

The Development Of Environment-Based Basic Reading And Writing Materials In Orang Rimba Community Forest Schools

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Abstract: This research is motivated by the empirical fact that there are still many people of Orang Rimba Tribe community in Jambi Province, both school children and adults who have not got their right to get a decent education, even in basic reading and writing. The purposes of this reserach is to develop environmentally friendly reading and writing materials to be used at the Orang Rimba Orangutan Community School in Jambi Province that are valid, practical and effective. The availability of teaching materials is expected to meet the needs of teachers and learners to facilitate and streamline the learning process. This research includes research and development (R & D) in 4-D model (define, design, develop, and disseminate). The subjects of limited product trial were conducted in six schools of nature in four districts, while the large-scale test subjects (dissemination) were conducted in ten schools of nature in six districts within Jambi Province, namely Muarojambi Regency, Batanghari Regency, Sarolangun Regency Merangin, Bungo District and Tebo District. The instruments of data collection used are: observation guidelines, interviews, teacher and learners response questionnaires, tests, validation tools, practicalities, and effectiveness instruments. The data were then analyzed by qualitative descriptive analysis technique, and quantitative analysis with SPSS 18 program. Quantitative analysis was used for the analysis of differentiated tested (paired sample statistics) and to test the effectiveness of the environment-based reading and writing base material at forest schools in increasing the competence of the students. The results of the implementation of basic reading and writing in these forest schools showed that: learning activities are not run properly, effective teaching materials are not available, learners' interests and motivation are relatively low, and teachers did not create syllabi, RPP, and learning evaluation tools. These learning materials of basic reading and writing are developed based on the analysis of learning needs in these forest schools. The development process is done through validity test, practicality test, and effectiveness test. (2) The result of validity test by experts and teachers shows that the teaching material is very valid and feasible to be used. (3) The test results of practicality of teaching materials also stated that this teaching material is very practical. (4) The results of the effectiveness test of the implementation of teaching materials show effective results and can be used to improve the mastery of the competence of basic reading and writing of the learners'.

Keywords: Teaching materials for basic reading and writing, environment-based, forest schools

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I. INTRODUCTION

The Orang Rimba Tribe Community is one of the remote indigenous communities in Indonesia located in the deep forest areas of Jambi Province. This community lives in the forest in the form of groups. Each group is led by a Temenggung (Chief of the group). This community has some prominent general characteristics, among others: small community, closed and homogeneous; Social institutions rely on kinship relationships, generally geographically isolated and relatively inaccessible, subsistence economic system, very simple technological equipments, high dependence on the forest or local natural resources. (Kepmensos RI No: 06 / PEGHUK / 2002), strong rules of inner custom, animist belief, very traditional way of thinking, and distant from any form of modernization. They suffice their necessities of life from the nature. Nature is everything to them. They are images of human life in the days of gathering and hunting hundreds or even thousands of years ago, which is

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still visible to the eye to this day. Barter system is still valid in the economic life of the Orang Rimba tribe community.

The Orang Rimba Tribe Community has its own socio-cultural life. In the midst of modern life that relies on the advancement of science and technology, the Orang Rimba Tribe community still retains the habits of their ancestors. They live on the move while hunting, gathering, and farming. Their home is very simple with live equipment and minimal clothing using a loincloth and living away from modern community. However, in reality the Orang Rimba Tribe community can not survive in their current condition because of the modern population growth in 'development context' and direction of change has depressed their natural environment.

The first disturbance in the life of the Orang Rimba Tribe community occurred because of the arrival of thousands of inhabitants from the island of Java through transmigration projects proclaimed by the government in the 1980s. This resulted in the Rimba People's indigenous community roaming area to establish indigenous rituals and search for food sources to narrow as the economic activities of the transmigrants reached the Orang Rimba's territories. Additionally, as a consequence of the developmental direction, large-scale plantations of oil palm and rubber plants increasingly narrowed the forest area of the Orang Rimba's residence in Jambi Province. Under such conditions, Orang Rimba came into contact with the outside communities. The large number of interactions with outsiders and the rapidly changing environment in recent decades has forced them to adapt. Their lives are getting pressed because the forest is getting narrower. They are mostly illiterate and cannot communicate in Indonesian. Based on the Jambi Province Statistics data of 2015, 91% of the Orang Rimba Tribe community is illiterate, and only 9% of the people can read and write. The problem of illiteracy is closely related to poverty, ignorance, backwardness, and powerlessness. As a result, they frequently become the victims of fraud by foreign migrants or outsiders because they cannot read and write.



Photo: Community of Orang Rimba People

Literacy is the foundation of knowledge for humans. By reading and writing, human beings can improve the quality of himself that culminates in the high intellectuality of a person. Especially nowadays, humans have entered the information age where the globalization phenomenon that occurs today accelerates so rapidly as the impact of the application of Hi-tech society that causes humans to direct the pattern of interaction very quickly. (<https://renyfatma.wordpress.com>). Such conditions require the creation of individuals who are not only able to adapt, but also can play an important role in it. Therefore, the effort to eradicate illiteracy among Orang Rimba community in Jambi Province is important to be implemented.

The effort to eradicate illiteracy is a shared responsibility. In this case, the government, educational institutions, non-governmental organizations (NGOs), and the community of Orang Rimba itself must have the will to get out of the miserable illiteracy circle.

The program intended to raise the community's dignity has been started by the government. One of them is through the educational program. The government established several elementary school buildings created specifically for the Orang Rimba's children. However, the government program did not go well (failed) because most of the students there did not come from the Orang Rimba community, but transmigrant children living near the school. This failure is also due to various factors including: (1) the government does not understand the uniqueness of the Orang Rimba Tribe community, such as how they think, including interpreting their school goals. (2) geographical factors that are difficult to reach deep within forest areas (scattered and isolated), as well as socio-cultural. In addition to that, (3) this project fails because this community recognizes the term *melangun*, which is moving from the old place to the new place for a period of time between three to five months when one of the family members of the community died. This tradition is still maintained by some

of the Orang Rimba community until now. This tradition is very disturbing to the activities of their children who are in school because they have to be off in a very long following their parents. These constraints make it difficult for the local governments to provide educational services to the people of the Orang Rimba Community.

Nevertheless, there are still others who care about the education of Orang Rimba. Based on preliminary studies conducted to several related institutions such as the Office of Sosnakertrans Jambi Province, and NGOs (Warsi, Pundi Sumatera) on 8-28 September 2015 ago, there are 42 forest schools for the community of Orang Rimba tribe in Jambi Province that carry out reading learning activities and basic writing. (Table 1).

Table 1. Forest Schools Data by Regency in Jambi Province 2015

No.	Regency	Number of School
1	MuaroJambi	3 schools
2	Batanghari	8 schools
3	Sarolangun	10 schools
4	Merangin	15 schools
5	Bungo	2 schools
6	Tebo	4 schools
	Total	42 schools

Source: Documentation data at Jambi Sosnakertrans Office

Forest school is a school in which learning activities are conducted in the forest. This school uses nature as the main medium of learning. The existence of the forest school was established by concerned parties such as the Office of the Sosnakertrans of Jambi Province, NGOs (KKI Warsi and Pundi Sumatera), universities (Indonesian Christian University of Jakarta, Paramadina University of Jakarta), Palm plantation (PT.SAL), Forest Conservation Company (PT REKI), and other related community groups. One of the forms of the awareness of the parties is the educational services in the form of basic reading and writing activities in each forest school they are developing. The number of learners in each school ranges from 4 to 45 people with ages of 4 to 15 years.

Based on the observations in 16 forest schools spread across six districts in Jambi Province, 80% of the students in each of these forest schools have not mastered basic reading and writing in Indonesian. They do not know letters, syllables or words. In addition, they also have difficulty in writing letters, words, and sentences, as well as paragraphs even though they have attended the learning process at the forest school for 1-5 years. This is due to many factors such as the unavailability of practical teaching materials oriented to the environmental context. Teachers complain of difficulty in teaching basic reading and writing due to the unavailability of teaching materials that are of interest to the learners.

Basic reading and writing essentially has the ultimate goal of providing provision of skills as a prerequisite for learners to be able to study other fields of science. With basic reading and writing skills, learners will be able to understand science and technology well. Conversely, weak learners in both fields tend to have difficulty in developing their abilities especially in cognitive abilities.

The underlying competence of basic reading and writing has an impact on backwardness in various competencies. This, in turn, will create an even bigger gap between Orang Rimba's children and children outside this community, leading to more social problems that harm various parties.

Based on the above description of the problem, it can be concluded that the condition of learning to read and write in forest schools in the Community of Orang Rimba in Jambi Province has not operated properly. One of the contributing factors is the unavailability of teaching materials that suits the needs of the learners. Therefore, innovative ideas are needed to achieve the improvement of the quality of learning through the development of environment-based basic reading and writing materials that are appropriate, practical, effective, meaningful, beneficial and fun to the characteristics and needs of the learners at the forest schools in the Community of Orang Rimba.

The importance of elevating the environmental context in learning has been put forward by some previous researchers. According to Djulia (2005), raising the context of the environment in learning will increase students' understanding of the subject matter and can increase their awareness of nature as well as enrich the learning materials. Another study by Gopal (2005) suggests that new learning occurs when learners understand what they learn from their own cultural perspectives so that local knowledge and wisdom need to be integrated in learning. The learning process should contain the activities of local people, the environment, and the interaction between local people and their environments. One way that facilitate learners in learning is to link learning materials with the actual problems that exist in the environment surrounding the learners. (Poedjiati, 2005). For that, the need for the development of environment-based teaching materials at Orang Rimba Forest School is profound.

Based on the background of the above problems, the problem formulation in this research is as follows: (1). How is the implementation of basic reading and writing that takes place in the jungle community forest schools of Jambi Province today? (2). What is the level of validity, practicality, and effectiveness of baseline environment-based reading and writing materials developed at the Community forest School in Jambi Province? This study aims to: (1) describe the implementation of basic reading and writing lessons that occur in forest schools as needs analysis. (2). Describe the validity, practicality, and effectiveness of environment-based basic reading and writing materials developed at Orang Rimba Forest School in Jambi Province.

The product specifications expected from this study are: an environmentally based basic reading and writing lesson books used in forest schools, an instructional manual for teachers, a valid, practical, and effective learning appraisal guiding book; Syllabus for environment-based basic reading and writing lessons, and Learning Implementation Plan (RPP).

II. LITERATURE REVIEW

Based on the learning model that has been proposed by several experts: Eggen (2012: 7), Salma (2008: 33), Trianto (2009: 22), Benny (2010: 86), Joyce (2000: 16), Arends (2004: 7 And p.24), Joyce and Weil (2000: 12), Gustafson (1996: 27), Gustafson and Branch (2002), Eggen, Paul and Don Kauchak (2012: 82), Rusman (2011: 136), can be inferred That the learning model or design is a theoretically arranged draft based on theoretical theories such as learning theories, psychology (material and learners), rational and logical, communicative system and so forth to achieve more specific learning objectives. This means that the model should refer to how the implementation of the learning process is done well through a series of procedures and the creation of an effective and efficient learning environment to achieve defined learning objectives.

The teaching materials have been put forward by several experts: Diknas (2006: 3-4), Majid (2006: 174 and 175), Prayitno (2009: 4), Sanjaya (2008: 122,123,141 and p.150,152), Iskandar wassid And Sunendar (2008: 169) and 173), Akbar (2013: 34), Hunkins 1988 (in Sanjaya, 2008: 123), Merill (1994: 72), Ali (2002: 14), Trianto (2009: 197) (PP Year 2005 No. 19 Article 43 paragraph 5 on the feasibility of content, language, presentation and textbook graphics). BSNP (2003) concluded that the teaching materials is a set of subject matter that contains knowledge, skills, and attitudes or values compiled systematically so it is easily mastered by the learners to achieve the objectives of the learning (competency standards) that have been determined. High quality teaching materials have the following criteria: (1) characteristically speaking, it should be in line with the needs, environment, experience, difficulty level and the motivation of the learners, and (2) according to curriculum, it should be accurate, relevant, communicative, systematic, complete, using a good language, readable, and new.

Based on the basic reading and writing learning guidelines advanced by several experts: TW. Solhan et al (2009: 6.6), Zuhdi, Darmayati, and Budiarsih (1996/1997), Kemendikbud (2012: 3 and 7), Anonymous (2011: 4), Brogto (et al) in Anonymous, 2011: 5), Act No.20 of 2003 on Sisdiknas, BSNP (2003), Diknas (2009), it can be concluded that basic reading and writing is a learning program oriented to the ability to read and write at the basic level. Basic reading skills are oriented towards simple literacy, words, and sentences. This means that learners can change and pronounce written symbols into meaningful sounds. Furthermore, basic writing skills are more oriented toward mechanical abilities. Learners are trained to be able to write (similar to the ability to paint or draw) symbols that, if coupled in a structure, become meaningful. With these basic skills, gradually learners are led to the ability to pour ideas, thoughts and feelings into the form of written language through symbols that they have mastered.

The views relating to the theory of language learning in children are behavioristic theory, mentalistic theory, and cognitive theory proposed by experts including Brown and Padeta (1990: 43), Skinner (in Suhartono, 2005: 73), Chomsky (1959), Brown (1980: 20 and 22), Clark and Clark (in Hamied 1987: 22-23) with the conclusion that (1) the view of behaviorism suggests that language skills in children arise because of environmental stimuli. (2) a mentalistic view says that the child's language skills derived from innate potential, every child born has complete language skills. (3) the view of cognitivism states the ability to speak in children derived from intellectual intelligence, environmental stimulus, and inherited.

Environmental-based learning has been put forward by some previous researchers. Nurhadi (2003), Rebecca (1994: 24), Sugiyanto (2010: 14), Cece Wijaya (2010: 153), Paul Mac Lean (in Cece Wijaya, 2010: 169), Johnson (2006: 15), Naim (2009 : 188), Djulia (2005), Leksono (2014) concluded that the environment is one important source of learning that is very valuable in the learning process of learners. The use of the environment as a learning resource can be through (1) the physical environment (natural environment, forests, flora and fauna), and (2) nonphysical environments (social, cultural, emotional, intellectual, living, spiritual and moral values).

The theory of development research has been put forward by several experts: Trianto (2011b: 243), Sugiyono (2009: 407), Emzir, (2008: 263), Putra (2012: 67), Akker, et al. (1999: 4) who concluded that

development research is a structured and systematic study in developing a product through certain stages and evaluations to test the level of validity, efficacy, and effectiveness in its use.

III. RESEARCH METHODOLOGY

This type of research includes research and development (R & D). The development of environment-based basic reading and writing materials in this forest school follows the 4-D development model proposed by S.Thiagarajan et al. (1974: 189). This model consists of four procedures namely definition, design, develop, and disseminate.

The product trial subjects on a limited scale were conducted in six forest schools (sample of 6 teachers, and 90 students) spreading across four districts (2 schools in Sarolangun District, 2 schools in Muaro Jambi District, 1 school in Merangin District, and 1 school In Bungo District). Furthermore, large-scale pilot subjects were conducted in ten forest schools (10 teachers and 100 students samples) in six districts within Jambi Province, in Muarojambi District (1 school), in Batanghari District (3 schools), in Sarolangun Regency (2 schools), in Kabupaten Merangin (2 schools), in Bungo District (1 school), and in Tebo District (1 school).

Data collection instruments used: (1) observation and interviewing guidelines for data collection in needs analysis, (2) validation questionnaires for assessment of teaching materials, (3) observation guidelines, teacher and learner response questionnaires for data collection of practicality of materials, and (4) guidelines for the observation of learners' activities, and test of learning outcomes for data collection of the effectiveness of the materials developed.

The feasibility of the teaching materials developed in this study is seen from the level of validity, practicability, and effectiveness of teaching materials. Data on the validity of teaching materials was obtained through a review by academics and practitioners. Practicality of teaching materials obtained from the observation of the implementation of lesson plans. Furthermore, the effectiveness of teaching materials is obtained from written test results before and after the treatment expressed with a normalized gain score.

Data analysis technique in this research is done in two ways. Qualitative data was analysed with descriptive qualitative technique following the stages proposed by Miles and Huberman (1984), namely (1) data reduction, (2) data display, and (3) conclusion drawing / verification. Furthermore, the quantitative data was analysed by using descriptive statistics, (1) scoring based on the predetermined indicators, (2) determining the total scores from each of the assessed aspects, (3) determining average scores, (4) classifying the achievement of indicators, (5) determination of significance test of difference of competence of learners based on difference of pretest and posttest score with SPSS program version 18, and (6) inference.

IV. RESULTS AND DISCUSSION

1. The Implementation of Basic Reading and Writing Learning at Orang Rimba Forest School

The results of initial identification of the implementation of basic reading and writing learning at Orang Rimba forest schools in four districts (Muaro Jambi, Batanghari, Sarolangun, and Merangin) in Jambi Province showed that 80% of learners in each school studied could not read and write in basic level. Even though they have followed the learning process in the school for 1 to 5 years. In the meantime, the observations also show that there is insufficient teaching material, syllabus, and guidance for assessment of learning. Teachers complain of difficulty in teaching basic reading and writing due to the unavailability of interesting and practical teaching materials.

The basic reading and writing materials developed by the teachers are very simple because they only have the introduction of the letters from A to Z, and the numbers from 1 to 100. The teaching materials are very limited and not translated in the form of examples such as letters into words, words into phrases, words into sentences and so on, and not environmentally based. This affects the performance of students in basic reading and writing.

Basic reading and writing materials that teachers teach did not attract the attention of the learners because they did not fit their needs, characteristics, and environments. As a result, their enthusiasm, motivation, and creativity become relatively low and their ability to respond to lessons is low.

The basic reading and writing lessons in forest schools have been carried out separately by teachers. Reading lessons are separated from writing lessons. As a result there are learners who can read but cannot write. Conversely, some are already able to write but cannot read. Ideally, basic reading and writing lessons are taught simultaneously. The reading lesson should be followed by writing lessons and vice versa, so that learners acquire the competence of reading and writing in a balanced portion.

Learners in this forest schools tend to be stronger in memorization than understanding. This can be seen from how quickly they memorize the alphabet "A to Z or memorize the numbers 1 to 20. But the interesting thing is when they are faced with the letters and numbers, they cannot answer correctly." In addition, some learners had difficulties understanding instructions from the teaching team. However, this does not mean

then the task is not resolved. What happens is usually they will do something that they only remember or understand from the task.

Students in forest schools generally do not recognize the name of the month and the day on the calendar. Before it is slowly taught, the children really do not know the day (Monday to Sunday), not knowing the time (hours, days, months, years), not knowing the calendar month. Such matters became a challenge for the field teams to find out what solutions are causing, and creatively, the teaching team continues to develop teaching strategies that can be more easily understood by the Orang Rimba learners.

Learning facilities of students in forest schools are mostly done in the open because of the limitations of school buildings. The learning places include: small huts (sudung), empty buildings, residential terraces, rubber plantation areas, oil palm plantations, under shady trees in dense forest, and even rivers. The place of study is always moving, depending on the location of the settled entrants taught.

In one day, children can learn 2-3 times with duration between 2-3 lesson hours. Usually, the learning activity begins in the morning at 08.00 to 10.00 Western Indonesia time (wib), or at 09.00 to 11.30 pm. Children will be asked to study again at 15:00 to 17:00 wib. But the learning activities at night are very tentative. Sometimes they want to learn but because of the lack of electric lighting, many of the children who do not feel comfortable learning, coupled with customary rules that limit the students' freedom of learning because this community often move locations for several weeks or months (during the Melangun period).

In the analysis of learning tasks, teachers rarely carry out an evaluation of the achievement of learning objectives, both in process and outcome aspects. Writing exercises are also almost never done. As a result, the given learning materials cannot be measured. Another result is the learners' declined interest and motivation.

Based on the empirical findings described above, it can be simply concluded that teachers and learners at the forest Community School in Jambi Province are in desperate need of interesting, fun, valid, practical and effective teaching materials to improve students' reading and writing competencies. To meet the demands and needs of these teaching materials, the environment-based, relevant to the characteristics and needs of learners teaching materials in the forest schools need to be developed. Teaching materials developed are designed to support the learning process by using effective learning techniques, supporting learners centered, contextual learning by linking the material to their daily real lives, varied, and in accordance with the developmental stages of the learners.

The development of environmentally-based teaching materials includes: product design (prototype): syllabus, textbooks, user manuals, and an environmental-based start-up reading and writing learning appraisal guide, and lesson plans (RPPs).

The prototype is tested through three types of feasibility tests, namely validation test, practicality test, and effectiveness test. The results of the feasibility test are used to improve the product until the results are effective.

2. Teaching Material Validation Results

The teaching materials development products in this study include: syllabus, teaching materials, teacher guides, lesson plans and guidelines for basic reading and writing based environment-based learning at Orang Rimba forest Schools in Jambi Province. The results of the feasibility test of the teaching materials are described as follows:

The result of validation of the basic environment-based reading and writing materials in forest schools is carried out by three experts using Likert scale conversion. The aspects assessed in the validation questionnaire include: (a) the principle of relevance, (b) systematic, (c) consistency, (d) actualization, contextuality, and holistic principles in the development of the MMP BL syllabus. The results obtained is the score 39, with a validity level of 95% in the category of very valid or worthy of trial.

The result of validation of the basic environment-based reading and writing materials in forest schools is carried out by three experts using Likert scale conversion. Aspects of assessment in the questionnaire of validation of teaching materials, include: (a) aspect of content, (b) aspects of presentation, aspect of language. The result obtained is a score of 162.9 with a validity level of 94.76% in the category of very valid or worth a trial.

Guidance validation results for teachers of basic reading and writing forest schools are conducted by three experts in the relevant field by using Likert scale conversion. Aspects of assessment in the questionnaire of validation of teaching materials include aspects of: (a) content, (b) presentation, and (c) language. The result is a total score of 160 with a validity level of 93.02% in a category that is very valid or worth a trial.

The result of validation test of learning implementation plan (RPP) is done by three experts in the relevant field by using Likert scale conversion. Aspects assessed in the RPP validation questionnaire include: (a) RPP preparation principles, (b) RPP components, (c) implementation of learning, (d) assessment of learning outcomes. The result is a score of 74.62, with a validity level of 93.27% in the category of very valid and worthy to be tested.

The results of validation of the basic environment-based reading and writing learning tool in forest schools are conducted by three experts in the relevant field by using Likert scale conversion. Assessment aspects in the questionnaire validation of the learning assessment guidelines include: (a) objectives, (b) comprehension, (c) objectivity, (d) validity, (e) reliability, and (f) practicality. The result of validation test of learning appraisal guidance obtained is score 33,32 with validity level of 92,5% in the category of very valid or worth to be tested.

3. Teaching material Practicality Test Results

The results of observation of practicalities of the implementation of the teaching materials MMP BL through the lesson plans by one of the teachers in the Halom Puteri Tjih forest School in Pematang Kabau Village, Air Hitam, Sarolangu district and one of the teachers in Nebang forest school in Nyagan, Mestong, Nuro Jambi district by using Likert scale with four levels. Aspects assessed on the observation sheet include: (a) clarity of instructions on the use of RPP, (b) achievement of competencies and learning objectives, (c) student activities, (d) difficulty level in implementing teaching materials, and availability of time allocation. The result of the observation test of the practice of basic reading and writing materials through RPP by two users (teachers) resulted in a score of 211 with a practicality level of 94.15% in a very practical category. This means that environment-based materials can be used to improve students' basic writing and reading skills at Orang Rimba forest Schools.

The results of the questionnaire responded by 30 students in two schools, namely Holom Puteri Tjih and Nebang Schools on the use of environment-based basic reading and writing materials at the Orang Rimba Community Forest School showed a value of 92 to 99.25, with an average grade of 95.75% In a very practical category. The response of these learners illustrates the linkage between learners with the basic reading and writing materials based on the environment used during the learning process. Aspects assessed in the questionnaire include: (a) does the material encourage the learners' curiosities? (b) does the material attract attention and is it fun? (c) is it easy to understand? (d) does it foster interest and learning motivation? E) does it develop positive and active habits?

4. Results of Teaching Material Effectiveness Test

a. Results of Teaching Effectiveness Test in a limited Scale

In the teacher's observation of the learners' activities in the basic reading and writing, the assessed aspects include: (a) the use of teaching materials that can encourage curiosity, (b) developing positive habits, (c) enthusiastic, (e) motivated, (f) attracting attention, (g) happy, (h) easy to understand the lesson. The analysis results show the average score of 90.9% with an effective category. Ini means the use of this resource has been able to actively involve learners during the learning process.

Basic reading and writing competency test was conducted by giving ten items to 90 students in six forest schools in four districts in Jambi Province. The list of raw values of pre-test and post-test of learners given by each teacher in the six forest schools is then analysed using an SPSS program version 18. From the results of the analysis conducted, it is known that in each school studied (sample), there is an increase in reading and writing competencies for the learners taught by using environment-based materials. Consider the following histogram images.

Furthermore, the significance test of different basic reading and writing competencies based on the comparison of pretest and posttest differences is conducted. The results show that t-count is greater than t-table at the 0.05 significance level in all six Schools studied. Thus, these basic reading and writing materials have been tested significant or highly effective.

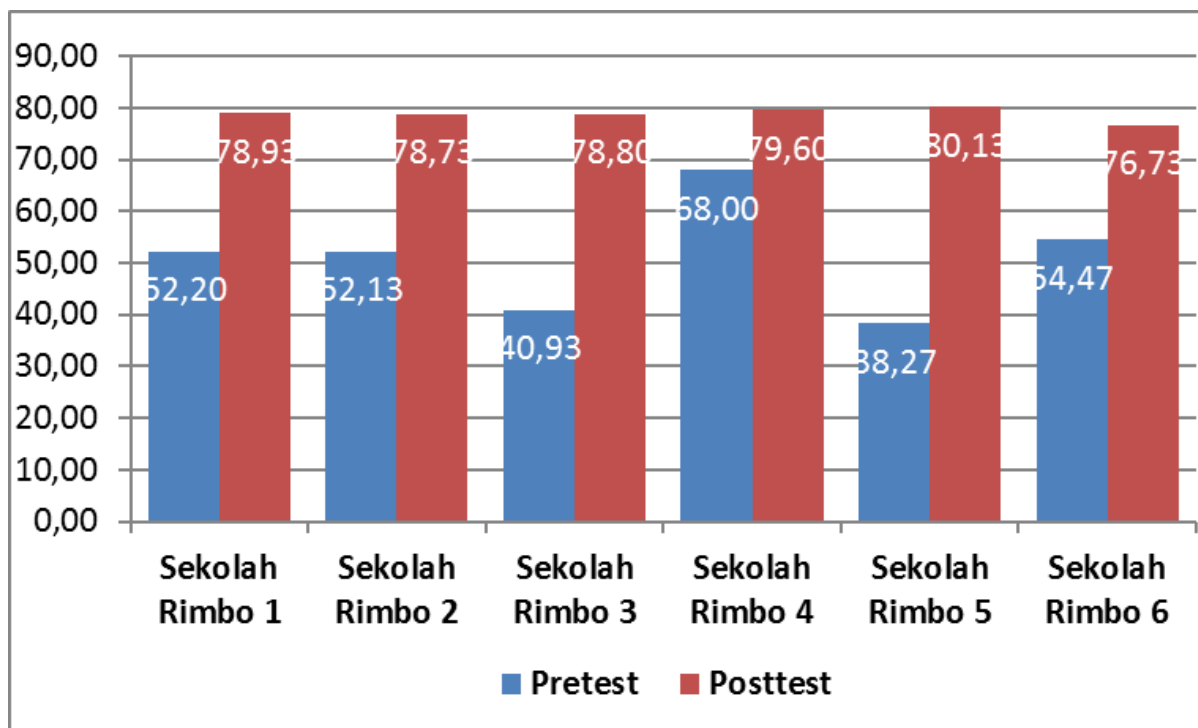


Figure 1: Results of Pre-test and Post-test

Table 3. Significance Test on Student Differences in MMP Competencies

No	Forest School Name (KSOR)	t- count value	t- table value	Annotation
(1)	(2)	(3)	(4)	(5)
1	Holom Puteri Tijah forest school of Pematang Kabau, Air Hitam, Sarolangun	7,822	2,145	Significant
2	Bukit Suban 1 forest school, Air Hitam, Sarolangun.	9,323	2,145	Significant
3	Nebang Parah forest school, Mestong, MuaroJambi	21,332	2,145	Significant
4	Nyogan Sugandi, Mestong, Muaro Jambi	10,433	2,145	Significant
5	Sungai Putih forest school, Mentawak, Merangin	32,916	2,145	Significant
6	Dwi Karya Bakti forest school, Pelepat, Bungo.	9,638	2,145	Significant

From the results of the significance test analysis of students' competencies of basic reading and writing based on pretest and posttest scores, it is known that t-count is bigger than t-table at a significant level of 0,05%. This means that the implementation of basic reading and writing materials based on the environment is in a very effective category.

B. Results of Teaching Material Effectiveness Test in Large Scale

The observation of the activities of learners in the basic reading and writing includes aspects of: (a) the use of teaching materials that encourage students' curiosities, (b) the use of teaching materials that can develop positive habits, (c) d) enthusiastic, (e) motivating, (f) attracting attention, (g) cheering, (h) easily understood. The results of the analysis show a score of 14.3, with an average grade of 89.37% in a very effective category which means the use of basic reading and writing materials which is based on local environment has been able to involve learners actively in the learning process.

Competence test is done by giving ten items of basic reading and writing to 100 students in 10 Orang Rimba forest schools in six districts in Jambi Province. The list of pre-test and post-test raw values given by each teacher in these six natural schools is then analysed using the SPSS version 18 program. The results of the analysis show that in each natural school using the environmental-based materials studied (sample), there is an increase in competence of reading and writing as illustrated in the histogram below:

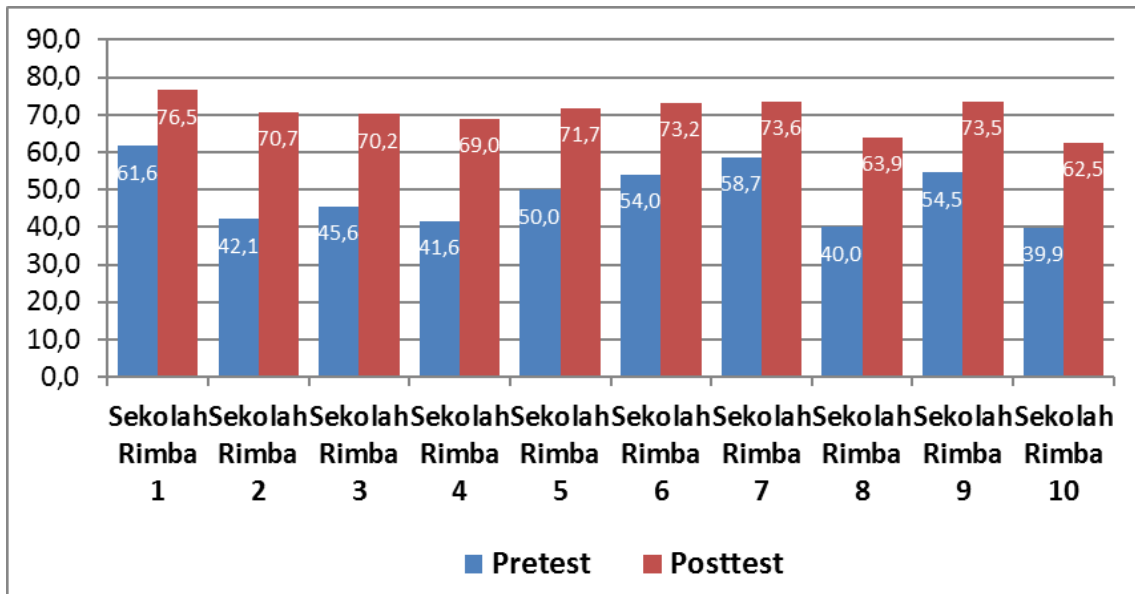


Figure 2. Pretest and Posttest in Large Scale

Table 4. Significance Test of Students' Competency Differences based on Pretest and Post-test Score Differences

No	Forest School Name	t- count value	t- table value	Annotation
(1)	(2)	(3)	(4)	(5)
1	Mekar Jaya forest school, Tabir Selatan, Merangin district	7.678	2.262	Significant
2	Rombong Temanggung Ngilo SPA forest school, Pauh Menang, Pemenang,, Merangin district	16.500	2.262	Significant
3	Rombong Salim forest school, Dwi Karya Bakti, Pelepat, Bungo district	14.298	2.262	Significant
4	Rombong Simpang Merantih forest school, Suo-suo, Sumai, Tebo district	22.257	2.262	Significant
5	Rombong Temenggung Grip forest school, Suban Hill (In the forest area of Taman Bukit Dua Belas) Air Hitam, Sarolangun district	13.940	2.262	Significant
6	Rombong Temenggung Efendi forest school in Sungai Surian, Pulau Lintang, Batin VIII, Sarolangun district	18.437	2.262	Significant
7	Rombong Markanding forest school, Markanding, Mestong, Muaro Jambi district	13.187	2.262	Significant
8	Rombong Terap forest school along Terap River and the surrounding areas, Batin XXIV, Batanghari district	18.336	2.262	Significant
9	Rombong Rebo forest school, Kunangan Jaya, Bungku, Bajubang (near the border area of Jambi Province-South Sumatra Province), Batanghari district	13.435	2.262	Significant
10	Rombong Jelutih/Padang Kelapo forest school, Jelutih, Muaro Sebo Ulu, Batanghari district	19.070	2.262	Significant

The result of the significance test on the difference of students' competence on basic reading and writing based on the difference of pre-test and post-test score shows that t-count is greater than t-table at a significant level of 0.05% which means that the implementation of the basic reading and writing materials based on the environment is in the category of very effective.

V. DISCUSSION

Environment is a very effective learning resource for learners (Ibrahim, 2010). Adopting learning materials from the environment around the learners will greatly help learners in learning activities that will lead to improved learning outcomes (Istiani, 2015). This is very logical because learners already have initial knowledge about the material to be learned so that the teacher is enough to guide and provide hands-on and minds-on learning experiences through activities.

The development of environment-based basic reading and writing materials is one of the efforts to direct the learning process at Orang Rimba forest schools in accordance with the objectives to be achieved. The quality of teaching materials in this study refers to the opinions of Akker (1999: 126). In the process of its development, teaching materials should be worthy in terms of criteria of validity, practicality, and effectiveness.

Validity test is a determinant aspect of product quality in research development of teaching materials. The development of environment-based basic reading and writing materials at jungle forest schools in the validity test stage showed that the three products, the environmentally-based textbooks, earned 94.76% of the valid score, the teacher manual for the use of teaching materials obtained values of 93.27% with very valid categories, and an environment-based basic reading and writing appraisal guide book scored 92.5% in a highly valid category, is eligible to use.

Some of the other arguments that support the results of validity test in this research are: Firstly, the findings of this research show that the research product has fulfilled the basic assessment aspect in teaching material development that is the logical consistency between expectation model and reality model. This result is in accordance with opinion (Nieveen: 2013) stating that the designed model should indicate a logical consistency between the expectations and reality models. Expectation means that the model will be able or feasible to use. Reality is that the model has been tested and can be used.

Secondly, the results of this validity test have also illustrated the use of product evaluation techniques as proposed by Tessmer (1993) in Plomp (2013), expert review and focus group. Based on this theory, expert validation is categorized and placed into the second level in formative evaluation techniques. Tessmer (1993) in Plomp (2013) states that an expert's tested product has a better degree of resistance than other techniques. However, products that have been validated by experts still need to be revised in order for the product to have a stronger resistance to further revisions.

Thirdly, the results of the validity test show that these three products have met the state of the art criteria of knowledge. Aspects of state of the art of knowledge in question is the consistency and relevance of the resulting products. Validity test of the product is conducted. The consistency and relevance are found in every model book (textbooks, teacher manuals, and assessment manuals). These results are evidenced by the validity of the content and the validity of the constructs carried out by experts and practitioners. According to Nieveen (2013) the state of the art aspect is also called content validity and consistency which means that the various components of the intervention are logically related to each other called construct validity.

The practicality test is based on the following aspects: (a) the observational aspects of the learning process; (b) the practical aspects of textbooks, instruction manuals, and an environment-based basic reading and writing learning guide book by learners and teachers (practitioners). The test results of both of these aspects show the value with the category of very practical. These results also show the fulfillment of the quality of development of selected and determined teaching materials.

The results of observation on the basic reading and writing process based on the environment show that syntax, social system, and the principle of reaction in the development of teaching materials is conducted well. In this study, the five observed learning phases showed very practical results. These findings show that the basic reading and writing process starting from the introductory, core, and closing stages has a viable syntax for use in the learning process. This study also shows that the social system that has been designed is well executed in the learning process with very practical category, besides also showing the existence and the social system of learning model so that it is feasible to be used in an environment-based learning process. The principle of model reaction is well executed in the learning process with very practical category as well. This finding demonstrates the principle of the reaction of development of teaching materials so it is feasible to use.

The results of this study also shows the fulfillment of the quality of teaching materials developed because the components of development of teaching materials can be implemented well by teachers and learners which means teachers and learners are able to carry out their respective roles in the learning process. For example, teachers function as a motivator in learning. A well-executed form of learners' activity is the difference in the quality of activities in learning, doing the assigned tasks, and answering the training questions provided at

each meeting. This finding is supported by the results of observations in the implementation of learning as follows:

On the first day of the basic environment-based reading and writing lessons, teachers and learners are still adjusting to these new and illustrated teaching materials. Based on the observation, students are very enthusiastic to open and flip through the textbook sheets. They are curious to know the contents of the book. Teachers looked a little awkward in the implementation of the learning steps specified in the user manual books.

Based on the observations and discussions with observers and practitioners (teachers), the conclusions drawn are: (1) learners must be ready before learning; (2) teachers should monitor learners who are less active and provide motivation or direction; and (3) students' are lack of basic reading and writing skills and learning motivation. For that, teachers need to provide remedial lessons to learners who are slow in learning.

The result of the research on the practicality of the basic environment-based reading and writing teaching materials shows that the eight aspects of assessment show very practical value. The average percentage of practicality of teaching materials by test participants I is 74% in the practical category, and by II test participants is 78% in the practical category. This illustrates that an environment-based instructional material has been assessed and considered eligible for use in the learning process and provides high benefits to learners.

Based on the results of the analysis of the development of environment-based basic reading and writing materials in the practicality test stage shows that the eight aspects of the assessment obtained the percentage of practical and very practical, and have met the criteria proposed previously. Thus, the basic environment-based reading and writing materials are worthy of use in the implementation of learning at Orang Rimba forest Schools.

The effectiveness of teaching materials test is based on two aspects of assessment, as follows: (a) the observation of learning activities of learners in following the learning process with environment-based teaching materials; and (b) the assessment of learners' learning outcomes. The results of the effectiveness test show that both aspects of the assessment reached the value with very effective categories. The result of learning test of basic reading and writing ability of the learners taught with environment-based teaching materials are significantly higher (learning outcomes increase) than those taught by non-environmentally (conventional) teaching materials from each of the studied forest School. The significance in question is judged on the comparison of the results of the pretest and posttest scores. This is because all teachers who are collaborators of the experiments on the effectiveness of these teaching materials respond positively. This is supported empirically by a number of researches, among others: Istiani (2015), Djulia (2005), Andayani (2010), Mujiburrahman and Yaya Heryana (2014), NMRumidani, et al. (2014), Haryanto (2009), and Salam, Abdul, et al. (2016). Adopting the context of the environment in learning will improve the understanding of learners. Learning occurs when learners understand what they learn from their own cultural perspectives. Through environment-based teaching materials, learners are directed to teaching materials that are close to their daily environments.

This meaningful progress can be realized because, so far, basic reading and writing materials have not been based on the environment that is not responded positively by learners. This negative attitude is the result of teaching materials or basic reading and writing lessons that teachers apply in conventional, inadequate ways, which in turn, do not provide opportunities for learners to develop their reading and writing skills.

VI. CONCLUSION

1. The initial identification results of the Implementation of basic reading and writing lessons that took place at the Orang Rimbas' forest schools in Jambi Province showed that 80% of the students in each of the studied forest school cannot perform basic reading and writing, even though they have followed the learning process in these forest schools for 1 to 5 years. Additionally, facts on the ground indicate the lack of teaching materials, syllabus, and adequate learning appraisal guidelines. Teachers complain of their difficulties in teaching basic reading and writing due to the unavailability of interesting and practical teaching materials. On the other hand, basic reading and writing lessons have been taught separately. As a result, there are learners who can read but cannot write, and vice versa. Furthermore, in the analysis of learning tasks, teachers rarely assess the attainment of learning objectives. The given learning material cannot be accurately measured. As a result, students' interest, motivation, enthusiasm, and creativity are low, and their ability to capture or respond to lessons becomes low as well. Based on these findings, it is concluded that teachers and learners at Orang Rimba Jungle School in Jambi Province need interesting, practical, valid and effective teaching materials. An environment-based basic reading and writing materials prototype that is relevant to the characteristics and needs of the learners in the forest school is then designed to address these demands. The teaching materials kit products include: basic reading and writing syllabus, textbooks, manuals for teachers, an environment-based baseline basic reading and writing study guide in forest schools, and lesson plans (RPPs). The prototype materials are then tested from the aspect of quality of feasibility through: validation test, practicality test, and effectiveness test.

2. The level of validity of the basic environment-based reading and writing materials at Orang Rimba forest School in this study has proven to be very valid both in content and construct, based on academic and practitioners' assessment.
3. The level of practicality of basic reading and writing materials in the Orang Rimba forest Schools produced in this study is high, both in terms of implementation and acceptance. Practical in this case is assessed from the implementation of the lesson implementation plan (RPP). This can be seen from the elaboration of each of the assessed aspects, both from the teachers' responses, the learners' responses, the observation of the use of developed teaching materials, and the results of interview of the use of environment-based reading and writing materials. The results of the assessment of each aspect show a very practical category.
4. The basic environment-based reading and writing materials in the Orang Rimba forest Schools produced in this study are highly effective. This is based on the comparison of the results of the average score of the students before and after given environment-based teaching materials that indicate an increase in students' scores in each school studied.

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