



# Analysis RPP with a Scientific Approach to Science Teachers

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**Abstract:** The purpose of this research is to explain the Teaching Implementation Plan (RPP) which includes aspects of lesson plan content, teachers' understanding of the scientific approach and teachers' obstacles in making lesson plans by science teachers at SMP Negeri 6 Banda Aceh. This research is a descriptive study with a qualitative approach. The data collection methods used in this study are documentation studies, questionnaires given to science teachers at SMP Negeri 6 Banda Aceh and interviews with science teachers who are preparing lesson plans. The results of the study show the following. The percentage of RPP content component aspects of 70.75% have met or the category is sufficient according to the guidelines used. The percentage of teachers' understanding of aspects of the scientific approach is 80.87% which means that all science teachers are very skilled in the scientific approach. There are no obstacles for science teachers in preparing lesson plans at SMP Negeri 6 Banda Aceh because there is good infrastructure support for teaching and learning activities.

**Keywords:** Junior high school; RPP analysis; Science teacher; Scientific approach

## Introduction

The formulation of a character curriculum also known as K-13 in junior high schools can support the acceleration of students' understanding of science and technology society (Ibrahim et al., 2018). The current curriculum shift from the K-13 curriculum to an independent curriculum is the government's way of improving the quality of education. In order to implement quality education, although in reality there are still many deficiencies in it and need to be evaluated and improved so that the purpose of education is achieved with quality and quantity. The purpose of the 2013 Curriculum change is to prepare the golden generation of the nation's children to have the ability to live as faithful, productive, creative and innovative individuals and to participate in the life of the community, nation, state and country civilization (Setiadi, 2016; Ibrahim et al., 2023).

In the independent learning curriculum, teachers are no longer burdened with the obligation to create a

syllabus as in the previous curriculum. Teaching materials in the form of syllabuses are made by the government and are modified according to the needs of the region or students, while teachers only prepare lesson plans and learning media. The role of the teacher is the most important factor in the implementation of the independent curriculum, this is because the teacher is in direct contact with students in the school environment for a long time. The success of a learning process begins with good planning, adequate means and facilities as well as continuous evaluation and supervision. Well-done learning planning is half of a success that can be achieved, the other half is the implementation of learning. Learning planning is done in the form of syllabus and lesson plans. The way in the preparation of RPP, a teacher must be able to master in detail both theoretically the elements that are in an RPP (Ismail et al., 2023).

The concept in understanding the contents or bills of the curriculum must be owned by a teacher in order to be able to determine the quality of the lesson plans

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produced. Lesson implementation plan (RPP) is a lesson plan that is developed in detail referring to the syllabus, textbooks, and guidebooks for teachers. The main elements in a lesson plan include school identity, subjects, and class/semester, time allocation, KI, KD, competency achievement indicators, learning materials, learning activities, assessment, and media/tools, materials, and learning resources and refer to the syllabus. Preparation of lesson plans is important for a teacher to support the implementation of the learning process. Every teacher is required to prepare lesson plans in a complete and systematic manner so that learning takes place in an interactive, inspiring, fun, challenging and efficient manner (Kemendikbud, 2013).

The government has prepared guidelines for developing lesson plans listed in Permendikbud numbers 65 and 81A of 2013 to make it easier for teachers to make lesson plans. In the Permendikbud there is an explanation of the meaning, components, systematics, benefits, principles of preparation, and steps for preparing an RPP. Ibrahim et al. (2020) states that the teacher is a person who is given responsibility for developing and implementing the curriculum to evaluate its achievements. The preparation of lesson plans requires teachers to understand all the theories in making lesson plans for the quality of lesson plans produced with a scientific approach. Therefore the lesson plan prepared by the teacher must be in accordance with the character curriculum.

According to Permendikbud Number 21 of 2022 concerning Curriculum Implementation, that lesson plans made by teachers with a scientific approach can be seen in the steps of learning activities, which include observing, asking questions, collecting data, associating, and communicating. Wardani et al. (2014) states that learning with a scientific approach not only encourages active participation of students in class, but also provides sufficient space for initiative, creativity and independence in accordance with talents, interests and physical development as well as psychology of students. In the National Curriculum a lesson plan must contain KI-1, KI-2, KI-3 and KI-4 with core activities that apply the scientific method/approach which includes the steps of observing, asking, gathering information, associating and communicating well (Indahsari et al., 2023). One of the models in junior high school learning that can be applied to lesson plans with a scientific approach is for science/science learning.

The material for learning science is related to the daily life experienced by students themselves and is student-centered, so that students can build their own knowledge with scientific steps which include observing, asking, collecting data, associating and communicating so that the learning process uses a scientific approach, science encourages and inspires

students to think critically, analytically and precisely in identifying, understanding, solving problems and applying learning material. The character curriculum emphasizes the improvement and balance of soft skills and hard skills which include aspects of attitude, knowledge and skill competence. This balance of hard skills and soft skills is developed through the activities of observing, asking, trying, reasoning, and communicating contained in the scientific approach, from which every subject teacher in an education unit is required to prepare lesson plans. Based on our team's observations with science teachers in early June 2023 at SMP Negeri 6 Banda Aceh City, it was found that some teachers were able to make lesson plans with a character curriculum, but the truth of this statement cannot be ascertained because no analysis has been carried out on the lesson plans made by them.

There were three teachers who stated that they made their own lesson plans, three teachers said that they modified other teachers' lesson plans and then adjusted them to the needs of students, but there were four teachers who made lesson plans from the results of the Independent Curriculum Implementation workshop, which were finally adapted to the needs of the school. The teacher stated that he had adjusted the lesson plan contained in the character curriculum, but had not included a scientific approach in learning activities because the teacher still did not understand the in-depth concept of 5M (observing, asking, collecting data, associating, and communicating). The allocation of time in the short learning process makes teachers confused in making lesson plans with lots of activities in a scientific approach, besides that the teacher does not understand the essence of lesson plans, the principles of preparing lesson plans, and assumes that preparing lesson plans is not important (Makhrus et al., 2019). Marzuki et al. (2023) states that most teachers experience many difficulties and do not fully understand the preparation of lesson plans (RPP) in implementing the character curriculum. Another cause is lazy and wants instant.

As a result, many teachers take instant routes, such as copying and pasting belonging to friends, downloading from the internet (Suliyanthini & Yulianur, 2023). The statement above is proven by previous research conducted by many experts that teachers are of the view that the preparation of lesson plans is still constrained, especially in learning resources, interesting learning media, media that are appropriate to learning materials, scientific approaches, authentic assessments, assessments that are in accordance with achievement indicators. Student competencies and guidelines according to teacher standard scales. Similar problems were also found in research by Arafat et al. (2020), Putu et al. (2021), and

Agustamam (2022) who said that the success of a teaching and learning process is strongly supported by the ability of a teacher to design and develop a plan contained in the lesson plan. Professional teachers must have five basic competencies, one of which is the preparation of plans, but in reality there are still many teachers who have not been able to develop plans so that this automatically impacts on the quality of the outputs produced in the learning process (Ismini, 2017; Najmiah, 2021; Arief, 2021; Djuhartono et al., 2021; Isbianti & Andriani, 2021). This is in line with the statement from Syarifah et al. (2023) that the curriculum for teachers functions as a guide in the process of implementing learning. The learning process that is not guided by the curriculum will not run effectively, because learning is a process with a purpose.

Based on the description above and the problems found, it is important for every teacher to make lesson plans because RPP makes learning activities run systematically and learning objectives can be achieved, without RPP learning activities become undirected, causing some of the KD content not to be conveyed (Putri, 2020). It is important to do a lesson plan analysis so that the teacher can find out if the lesson plan is in accordance with the 2013 Curriculum standards or not, the analysis in question is the components of the lesson plan content. Based on this, it is necessary to conduct research with the title "Analysis of Learning Implementation Plans (RPP) with a Scientific Approach to Natural Science Learning by Teachers of SMP Negeri 6 Banda Aceh". The purpose of this study is to describe the characteristics of the lesson plan made by the teacher which includes the contents of the lesson plan consisting of school identity, subject identity, class and semester, subject matter, time allocation, KD, competency achievement indicators, learning objectives, learning materials, learning methods, media learning, learning resources, learning steps, and assessment, describes the process of developing lesson plans in science learning, describes the teacher's conceptual understanding of the Scientific Approach, describes the teacher's constraints in making lesson plans.

## Method

This research is a descriptive research with a qualitative approach, meaning that this research is to describe the phenomena that occur in the research subjects studied based on the collected qualitative data. The collected data are then described in the form of written words using the scientific method. The target in this study was the lesson plan developed by the science teacher at SMP Negeri 6 Banda Aceh. The data used in this study was phenomenology (Moleong, 2013). The

location of this research was SMP Negeri 6 in the city of Banda Aceh with the research subject being a science teacher at that junior high school. The object of research in this study was the content aspect of the Science Lesson Plan which was analyzed using documentation guidelines by giving a score for each component and describing it according to the guidelines used. In order to find out the teacher's understanding of aspects of the scientific approach in the form of a questionnaire, and the teacher's constraints in preparing lesson plans, interviews were carried out. Data analysis techniques in this study were analysis before the field, analysis while in the field, and analysis after data collection ended. The data obtained is then given a code to differentiate the results.

## Result and Discussion

The aspects of completeness of the content of the Science Lesson Plan that were analyzed were School Identity, Core Competencies, Basic Competencies, Indicators, Learning Objectives, Learning Materials (facts, concepts, principles, procedures, enrichment materials, remedial material), Learning Methods, Learning Media, Tools and Materials, Learning Resources, Learning Activities include preliminary activities, core activities (observing, asking questions, collecting data, associating, and communicating), and closing, Evaluation/assessment and teacher constraints in preparing good and correct lesson plans.

There are still many draft RPP for science lessons made by SMP Negeri 6 teachers in Banda Aceh City that are not in accordance with the guidelines, this needs evidence with analysis to find why the lesson plans made by science teachers are not up to standard. There are still many RPPs made by science teachers that are not used/only used as a formality, as the researcher saw in the field when he requested the RPP files made with the teacher in question, the teacher said that he did not bring the RPP individually but stored it on the school's computer. It can be said that teachers are still indifferent to the existence of lesson plans.

In this study, the lesson plans collected were ten lesson plans for science subjects. This is because one school uses lesson plans together, namely teachers code G.2.1 and G3.1. Therefore, we can only analyze the lesson plans for ten science teachers at SMP Negeri 6 Banda Aceh. Analysis of the contents of the RPP in the last Even semester learning, including the formulation of indicators, learning objectives, teaching materials, selection of learning resources, learning media, learning models, learning steps, and assessment. The lesson plan content score was obtained from each lesson plan by calculating the final percentage adapted from (Putri,

2020). Analysis of the contents of the lesson plans for science teachers is guided by Permendikbud Number 81A of 2013 concerning Curriculum Implementation. The following presents the final results of the RPP content analysis in Table 1.

**Table 1.** Results of Analysis of the Aspects of the Content of the RPP

RPP Code	Score	Category
Rp 1.1	75.3	Enough
Rp 1.2	84.2	In accordance
Rp 2.1	68.4	Lacking
Rp 2.2	67.6	Lacking
Rp 3.1	67.5	Lacking
Rp 3.2	96.3	Very suitable
Rp 4.1	62.3	Lacking
Rp 4.2	66.4	Lacking
Rp 1A0	65.5	Lacking
Rp 1A1	72.6	Enough
Average	72.61	Enough

The questionnaire instrument was made in the form of interval choices, namely SS (Strongly Agree), S (Agree), TS (Disagree), and STS (Strongly Disagree). The science teacher only gives a checklist in one column with actual conditions regarding (observing, asking, collecting data, associating, and communicating) 5M (Scientific Approach). The criteria for the questionnaire have a score, namely SS with a score of 4, S with a score of 3, TS with a score of 2, and STS with a score of 1, the number of questionnaire items is 25 items.

### Discussion

The results of the analysis from table 1 show that the condition of the RPP IPA sequentially is IDR 1.1 with a score of 75.3 criteria sufficient, IDR 1.2 with a score of 84.2 criteria is appropriate, IDR 2.1 with a score of 68.4 criteria is lacking, IDR 2.2 with a score 67.6 criteria are lacking, Rp 3.1 with a score of 67.5 criteria is lacking, Rp 3.2 with a score of 96.3 criteria is very suitable, Rp 4.1 with a score of 62.3 criteria is lacking, Rp 1A0 with a score of 65.5 criteria is lacking, and R1A1 with a score of 72.6 sufficient criteria. Overall, the average result of the analysis of the contents of lesson plans for science with the guidelines of the Minister of Education and Culture No. 81A of 2013 is 72.61% with sufficient criteria. In the preliminary activities, the two teachers did not write down what the learning objectives would be achieved by students when learning was finished before entering the core activities.

In the core activities, the teacher's seven lesson plans do not write down directly collecting data, associating, and communicating) but only implicitly seen in the description of learning activities the teacher assumes that not all material must directly include a scientific approach (5M) but it must be a scientific

approach, while the two teacher's lesson plans include the 5M component directly (observing, asking, collecting data, associating, and communicating) in their learning activities other teachers assume that a scientific approach is mandatory in the core learning activities, this is because it is required by the school supervisor impact on the school's internal assessment. In the closing activity, there were two teachers who had not carried out the evaluation of the learning that had taken place. After the core activities were finished, the teacher went straight to follow-up to the material that would come as students' initial concepts/materials. From table 1 it is known that the nine RPP IPA analyzed only one lesson plan which is categorized as very in accordance with the guidelines used, one lesson plan for science with the appropriate category because the entire contents of the lesson plan made by the teacher code Rp 2.1 are somewhat in accordance with the guidelines used for example lesson plan according to the guidelines, one RPP category is sufficient, and seven RPP categories are not in accordance with the guidelines used.

The reasons include incomplete RPP with component provisions from the Permendikbud Number 65 of 2013 and Permendikbud Number 81A of 2013, KD writing format & indicators, scientific steps that lack or do not appear in core activities but are only implicit in activity descriptions, and the lack of suitability between the learning model and the learning steps. In addition, several teachers stated that they got lesson plans from changing the property of their own friends. Meanwhile, the results of the analysis of the six lesson plans that were categorized as lacking based on the lesson plan review guidelines, namely the scores for lesson plans for codes Rp. The six lesson plans are in the "low" category according to the character curriculum standards because the score is less than 72.61. This is because the RPP documents that are made are incomplete and there are notes regarding important components that are not in the RPP, for example there are no clear indicators of learning objectives, no material (the material is not grouped into facts, concepts, principles and procedures), and related to systematic notes on the preparation of the RPP.

First, there is a discrepancy in the data in the RPP document made by the Science teacher with the format in the guidelines used, namely Permendikbud Number 81A of 2013, there are several lesson plans made by science teachers writing KD & separate indicators, even though according to the implementation guidelines, they are combined by making columns, namely columns the left for KD and the right column for the implementation of KD in the form of achievement indicators. There is one RPP which includes indicators for the implementation of KD 1 & KD 2, according to the theory "KD 1 and KD 2 from KI-3 and KI-2 do not have

to be developed in indicators because both are achieved through an indirect learning process, indicators are only developed only for KD 3 and KD 4 which are achieved through a direct learning process.

*Second*, regarding learning objectives in lesson plans made by science teachers, some of them do not yet have an element of Condition in learning objectives, there are KDs that do not have indicators, there are indicators that have not been included in learning objectives. There are even goals that repeat from KD. However, there are several RPPs that aim to cover all the ABCD elements.

*Third*, the teaching material in general from the lesson plan that is made does not yet contain elements of facts, concepts, principles and procedures. This is because some RPPs only include points from the material, and there are even RPPs that only contain the title of the material. There is material that does not represent indicators such as the indicators containing disturbances in the digestive system of food, but in the material there is no indication of illness. There were four RPPs that added enrichment material, one of which only contained enrichment material, six RPPs did not provide enrichment material at the end of their RPP meeting.

*Fourth*, the main sources of learning, the tools and media used are on average already using infocus, projectors and learning TV, but there are RPPs that are wrong in including media such as libraries categorized as media actually libraries or laboratories are school facilities to support learning activities, namely book references /practice. There is also material on learning resources used by teachers who have not used additional sources such as the internet, even though in this day and age most students already have Androids which can access material through the teacher room application and others.

*Fifth*, the learning approach or model used is on average not in accordance with learning activities, there are several lesson plans that do not include methods and models but in their activities use a definite model, there are lesson plans that are incorrectly used on environmental and ecosystem material. In general, lesson plans already use a scientific approach. In addition, the models used for one semester tend to be less varied because the learning models used are only dominant problem-based learning and CTL (Koh et al., 2008; Johar et al., 2018). According to theory, there are several models that are suggested to be used in learning activities, including inquiry learning, project based learning. In addition, cooperative learning and contextual teaching and learning (CTL) models can also be used in junior high schools (Nurkholik & Yonata, 2020; A'yun et al., 2020; Ningsih & Kamaludin, 2023).

*Sixth*, the appearance of incomplete scientific systematics means that one or two scientific activities do

not appear in the learning activities. The syntax of the learning model used does not appear in learning activities using only 5 M, but in reality only four are used.

*Seventh*, learning activities which include introduction, core activities, and closing in writing and systematic format are still not neat, one lesson plan does not use columns to distinguish model syntax, descriptions of student and teacher activities, and time allocation. In the preliminary activities, some RPPs did not check student attendance, and some did not even convey the learning objectives achieved by students.

Based on the latest guidelines, it is very important to convey learning objectives during the activity because students know what they have learned after completing the teaching and learning process. In the core activities there are methods that do not exist, for example discussions, one lesson plan does not use the correct operational words. Part of closing the average teacher's lesson plans does not ask about material that students have not understood, sometimes lesson plans do not conclude the learning activities that have been carried out/just float.

*Eighth*, according to the assessment, some RPP do not include instruments for LKPD paper assessment, there are indicators that are not in accordance with the assessment instruments, the written test is written in the assessment rubric attached, but in the attachment there is no written test, some RPPs do not have scoring guidelines for written tests and essay. There is an assessment of the RPP that is still ambiguous such as the indicators of student learning to make projects, but the assessment does not have rubrics, instruments, and guidelines for scoring the project. There are several averages between forms, techniques, and assessment instruments that do not match. So based on the results of the data analysis of lesson plans for science learning with reference to the guidelines for studying lesson plans, it can be concluded that six lesson plans for science made by the teacher are lacking according to the character curriculum standard with reference to Permendikbud Number 65 of 2013 and Permendikbud Number 81A of 2013.

Furthermore, the results of processed questionnaires were found regarding teacher responses in preparing lesson plans as learning tools. The answers of all science teachers on average chose strongly agree and agree answers reaching 80-87%, disagreeing 11-17% and teachers' answers to strongly disagree ranging from 3-6%. So the cumulative percentage of teacher responses is 80-87%, this means that teachers are very enthusiastic about using lesson plans with a scientific approach for students of SMP Negeri 6 Banda Aceh.

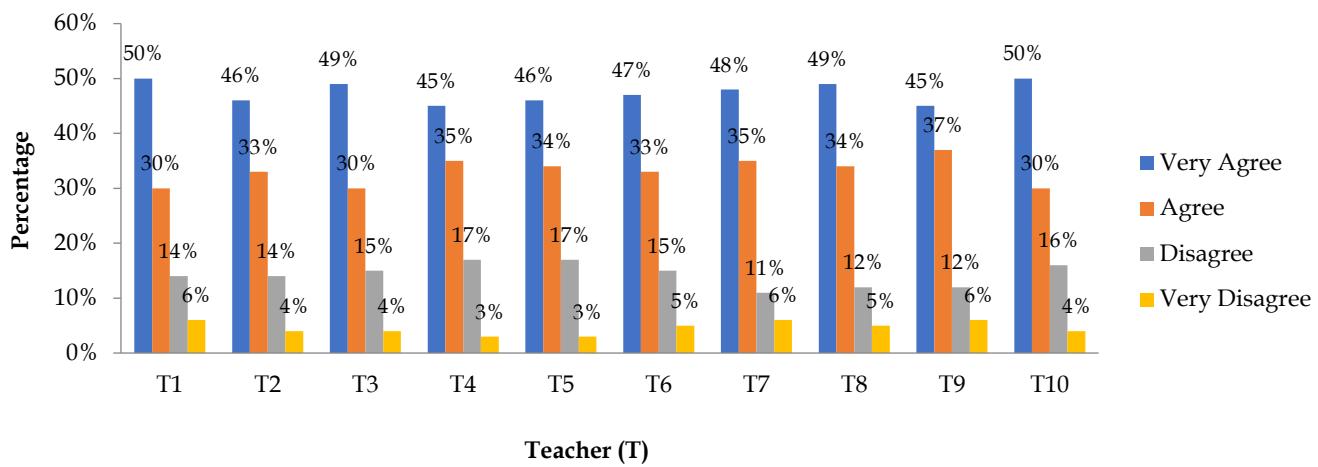


Figure 1. Teacher response in constructing a RPP

The natural teacher's efforts to make lesson plans using a scientific approach, some teachers said that it was enough to understand the grid in a scientific approach, this was based on a questionnaire that had been filled out by ten teachers as respondents. The result is that all science teachers at SMP Negeri 6 Banda Aceh understand the 5M concept, reaching 83%, it's just that there are two teachers who are wrong in choosing material that is suitable for a scientific approach or only 16%. Of the six teachers who said they got the RPP format from participating in curriculum implementation training then they adjusted it again to the needs of students/school conditions, this meant that teachers were able to develop their own creativity according to their competence. All science teachers said they used guidelines from Permendikbud No. 81A of 2013 as a reference in making lesson plans and amending them according to Permendikbud No. 21 of 2022. In preparing lesson plans because each school has a predetermined time limit at the beginning of the school year according to the annual program and the current semester program. The point in making lesson plans is that teachers use the Permendikbud which is adapted to the circumstances of the school and students. Likewise, the facilities and support for learning activities are provided by the school with the help of parents and guardians of students through the school committee.

## Conclusion

Whereas the results of the analysis of the contents of the lesson plans revealed that there were ten lesson plans for science because one school used the lesson plans together, namely teachers code G.2.1 and G3.1. We can only analyze the lesson plans for ten science teachers at SMP Negeri 6 Banda Aceh in the last even semester, including the formulation of indicators, learning objectives, teaching materials, selection of learning

resources, learning media, learning models, learning steps, and assessment. The lesson plan content score was obtained from each lesson plan by calculating the final percentage adapted by the reviewer's score for six lesson plans with less than below criteria (62-68), two with sufficient criteria (72-74) and two appropriate or very appropriate criteria (84-96). The teacher's ability to formulate lesson plans is still in the poor category, so there is a need for the education office's contribution to help them, especially in the implementation of the new curriculum. The percentage of teacher response questionnaire analysis as a whole is very good with a value of 80-87% in the category of "strongly agree and agree" with the preparation of lesson plans using a scientific approach. Although there are no obstacles for teachers in compiling lesson plans, the facilities and facilities to support science learning are well available.

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## Author Contributions

Our authors' contributions are MR. conducting literature reviews, doing fieldwork, IB and compiling outlines for writing articles. CM research and doing data entry and processing. RM performs statistical analysis, NA as a member in field research.

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## Conflicts of Interest

The authors declare that there is no conflict of interest.

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