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The Analysis of Science Lesson Plan for Elementary School Teachers

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Abstract

This study aims to describe the ability of elementary school teachers in preparing, formulating and adapting the components of science lesson plan with National Education Standards. This research method was qualitative descriptive method with survey and documentation techniques. The sample was 28 people that was obtained using purposive sampling technique. The research instruments were form of lesson plan component analysis that consist of 10 components and professional development questionnaires. Most of science lesson plan format created by elementary school teacher in Bengkulu was obtained that 85.7% were matched with the CSP format standard and the characteristics of science lesson. The formulation of each component of lesson plan such as suitability indicators to SK / KD, clarity of KBM detail, method, media, learning resources, suitability of the material, and the goal of the assessment were good because the majority of respondents (60.71%) have drawn up the component of lesson plan accordance with the standards and characteristics of science lesson. While the development of indicators was aimed to cognitive level and the allocation of time was still lack of management.

Keywords: Science, elementary school teacher, lesson plan

Analisis Rencana Pelaksanaan Pembelajaran Ilmu Pengetahuan Alam dari Guru Sekolah Dasar

Abstrak

Penelitian ini bertujuan untuk menggambarkan kemampuan guru sekolah dasar dalam menyiapkan, merumuskan, dan mengadaptasi komponen rencana pelaksanaan pembelajaran (RPP) bidang studi ilmu pengetahuan alam (IPA) berdasarkan Standar Nasional Pendidikan. Metode penelitian yang digunakan adalah kualitatif deskriptif dengan teknik survei dan dokumentasi. Sampel penelitian adalah 28 orang yang diambil menggunakan purposive teknik sampling. Instrumen penelitian adalah format analisis RPP yang terdiri dari 10 komponen dan kuesioner pengembangan profesional. Berdasarkan sebagian besar RPP yang dibuat oleh guru sekolah dasar di Bengkulu diperoleh bahwa 85.7% sesuai dengan standar format CSP dan karakteristik pelajaran IPA. Perumusan dari setiap komponen RPP seperti kesesuaian indikator dengan SK / KD, kejelasan langkah-langkah KBM, metode, media, sumber belajar, kesesuaian bahan ajar, dan penilaian adalah baik karena sebagian besar responden (60.71%) telah menyusun komponen RPP berdasarkan standar dan karakteristik pelajaran IPA. Sedangkan pengembangan indikator yang ditujukan untuk level kognitif dan alokasi waktu masih kurang dalam segi manajemen.

Kata kunci: IPA, guru sekolah dasar, rencana pelaksanaan pembelajaran

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INTRODUCTION

According to the Indonesian law number 20/2003, it states that the curriculum is developed on the principle of diversification or development in accordance with the educational unit, the specific potential of the area, and the learners ([Pusat Kurikulum \[Puskur\], 2007](#)). This is intended to allow do adjustment of educational programs in the educational unit with the conditions and the characteristics of the specific potential that exists in each region. Based on the government regulation above, teacher has a right to develop a curriculum that accordance with the circumstances that exists in each of their teaching places. They can do it in the learning process by making a lesson plan that must be accordance with the standard of content, process, and the others according to the law of national education system.

The establishment of education national standards by the government is expected to enable the teachers to realize and represent a learning process that accordance with the guidelines of the National Education Standards Board (Badan Standar Nasional Pendidikan or BSNP). Teacher is the most important component of BSNP implementation. According to the Law number 14/2005 on Teachers and Lecturers verse number 8 states that teacher is required to has an academic qualification, competence, teaching certification, physically and mentally health, and has an ability to achieve the national education goals. The teacher competency includes pedagogical, professional, personal and social competences.

The knowledge of science nature, curriculum, subject-matter, pedagogical content and assessment are basically a part of the competencies that should be owned by a science teachers. Shulman (1986) identifies three dimensions of professional knowledge that is important for a teacher such as content or subject matter knowledge, pedagogical content knowledge and knowledge about curriculum. Teachers should be a master of their subject matter (field of their study) - in this case is science - and they should know how to teach it to student. The depth of their preparation from various fields of knowledge's content affects both, what is selected by teacher to teach and how to choose the way to teach it. Teachers are also required to know their students and how they learn, to plan, to assess and make a report of the learning effectiveness, communicate with their students effectively, competent in classroom management and also continuously improve their professional knowledge and practice.

A part from the issue of referral sources, the ability and willingness of teachers to arrange their teaching materials and preparation are a big problem ([Tarin, 1990](#)). In fact, Hernani ([in Akbar, 2007](#)) reveals that the professional skills of teachers in planning, carrying out and assessing the learning process are still low. The professionalism of teacher and education personnel are still inadequate particularly in regard to their field. The data from National Education Ministry, according to Solfarina ([in Akbar, 2007](#)) by the National Standard Quality, elementary school (SD) teachers in the period of 1999/2000 were only 42.4% viable to teach. Even for private elementary school teacher is only 39.5%. In Pandeglang, [Akbar \(2007\)](#) found that the elementary school teachers who graduated from second diploma (D2) PGSD did not fill enough material for teaching science in elementary school. Therefore, most of them (65%) found it difficult when they had to teach science. Almost half of the respondents (47.5%) have admitted difficulties in design of lesson plan. Nowadays, the basic education level is lack of attention from the government when it is compared to secondary and higher educations. Though this level provides a basis for secondary and higher educations, if the education quality at the basic level is low, then the process of education at the next level will have problem ([Akbar, 2007](#)).

METHODS

This research was conducted in elementary schools in Bengkulu. The method of this research was descriptive qualitative/naturalistic ([Sugiyono, 2008](#)). The population in this study were primary school teachers who certified of bachelor degree in Bengkulu. The number of this

research sample were 28 teachers who certified bachelor degree on Pre-Service Primary School Teachers (PGSD). The range of respondent age was around 40 to 56 years, with an average age was 48.14 (SD = 4.62). The teaching experience in primary school was between 10 to 36 years, with an average of it was 27.25 (SD = 6.4). The respondents' status were civil servant (PNS) for 92.86% and non-civil servant (Non PNS / PTT) for 7.14%. Three respondents were graduated from Universitas Muhammadiyah Bengkulu (UMB) which was equal to 10.7%, 23 respondents were graduated from Universitas terbuka (UT) which was equal to 82.2% and two respondents were graduated from Universitas Negeri Bengkulu (UNIB) which was equal to 7.1%. The entire samples were female (28 people).

The data collection in this research were documentation and questionnaire. The instrument or tool that was used to analyze the lesson plan consist of 1 to 10 components. One component used a score from 1-10 which was given to respondents that made the ideal component of lesson plan, while the other components used a rubric criterion because it was very subjective. In addition to components of instrument, the researchers also gave a questionnaire that containing four questions regarding the professional development of teachers to create lesson plan that aimed to clarify the lesson plan. The technique that used to calculate the value of lesson plan with the ideal format (Nasution, 1997) is:

$$N = \frac{\text{the amount of right component}}{\text{the maximum score total}} \times 10$$

To calculate the percentage (%) of rubric component was using:

$$\% = \frac{\text{the amount of right component}}{N} \times 10, \text{ with N is the amount of respondent}$$

FINDINGS AND DISCUSSION

The lesson plan format made by most of respondents had already approached the ideal format / standard. From 28 respondents, 24 of them (85.71%) were rated deserve a score of 10. Meanwhile, the other four of them, two respondents got a score of 7 (7.14%) and two others (7.14%) got a score.

In terms of learning indicator conformity with the Standard Competence (SK) / Basic Competence (KD), which became a reference, mostly 18 people (64.29%) was considered to make appropriate indicators to SK / KD. Respondents who made the "most appropriate indicators to SK / KD" carrying four people (14.29%). While six others (21.43%) only made a fraction of indicators that were suitable with SK / KD.

Developing indicators of SK / KD that made by most of respondents (65.16%) were directed to C1 cognitive ability type. The cognitive abilities (C2 and C3) were respectively 20.93% (C2) and 8.14% (C3) formulated by respondents, while that were aimed to develop C4 and C6 were respectively 3.49% and 2.33%. Development of indicator had already used the operational word that refers to assess the cognitive level C1-C6.

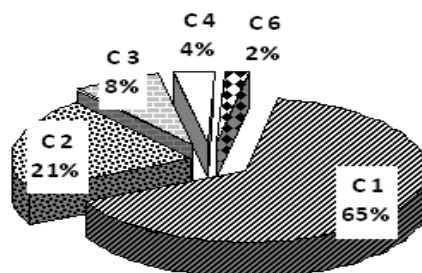


Figure 1. Developing indicators based on cognitive level

In term of the detail observation of teaching and learning activities (KBM), the results of 17 respondents (60.71%) were categorized very clear, 7 respondents (25%) were categorized very clear and 10.71% (3 respondents) had been quite clear. Only one (3.57%) respondent who made the teaching and learning activities detail was classified as less obvious.

The usage and choice of methods which were appropriate to the objectives or indicators showed that more than half of respondents 67.86% (19 people) had chosen teaching methods which were appropriate to the objectives or learning indicators. 59.26% (5 people) of respondents chose the methods that were not fully (partly) matched with the purpose of learning while the other two respondents (7.14%) chose a method that did not match to the learning objectives. Even the data showed that there were two respondents (7.14%) did not put the teaching methods in their lesson plan. When they were asked in the questionnaire about the teaching method used in teaching of science, as many as 75% of respondents used various teaching methods such as lectures, practices, and teamwork while the rest of the participant used one method such as only practices (14.29%), only lectures (7.14%) and only one person used teamwork.

Based on the suitability of media or device with learning methods, it showed that almost all respondents (85.71%) or 24 out of 28 respondents used suitable media to the teaching methods, then about 4 respondents or 14.29% used some media which matched partly with the selected learning method. Based on the inclusion of learning resources in lesson plan, 25% or 7 respondents took from different varieties of learning resources, and 50% or 14 people were quite varied, while the others or 25% or 7 did not use varied learning resources.

On the other hand, the majority of the assessment's target or the evaluation techniques used by the respondent in lesson plan (42.11%) had been showed at their concept (a product of science), and 23.68% respondents showed at scientific attitude, while 15.79% showed at skill process and even approximately 18.42% did not apply the goal of the assessment or evaluation of techniques which was showed in science criteria. There was also a finding that respondents did not apply type of lesson plan assessment plan or evaluation used for learning outcomes evaluation that have been planned.

The first research question of this study is how the component of teachers' lesson plan match with a standard refers to the National Education Standard. The result of this research showed that all lesson plan respondents have been matched with the lesson plan standard. Firstly, this fact was related to the availability of the lesson plan format that took from the Department of Education by teachers that had been matched with the standards. Therefore, the lesson plan made by respondents did not show their real capabilities. The availability of lesson plan format that was sent by the government actually inhibited the teachers to innovate, and the preparation of lesson plan tended to be only a formality (Tim Penyusun Panduan RPP, 2008). Secondly, due to the DEPDIKNAS's program about teacher certification, it was expected to result professional educators. It was shown from the components of administrative documents such as semester teaching program (promissory notes), the annual program, and the lesson plan.

The second research question of this study is how each component of lesson plan are formulated by teachers. The answer to this study was showed in the lesson plan component description below. The learning indicators development was success if it was developed based on SK/KD, the respondents were almost entirely developed SK / KD, although there were teachers who had not or did not completely develop SK / KD to be an indicator. Most of respondents developed only three indicators from SK / KD. The indicator development was still not good. Teachers were free to develop the indicators from SK / KD as much as possible.

The intended target indicators development of lesson plan made by respondents were largely aimed to cognitive domains C1, C2, and C3 (94.19%). Cognitive domain is an area

that addresses the learning objectives to the mental process which is started from the knowledge up to the evaluation stages (Uno et al., 2000).

Based on the result of the study, it showed that respondents who developed the C1-C2 indicator reached to 86.09%, whereas the C1-C2 are a low level of knowledge. This result showed that the high-level thinking skills of children have not become the focus of teacher attention. Whereas training children to think critically, will develop critical thinking skills, both logical and creativity. This matched with the Graduate Competency Standards (SKL) SD, namely: "critical thinking skills aimed to establish the foundation of the basic of intelligence, knowledge, personality, character, and skills to live independently and to follow further education". This fact should have been responded by the relevant agencies in order to train the teachers to develop the indicators aimed at a high level of knowledge as well as by using words associated with the appropriate operational models in an integrated learning (Sutrisno & Nuryanto, 2008).

In relation with the clarity of the teachers and students detail activities in lesson plan, most of respondents (85.71%) have been very clear. It can be seen from the lesson plan made already detail, systematic, clear, and relevant to what will be gained by students in the learning. This is relevant to the message of the Education Unit Level Curriculum (SBC), which requires a teacher to make the details of teachers and students learning activities systematically through the process of exploration, elaboration and confirmation in order to participate actively, creatively, and independence according to their talents, interests, and physical and psychological development of learners (BSNP, 2007).

The observations of lesson plan documents in this case portfolio, teacher certification showed different results with this study. Those observations stated that lesson plan was made by teachers generally only contain operational stages and tended to be daily routine (Tim Penyusun Panduan RPP, 2008). The usage of method in lesson plan which were entirely made by respondents matched (92.31%) with a goal or an indicator, but there were also some findings which showed that the method selection was irrelevant (7.69%) with a goal or an indicator. That fact showed that many teachers tried to meet the standards in selecting methods. Selection of learning methods in order to be adapted to the circumstances of learners, as well as the characteristics of each indicator and competencies to be achieved in each lesson (BSNP, 2007).

When the respondents were asked through a questionnaire, almost all respondents (75%) reported using various methods such as lectures, practices, and teamwork. This indicated that respondents were already trying to implement SBC and poured in preparing the lesson plan.

The use or selection of teaching methods should be guided by the principles of active learning. In other words, respondents sought to use various teaching methods to create an active learning process and strive to the existing situation in order to achieve the targeted indicators. According to Amien (1987), there is not a teaching method that is best for all subject matter and learning situations.

The use of media is also a factor for the success of teaching and learning activities. The experience will be gained by students with the use of media will impact also for acceptance, understanding, and make it easier to remember and digest the abstract material and discuss about the complexity of the concept.

In this case, it showed that from 28 respondents (85.71%) was matched in the selection of relevant media with the purpose or indicators. The use of media is not a part of the consequences in science subjects that emphasize in the process skills approach (Rustaman, et al., 2003), because in the process skills approach allows students to observe and interpret the observations. To make the observations, it needs to use a variety of appropriate tools or media, so students more easily digest the subjects without the help of the media, but it should be noted that the role of media will not be useful when it is not used in line with the objectives or indicators (Djamarah & Aswan, 2002).

The use of media will have a relationship with the use of learning resources as an increasing number of media are used, the learning resources will also be more varied. The use of various learning resources is also very influential in the success of a learning process. According to [Rustaman, et al. \(2003\)](#) ideally book resource for each subject to student is prepared to discourse with teachers, considering the target depth mastery is different.

In fact, the data showed the use of learning resources by respondents had variation. But there were also teachers who only use learning resources from the handbook which came from school. This fact showed that the teacher have already known that science subjects have to use a lot of tools or media therefore, there is a correlation / relationship with the use of various learning resources.

The suitability of material and indicator also should be put into the attention, because if the material did not match with the indicator then the learning purpose may not be achieved. From the data, the majority of the respondents defined material that partly matched with the indicator only. The material in lesson plan was written only in general without specific and adapted to the goals or indicators. As a result the material written was not very clear. This fact matched with the earlier findings that most of elementary school teachers have not clearly describe the material on their lesson plan. According to [Holil \(2009\)](#) a lot of lesson plan that only wrote two words learning materials as the next title is no description at all.

Organizing or packaging the subject is greatly influence the type of learning process that will be delivered or held. The subject matter which was presented not seriously to be the discourse of students, will provide different absorption of understanding with the discourse that is organized based on the principles of pedagogical ([Rustaman, et al., 2003](#)).

The analysis of time allocation about the material with the scenarios in lesson plan was obtained that most of respondents 53.57% or 15 people already included the time in lesson plan. The determination of time allocation was matched with the need for achievement and learning load KD ([BSNP, 2007](#)) therefore, to achieve a learning of KD and learning material, teachers have to set the time in lesson plan.

From the respondents who had included their lesson plan with the time allocation can be seen in a small percentage 6.6%, 15 respondents who did not specify the time allocation from the start of activities, the core, and the end to know the details of time with KBM. This is probably because there was no time allocation of initial core, and end activities in the lesson plan format provided by the related department, so there are some respondents who did not specify allocation in both of activities (the initial, the core and the end activities) and the ignorance of respondents to the importance of time allocation.

The target of assessment that used by respondents in lesson plan is almost entirely (81.58%) directed to the science concept, science process and scientific attitude. This might be because respondents already aware about the evaluation techniques which refers to the nature of science. Their understanding was obtained from trainings, seminars or professional learning community (known as KKG).

The consequences of the science nature as a product and process are not only teachers and students are not solely oriented on the acquisition of materials (products) in the learning of science, but also how the process of obtaining these products. In line with the assessment that made both of them, it should include an assessment of science material acquisition and scientific process for students during the learning ([Akbar, 2007](#)).

However, when it is viewed from the type and technique of evaluation used by respondents, it was almost entirely using the written test that its form is objective test (multiple choice, short stuffing) and essay or description. It can be known through the sample questions made by respondents. This fact is relevant with earlier findings that showed the dominance of written test for assessment by teachers ([Suastra in Akbar, 2006](#)) and prospective teachers ([Wulan, in Akbar & Nuryani, 2009](#)). "The majority assessment

techniques of primary school teachers that have been frequently used are choice test or essay as his favorite assessment techniques (Akbar & Nuryani, 2009).

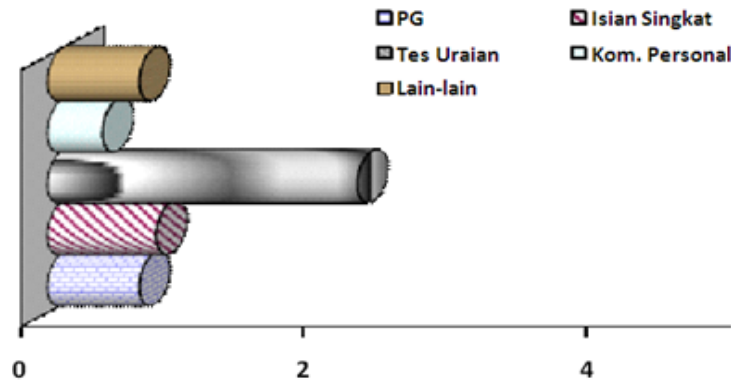


Figure 2. Assessment type

From the results of this research in lesson plan component, it showed that nearly all respondents (elementary school teachers in Bengkulu) were already well in preparing the lesson plan. It is also possible for respondents that have been attended many professional development activities such as follow KKG, seminars and training which can be seen from the Figure 3.

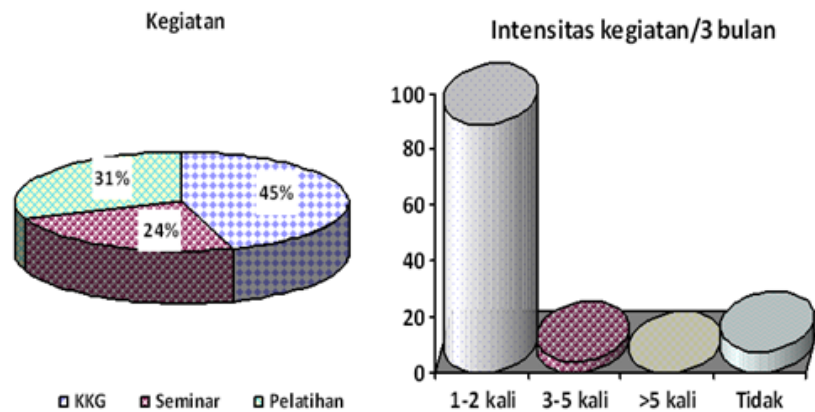


Figure 3. Professional development activities

In Akbar (2007), Solfarina states that the learning communities (MGMP) are a professional organization of teachers with the same subject and activities at their respective schools. Empowering KKG is expected to be a professional development of teachers, but not all teachers are aware of it. Some teachers are just hoping to get the number of credit if they follow the activities in MGMP / KKG and some others are not even interested.

Most of respondents are civil servant employee's status. They routinely must provide regular reports in every end of the month in the form of teaching presence, teaching completeness (syllabus, lesson plan, and annual program or semester) as evidence of the KTSP implementation consequently. Teaching experience and age did not affect the ability in making lesson plan because their abilities are relatively same.

CONCLUSION

According to the findings of this research, the ability of elementary science teachers in making lesson plan has reached the good standards. It can be seen from lesson plan components that made by elementary school teachers who teach in Bengkulu was matched

with the lesson plan standard format. The formulation of each component in lesson plan that made by teachers such as suitability indicators to SK / KD, details clarification of KBM, the use of methods, media, learning resources, suitability of the material, and the goal of the assessment were good because the majority of respondents had prepared or detailed the components that were matched with the standards and characteristics of science. While the indicator development which was aimed to the cognitive level and the allocation of time was still not good.

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