to be low due to a number of reasons: it was developed in the 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 the frontier, outlying and underdeveloped regions. It was observed that solid coordination in the given programs either in the plan or in the practice which in turn result in positive effect. In the implementation of SM3T program therefore, internal coordination (among the SM3T participants, Riau University) and support and approval of the head teacher, education office and local administration is very crucial. Such program gives top priority on the solid team work which is in accordance with the SM3T motto "Going a head together to enlighten Indonesia". It firmly implies that the SM3T program place emphasis on the kinship among participants by bearing a mission to develop education in Indonesia (Diktendik, 2012).

The detailed assessment result is illustrated in Table1. The participant's creativity evaluation of the 7 district



**Figure 1.** Histogram: Illiterate, incompetent in math and lack of knowledge on NKRI of the learners from 1st to 4th grade, elementary school, Lanny Jaya Regency-Papua 2013-2014.

demonstrates that the tendency is at the good level with the range of minimum score from 3.08 to 3.33. Interestingly, two districts are categorized as excellent in producing creativity: Nokapaka with the minimum range score (3.5) and Dome, with the minimum range score (3.67). In general, it shows at the good category. From the six items of the assessment, the minimum range score (3.33) tends to be high in the idea implementation and appears to be low at the item 2 which is the idea originality with the minimum range score (3.08). Table 1 shows complete evaluation in these 7 elementary schools of 7 regency.

Idea 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 the 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 the other five items, idea originality tends to be low due to because: it was developed in the 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 the frontier, outlying and underdeveloped regions. It was observed that solid coordination in the given programs either in the plan or in the practice which in turn result in positive effect. In the implementation of SM3T program therefore, internal coordination (among the SM3T participants, Riau University) and support and approval of the head teacher, education office and local administration is very crucial.

#### **Students' Academic Achievement Profile throughout SM3T Program, Riau University at Lanny Jaya-Regency, Papua, 2013-2014**

Referring to the report analysis of the SM3T participants-

UR 2013 to 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, mathematics and knowledge and information on The Unitary State of Indonesia (NKRI); 2. learners' academic achievement evaluation after implementing 3 months of the instructional process; 3. learners' academic achievement evaluation in the 2nd monitoring after 6 months of the instructional process. Figure 1 provides the complete results of the learners' academic achievement progress. Figure 1 indicates that the learners' academic achievement at the pre-test dated from 16 to 30 September 2013, of the 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%, mathematics incompetence about 55% and lack of knowledge about NKRI (Nationalism, national symbol, national flag and national anthem) about 60-70%. In the data of the 1st monitoring dated from 2 to 8 February, 2014, there has been improvement where the inability of the learners in reading is 26%; in writing is 36%; incompetence in mathematics is 40% and the lack of knowledge and information on the Unitary State of Indonesia Republic. Nationalism, national symbol, national flag and anthem had decreased to 34%. Finally, the 2nd monitoring data from 28 April to 3 May 2014 demonstrates that of 450 learners, the inability of reading had decreased to be 20%; writing inability is 30%; incompetence in mathematics is 36% and the lack of knowledge and information on the 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



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



**Plate 2.** The Futsal competition participants with coach, coordinator of SM3T-UR and security officers at the soccer field, Lanny Jaya (1-5-2013).

security which may flare up any time (Plate 1,2,3 and 4). There were mixedup feeling of insecured, scary and tense of the SM3T participants at certain time that they were forced to be evacuated by the 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 the 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 the 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 the 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 the perception saying that creativity always occurs when human beings are given trust and chance to develop their competence. Furthermore,



**Plate 3.** Participants of the sport competition are having breakfast together with pere (casava) provided by the committee (members of SM3T-UR).



**Plate 4.** Accommodation for the participants in one of the classroom for the 4 days sport competition (“we are so happy that our female teachers participate in the sport competition”) 30 April 2014.

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 the 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 the 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 the scheduling and licence program as well as team work coordination were categorized at the good level. Of the other five items, idea originality tends to be low. This service program prioritize a solid team work which is in accordance with the 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 the course of the lesson which were related to the undergoing Project-Based Learning.

Hafis (20013) explained projects in PJ-BL 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 the 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 achivement depends on the creativity building in the course of the lesson.

Munandar (1999) furthermore afirms 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 the learners.

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

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

## RECOMMENDATION

We expect that the SM3T program will be held sustainably so that all of the efforts may achieved the optimal result as mentioned in SM3T motto. Besides, the programs of SM3T had provided valuable multi contribution such us building the sense of nationalism in NKRI, accelerating information on education at 3T regions, the promotion 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 the character education need to be optimized in order to build up the mindset in the accelaration of development at Lanny Jaya.

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