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# The Study of Literacy Reinforcement of Science Teachers in Implementing 2013 Curriculum

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**Abstract.** This research aims to study and collect data comprehensively, new and actual about science literacy to improve the ability of educators in implementing the 2013 Curriculum at Junior High School *Padang Pariaman* District. The specific benefit of this research is to give description and to know the problem of science literacy problem in interaction among teacher, curriculum, facilities and infrastructure, evaluation, learning technology and students. This study uses explorative in deep study approach, studying and collecting data comprehensively from the interaction of education process components (curriculum, educator, learner, facilities and infrastructure, learning media technology, and evaluation) that influence the science literacy. This research was conducted in the districts of *Padang Pariaman* consisting of 17 sub-districts and 84 junior high schools managed by the government and private. The sample of this research is science teachers of *Padang Pariaman* District with sampling technique is stratified random sampling. The instrument used in this study is a questionnaire to the respondents. Research questionnaire data are processed by percentage techniques (quantitative). The results of this study explain that the understanding of science teachers in *Padang Pariaman* District towards the implementation of 2013 Curriculum is still lacking. The science teachers of *Padang Pariaman* District have not understood the scientific approach and the effectiveness of 2013 Curriculum in shaping the character of the students. To improve the understanding of the implementation of Curriculum 2013, it is necessary to strengthen the literacy toward science teachers at the Junior High School level in *Padang Pariaman* District.

## 1. Introduction

Efforts to improve the quality of education have been done both by the government and by the private sector through the improvement of curriculum [1,2] procurement of textbooks, improvement of teacher quality, improvement of education management and welfare improvement teacher. Our curriculum issues left behind when compared to other countries curriculum including the curriculum used in the Training Center and the Training Course. As a result, when someone entered the world of work, knowledge and labor skills have to be reformatted (*On the job training*) to fit the area to be worked on.

Efforts have been made to solve the problem, as has been done Deliberation Subject Teacher in developing and implementing a curriculum with workshops, as well as some research done with respect to the curriculum [3]. Despite many attempts, it has not solved the whole problem. This is one of the causes of unsuccessful efforts to improve the quality of process and learning outcomes so



far. These studies have been successful for partial application, but have not yet addressed the problem as a whole and have not been able to find the root of the problem. Some unanswered weaknesses such as: the lack of relevance of student learning experience planning between those in the syllabus and that contained in the lesson plan; yet integrated learning experiences of students in attitude, skill and knowledge aspects; The preparation of the instrument is less refers to indicators of achievement of learning outcomes and the characteristics of each learning material. Even sometimes less consider the conditions in each school. If this continues to be allowed and there is no improvement effort, and curriculum development then the learning process will not work properly.

In connection with the review of the achievements of literacy, many studies have been published by [4,5]. The improvement of *scientific* literacy of students in the context of this course requires a teacher who has a good pedagogic competence, so as to deliver quality learning process as one of the factors that affect the learning achievement. The achievement scores of Indonesian students' science literacy are 393, 395, 395 for 2000, 2003 and 2006, respectively [6]. The average score of all participating countries is 500 with standard deviation 100. The low score indicates that Indonesian students have limited scientific knowledge. The low science literacy score reflects the general phenomenon of poor student learning achievement in Indonesian students. This raises questions for science teachers and policy makers: why such a thing can happen? What factors lead to low natural science performance? What are the implications for learning, curriculum, and school institutions? And how should the education process work to increase the literacy especially science literacy.

The educational process is an interaction of six components consisting of teachers, curriculum, facilities and infrastructure, evaluation, learning technology, and students. The curriculum is one component of education that is quite influential on the successful implementation of education. The curriculum is said to be effective when the curriculum is able to prepare graduates according to the public interest. This is important because the curriculum is the heart of education activities and processes. The curriculum has three main dimensions, namely: the intended curriculum (*intended curriculum*) related to the goals and plans; implemented curriculum (*curriculum implemented a*) with regard to the learning process and institutional arrangements; and curriculum were obtained (*the attained curriculum*) where the students gain educational experience.

In line with the implementation of regional autonomy, the curriculum development policy also embraces the decentralization principle because the centralistic approach is difficult to adapt the curriculum to the needs of the environment. Education should be relevant to the needs of learners, so that education programs should reflect the needs that they are worthy and *intelligent* enough to live in the social. With the enactment of the 2013 Curriculum in primary and secondary education, it indicates the central government's efforts to empower local governments, schools and teachers to determine their own learning experiences to be provided to students, or to emphasize on human resources (students) based on talents and interests each. This autonomy certainly provides an opportunity for the region to recognize the potential of self, potential nature, and the direction of development that will be done in the future. So there is such a freedom to creatively seek the superiority of each school.

In implementing the 2013 Curriculum well, it is necessary to increase or strengthen the literacy of teachers at the Elementary and High School. The strengthening of this literacy will affect teachers' understanding of the Curriculum 2013, an understanding of the content of textbooks, an understanding of the learning process based on the 2013 Curriculum and implementation of the evaluation according to the demands of 2013 Curriculum.

## 2. Research Methods

This study was designed for a three-year phases: *In the first year* with the *indeep study* approach is *exploratively*, study and collect data *comprehensively*, new and actual from the interaction process components of education (curriculum, educators, students, infrastructure, technology and media Learning, evaluation) that influenced learning science literacy.

### 2.1 Population and Sample

This research was conducted in pariaman regency with 17 districts consisting of 84 junior high schools run by the government and the private sector (Ministry of Education, Ministry of Religious Affairs and public/private). Decision population in Padang Pariaman regency because 30% of the number of teachers and students of West Sumatra in Padang Pariaman district, and school can also be grouped by urban and rural areas. Samples were taken 25% of each group of the population by urban and rural areas, where teachers support the theory-based subjects and experiment using stratified random sampling technique.

### 2.2 Data Collection and Analysis Techniques

The data used in this research is obtained from the questionnaire data to the respondents, namely the teachers of IPA. The instrument used in this study is a questionnaire to the respondents. The data taken by questionnaire is processed by percentage technique (quantitative) which is proposed by [7], that is:

$$P = \frac{F}{N} \times 100\% \quad (1)$$

where:

P = Percentage level of understanding

F = frequency of respondents

N = total number of respondents studied

The criteria used are stated in Table 1 [8].

**Table 1.** Criteria Level Understanding Respondents

Interval	Category
0 - 20%	Very low
21 - 40%	Low
41-60%	Enough
61-80%	Good
81-100%	Very good

### 3. Results and Discussion

The results of this study only for activities the first year, whereas in the first year of use approach *explorative*, study and collect data in a *comprehensive*, new and actual interaction process components of education (curriculum, educators, students, infrastructure, technology and media, As well as evaluation) that influence the learning literacy of science, as shown in Table 2.

**Table 2.** The relationship between the age of educators with an understanding of the 2013 curriculum.

Age	Understanding K. 13 (%)	Training K.13 (%)	MGMP (%)	KKG (%)	Mass media (%)	Following K.13 training (%)
25-30	75	33.3	0	0	66.7	33.3
31-36	25	37.5	0	0	50	50
37-42	25	25	0	0	75	25
43-48	0	100	0	0	0	100
49-54	0	80	0	0	20	80

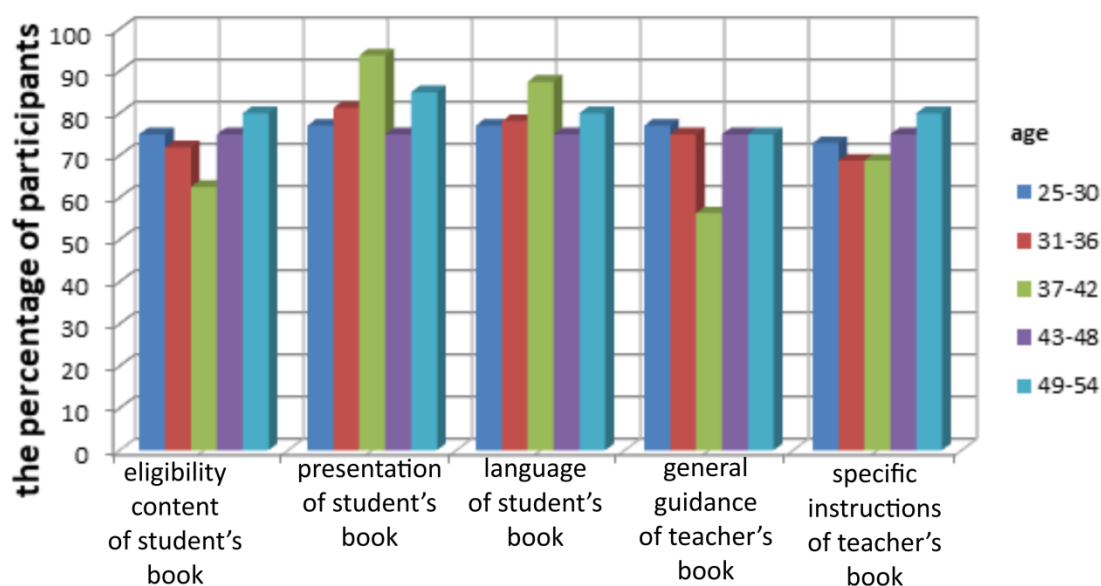
Based on Table 2 it is known that in the range of age 25-30 years the average science teachers have understood the 2013 Curriculum well by 75%. Furthermore, it can be explained also that at this age the average respondents get more understanding about the 2013 Curriculum from the mass media information that is as much as 66.7% while who understand the 2013 Curriculum through training 2013 Curriculum as much as 33.3%. For ages 31-36 Years and 37-42 Years it is said that average respondents still lack understanding about the 2013 Curriculum with an average percentage of 25%. An understanding of the 2013 Curriculum. Most respondents gain an understanding of the mass media and the rest of the 2013 Curriculum training that has been followed. In the age range of 43-54 years it is said that there are no respondents who understand about the Curriculum 2013, although most have attended the 2013 Curriculum training. Curriculum training 2013 is mostly followed by science teachers aged 43-48 Years, then followed by science teachers Age 49-54 Years.

**Table 3.** The relationship between the age of educators with an understanding of the components of 2013 Curriculum

Age	Objective K.13	Scientific approach	Learning Models	Effectiveness of K.13 to Character	Integrated Science
25-30	66.7	56.3	60.4	47.9	60.4
31-36	56.3	37.5	53.1	46.9	43.8
37-42	56.3	43.8	50	37.5	50
43-48	37.5	37.5	62.5	50	37.5
49-54	50	40	45	40	45

As Table 3 above can be explained that the understanding of the science teachers aged 25-30 years in *Padang Pariaman* district on curriculum objectives in 2013, learning models are recommended and considered good *science integrated* with an average of 66.7% and 60.4 %. Understanding of science teachers to the scientific approach average 56.3% with sufficient category. The effectiveness of the 2013 Curriculum to shape the characters can be quite understood by the teachers of science that is an average of 47.9%. At the age range 31-36 Years of understanding of the objectives of the Curriculum 2013, suggested instructional models, effectiveness K.13 to Character and integrated science still enough categories, while the teachers' understanding of the scientific approach is still lacking. Likewise for the 37-54 year age understanding of the science teachers to curriculum components in 2013 (Goal Curriculum, the scientific approach, the model pembelajaran, the effectiveness of the curriculum and *integrated science*) remained at an average of 21-60% by category not understand until quite understand.

The percentage of opinion of science teachers in *Padang Pariaman* District to the Science book of SMP 2013 Curriculum published by *Kemendikbud* can be seen in the Figure 1.



**Figure 1.** The percentage of opinion to science textbook in 2013 curriculum

Based on Figure 1, it can be seen that the teachers of IPA age 25-30 Years judge that the student book used is quite in accordance with the content feasibility components, components of presentation and linguistic component that is the average suitability of 77%. Science Teachers aged 31-36 Years assess that the student's book is quite in accordance with the components of content and language components contents of 71.9% and 78.9%. And for the presentation component of the teacher's book is considered appropriate where suitability equal to 81.3%. Age 37-42 Years assess that the books published students *Kemendikbud* not in accordance with content feasibility components but it is very appropriate in terms of components and linguistic components with 93.8% percentage and 87.5%. Likewise for the age of teachers IPA 43-54 Years judge that the student book used is in accordance with the components of content feasibility, presentation components and linguistic components that the average suitability of 75% and 80%.

#### 4. Conclusion

Based on the analysis of the relationship between the age of educators with the understanding of the 2013 Curriculum can be seen that the age determines the achievement of teacher understanding of the curriculum used. The level of teacher's understanding of the curriculum is largely determined by the strengthening of literacy on the curriculum itself. So it can be concluded that the strengthening of literacy science teachers Padang Pariaman District still less in implementing Curriculum 2013. The results of in-depth study to the teachers' understanding of the curriculum in 2013 illustrates that literacy science teachers need to be improved or strengthened. The strengthening of this literacy needs to be given to teachers in order to implement the 2013 curriculum very well. Strengthening of this literacy can be done by giving workshops or seminars on the importance of literacy in implementing the 2013 Curriculum to increase literacy.

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