Analysis of The Prospective Chemistry Teacher Student's Competence in Developing Learning Implementation Plan (RPP): Case Study at Tanjungpura University

Amsal Alhayat

Indonesia University of Education, Indonesia, https://orcid.org/0000-0003-4038-2683

Abstract: Learning needs to be well planned so that it can take place in accordance with the objectives to be achieved. This planning can be poured into the learning implementation plan (RPP) prepared by the teacher. Therefore, this study aims to describe the competence of prospective chemistry teacher students to prepare lesson plans using a scientific approach. The research was conducted using a descriptive-qualitative method. The research was conducted at Tanjungpura University with 28 respondents as research subjects. Data collection begins with the collection of the RPP that has been prepared, and then an analysis is carried out regarding the suitability of the RPP components using the RPP assessment sheet. The results of the study showed that the competence of prospective chemistry teacher students to prepare learning implementation plan (RPP) was in the "good" category, with a percentage of 81%. The biggest percentage is obtained in the aspects of determining core competency (KI) and basic competency (KD) and determining the learning medium used. While the lowest percentage is the aspect of compiling an assessment, which is still in the lower category with a percentage of 59%. Even though the competence of prospective chemistry teachers to prepare lesson plans as a whole is good, the suitability of the method with evaluation material for student assessment still needs to be improved so that it has implications for fulfilling the pedagogical competence of prospective chemistry teachers.

Keywords: Prospective Teacher, Competence, Learning Plans

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Introduction

A lesson needs to be planned or developed in order for the learning process to occur frequently and provide the desired outcomes. Every design or plan is always in line with the intended action. Making predictions about the actions to be taken while learning is known as planning. An educator must be familiar with the essential elements of lesson planning. According to Permendikbud (2019), learning planning includes crucial elements

including learning objectives, activities, and assessment. Lesson plans, often referred to as RPPs (Learning Implementation Plans), are created by educators with the intention of serving as a roadmap for implementing learning in accordance with the acquisition of fundamental competencies. Teachers are required to create lesson plans (Permendikbud, 2016). Making lesson planning is a component of the Preparation of lesson plans is part of the professional duties of an educator (Ministry of Education and Culture Directorate General of Early Childhood Education, Basic Education, 2020).

This is in line with the concept that lesson planning plays a very important role in ensuring effective and quality teaching in all school subjects (König et al., 2021). It is a very important component in various education programs for prospective teachers around the world, especially in school practice activities (Munthe & Conway, 2017). Numerous factors affect the effectiveness of teaching and learning activities (KBM) in the classroom. The feature of teachers' readiness to carry out learning is one of them (Dewi, 2018). The Law No. 14 of 2005's definition of pedagogical competence for teachers is relevant here. One of the sub-competencies in pedagogic competence that a teacher must learn is the capacity to prepare lessons (Yuswono et al., 2014; Febriana et al., 2016). As a result, managing teaching and learning activities in the classroom requires careful consideration of a teacher's competency profile while creating a Learning Implementation Plan (RPP). The situation in the field demonstrates that many teachers still struggle to prepare teaching materials, such as lessons (Susena et al., 2016; Ernawati, 2017; Nurhaliza, 2020).

Before mentoring, the teacher's capacity for creating lesson plans is still low (Susetya, 2017; Mehram, 2018). There are many challenges involved in selecting the proper method to be used in the design, including deciding the method, describing SK/KI, describing KD, and explaining KD (Anugrahana, 2019). According to Susena et al. (2016), the majority of teachers still have trouble creating lesson plans, both in terms of their capacity to take into account the numerous competences that students must acquire and in terms of meeting various lesson planning principles. The imperfect learning process is influenced by the teacher's incapacity to decide on the many elements. On the basis of this, it is significant to recognize good competency in RPP preparation.

The accessibility of lesson plans created by the teacher is the best possible start to the learning process (Mawardi, 2019). When creating lesson plans, teachers should use their expertise as a guide to ensure that students are learning (Kaimuddin, 2011). The learning process will function more effectively the more teachers there are who are skilled at planning lessons. Being a teacher is one of the career profiles of graduate students at Tanjungpura University's Teaching and Education Faculty (FKIP). In order to prepare to become teachers, students must be able to grasp a number of skills and abilities that can support their professionalism. Therefore, the practice of preparing lesson plans as a performance performance really needs to be implemented for these prospective teachers so that they are skilled and have good competence when they become teachers in the future. Chemistry lessons as one of the subjects programmed at every level of secondary education also really need teachers who are skilled in planning lessons. The initial competencies possessed by prospective chemistry teacher students can be known in advance through a performance analysis study. Based on the explanation

above, research was carried out with the aim of analyzing the competence of biology students in preparing lesson plans.

Method

The research was conducted using a descriptive qualitative method. The research was conducted at the Chemistry Education Study Program, Tanjungpura University. The subjects in this study were 28 chemistry teacher candidate students who had taken the Chemistry Teaching Basic Competency course. Data on performance results shown as a form of student competency level is obtained from the value of preparing the lesson plans that have been made previously. RPP documents prepared are assessed using the RPP assessment instrument sheet. Data analysis was carried out in a categorical descriptive manner with reference to the four categories (Table 1).

Table 1. RPP Assessment Criteria

Persentage	Criteria
$80 \leq x \geq 100$	Good (A)
$60 \leq x \geq 79$	Medium (B)
$40 \leq x \geq 59$	Low (C)
< 40	Very Low (D)

Based on the analysis above, students are declared to have good skills if the average score obtained is ≥ 80.

Competence of Prospective Chemistry Teachers in Developing Lesson Plans for Every Aspect

A well-considered lesson plan has the potential to be a factor influencing the improvement of teaching quality (Stein et al., 1996) as well as providing a solid foundation for implementing classroom learning (Li et al., 2009). Student competence in preparing lesson plans in this study was reviewed in 9 aspects, namely 1) Completeness of RPP Identity, 2) Formulation of Core Competency (KI) and Basic Competence (KD); 3) Formulation of Indicators; 4) Formulation of Goals; 5) Selection of Material; 6) Determination of Learning Methods; 7) Selection of Learning Resources; 8) Selection of Learning Media; 9) Learning Steps; and 10) Assessment. This can be seen in Table 2.

Table 2. Competence Of Prospective Chemistry Teachers in Developing Lesson Plans for Every Aspect

No	Aspect of RPP	%Skor	Categori
1	Completeness of RPP Identity	93	Good
2	Formulation of Core Competency (KI) and Basic Competence (KD)	100	Good
3	Formulation of Indicators	85	Good

4	Formulation of Goals	87	Good
5	Selection of Material	80	Good
6	Dete rmination of Learning Methods	84	Good
7	Selection of Learning Resources	100	Good
8	Selection of Learning Media	68	Medium
9	Learning Steps	72	Medium
10	Assessment	59	Low

In table 2, it can be seen that there is one competency aspect that is still classified as a low category, namely the assessment aspect. While the categories that are classified as sufficient are in two aspects, namely aspects of selecting learning resources and learning steps. In general, there are several aspects in the lesson plans that need to be improved, especially in the selection of learning media, learning steps, and assessment. Efforts are needed to further improve the completeness and quality in these aspects to improve the effectiveness and quality of learning.

Discussion

Analysis of The Prospective Chemistry Teacher Student's Competence in Developing Learning Implementation Plan (RPP)

According to Suciati, R., and Astuti, Y. (2016), learning will increase, be effective, smooth, and optimal if there is a lesson plan so that learning objectives can be achieved. RPP is very useful for teachers in teaching students because it reflects the actual conditions in the class to be taught. Develop lesson plans in an effort to realize the comprehensive capabilities of an educator. Because this ability can lead educators to become professionals. A RPP must be made before learning so that the implementation of learning is effective (Ali Arman, 2016).

Check out the most recent 2013 Curriculum Lesson Plan that was adopted from the 2013 Curriculum Technical Guidance Worksheet that the researcher amended. An average score of 81 lesson plans was derived from this study. This finding suggests that chemistry students' ability to create lesson plans is fairly strong. Additionally, Figure 2 illustrates how students aspiring to become chemistry teachers are categorized into two categories based on their ability to create lesson plans, sufficient and good. There were no categories for very little and very little in this study.

Based on this information, it can be seen that chemistry majors who aspire to become teachers generally have a high level of ability when it comes to creating lesson plans, however some students still require more extensive instruction. Additionally, as lesson plans serve as guidelines for instruction, having greater proficiency in this

area is an essential pedagogic ability for aspiring instructors. Because the various flaws still exist, research has shown that teachers have difficulty deciding how much time to devote to a lesson, setting indicators, selecting methods, strategies, and media, as well as determining whether learning syntax will be compatible with the model they have chosen and designing the evaluation tools that will be used in their instruction (Kinasih, 2017; Ernawati & Rini, 2017; Kurniawati, 2018; Palobo et al., 2018; Jayanti, 2020). Because the various deficiencies that still exist are in line with the results of research which obtained data that teachers experience problems in terms of determining the time allocation for presenting a material, setting indicators, choosing methods, strategies, media, the suitability of learning syntax with the chosen model and designing instruments evaluation that will be used in teaching and learning activities

Analysis of The Prospective Chemistry Teacher Student's Competence in Developing Learning Implementation Plan (RPP) for Every Aspect

The competence to plan learning is the most crucial aspect of a teacher's job that affects pupils' learning processes (Straessle, 2014). The teacher should be competent in planning every aspect of the teaching and learning process in the classroom in an effort to facilitate the best possible learning process. The teacher is in charge of making sure that the pupils master the competency goals both during and after learning activities. As part of the process to determine how well students comprehend lesson plans, Tadris Biology students—who in this case are prospective teachers—were evaluated on their ability to create lesson plans. Further analysis referring to table 2 can be explained as follows:

Completeness of RPP Identity

Students include the RPP identify accurately and clearly. The RPP identity's inclusion yielded a score of 93. (good). RPP at least includes school information (school name, subject, class or semester, topic, and time allocation) (Bariyah, 2014).

Formulation of Indicators and Formulation of Goals

The score for the inclusion of indicators and learning objectives is 85 (good) and 87 (good). Indicators and learning objectives are made based on basic competence (KD). KD as the achievement of minimum standards by students. KD achievement can be derived through indicators and learning objectives based on educators in building the abilities of their students (Fitriyah & Wardana, 2019). Even though it is classified as a good category, some students still have difficulties when they have to make indicators and learning objectives based on basic competencies (KD). Students still need to understand about indicators and learning objectives. Weaknesses of students in making indicators and learning objectives lie in the elements of behavior (the formulation of student behavior in observing the learning process using verbs) and content (material which includes knowledge, attitudes and skills). Students still need more intensive training in making indicators and

learning objectives. Because learning objectives are also an important component in lesson plans. Wikanengsih, Nofiyanti, Ismayani, & Permana (2015), learning objectives are in the form of an overview of the achievement of the process and learning outcomes of students according to basic competencies. A mandatory learning objective for the achievement of an indicator. In determining the goals and indicators students have referred to the ABCD format. In line with the findings of Wulandari (2019), which obtained maximum results, all students were able to determine the formulation of learning objectives following the ABCD format.

Selection of Material and Selection of Learning Resources

The score for the elaboration of subject matter is 80 (good) while the selection of learning resources is 68 (enough). Student teacher candidates are good when describing the scope of material that is in accordance with indicators of achieving competence. Students need more practice when they have to relate material to other knowledge according to the realities of life. Basically, learning materials must contain the relevance of concepts, principles, facts and procedures that are written based on the formulation of competency achievement indicators (Permendikbud Number 22 of 2016). However, in choosing the learning resources used, it is still in the sufficient category. This is because prospective chemistry teacher students in determining learning resources only focus on books (not varied), do not explore materials that are relevant to material such as articles or journals. In addition, students also do not include complete learning resource identities according to the instrument. According to (Kusumah, 2008), the use of various learning resources will provide many opportunities for students to be able to interact actively with these learning resources.

Determination of Learning Methods

The approach that includes the learning model receives a score of 84. (good). The cooperative learning method combined with the inquiry learning model is one example. Students must be able to choose the method to be used in learning from the beginning of creating lesson plans, but it must be in accordance with a scientific approach. Although the methods and models that the students listed are good, the stages of learning that have been prepared show that the methods still do not match the features of learning. The appropriateness of methods and models with indicators, objectives, and learning materials must be taken into consideration while establishing learning techniques and models, claim Natalina, Darmawati, and Yarini (2016).

Selection of Learning Media

Media selection receives a score of 100. (good). The learning media that students included into the lesson plans they created were still deemed to be of high quality. Students are able to choose the right learning tools, like simple practical exercises and the usage of technology, like powerpoint (PPT). The media must be chosen in a way that is appropriate for the students' characteristics, learning objectives, and competencies (Wikanengsih et al., 2015). The utilization of educational media will increase students' interest, optimism, and readiness to learn

(Bariyah, 2014). The main principle that must be considered in the use of media is that the media is used and directed to make it easier for students to learn in an effort to understand the subject matter. Thus, the use of media must be viewed from the point of view of student needs (Suyanti, 2010).

Learning Steps

The score for the elaboration of learning activities is 72 (enough). In general, students are good enough when describing learning activities which consist of the initial stage (delivering apperceptions and objectives to be learned), the core and closing stages. Learning activities include an introduction that must have motivation, core activities and closing activities (Natalina et al., 2016). Preliminary activities are the beginning of opening learning by motivating, creating readiness and creating fun learning, linking the material to learning materials, explaining learning objectives, explaining learning activities (Sukirman, D., & Kasmad, 2006). Several students just included greetings and student attendance in the RPP, while others included introduction activities without giving thought to the content that will be presented. There were other students who merely incorporated the delivery of learning objectives in the preliminary activities. According to Mulyasa (2004), relating course material to prior knowledge and experience can foster active and student-centered learning environments. Additionally, Rusman (2011) argued that instructional materials should be connected to students' lived experiences because knowledge cannot simply be imparted by teachers; rather, students must interpret it for themselves. When providing lessons, some of the main activities that students included were effective when using the media. However, creating learning processes that are in line with a scientific method is something that future chemistry teachers' pupils still need to work on. The selection of learning activities that are packed in a pleasant way to accommodate 4C abilities, character education, and more optimal optimization in the use of prepared media is frequently not in agreement with the nature of the scientific method. The main activities of the lesson should be able to condition enjoyable, engaging, and inspirational learning in order to inspire students to be independent and creative, according to Sukirman, D., & Kasmad (2006).

The closing activities have also been nicely planned. Some have incorporated reflections and drawn a conclusion to the topic, while others have just provided homework for the following meeting without drawing any substantive conclusions. According to Sukirman, D., & Kasmad (2006), closing activities give an overview of the learning activities based on how well students did in the cognitive, affective, and psychomotor areas that they had learnt. By calling the meeting to a close and assigning exams or assignments for the next meeting, closing activities can be completed.

Assessment

The score for determining the assessment is 59 (less). The assessment listed in the student lesson plan is the least important aspect. This is due to students' failure to fully compile the assessment needs as a barometer of learning achievement as chemistry teacher candidates. The components that many students forget when

developing assessments in lesson plans are the test questions, clear and systematic key answer instruments, and remedial guidelines. The answer key instruments or assessment rubrics prepared by students are still incomplete because they are only described briefly and do not accommodate all of the predictions of the answers that will be given by students. However, there were also students who completely included their assessment rubric but did not prepare remedial and enrichment guidelines. Both of these things are very important. Included in the RPP is an assessment that must pay attention to the assessment technique, as well as an assessment rubric and indicators (Natalina et al., 2016). In addition, in the aspect of student assessment, they are still unable to create tests that are in accordance with the objectives and indicators that have been formulated previously, which can be seen in the nature of the High Order Thinking Skills (HOTS) questions, which do not accommodate taxonomic bloom levels, especially at the analyzing level (C4). evaluate (C5), and create (C6).

The absence of a comprehensive understanding of the various components of lesson plans is a problem faced by teachers (Mawardi, 2019). This is relevant to the findings in this study, where there are various obstacles found by prospective chemistry teachers who are still categorized as having poor competence. In the end, various errors were found when the RPP document was reviewed. As a result, prospective chemistry teachers' abilities must be developed beginning in college, particularly in terms of their pedagogical abilities as a future provision when becoming a teacher. One of the most important is developing a learning implementation plan (RPP), which is a guide for teaching. According to Anggraeni & Akbar (2018), a teacher is required to have teaching guidelines contained in lesson plans so that learning objectives are achieved and directed. Lesson plans assist teachers in delving deeper into learning materials, how to convey material, and how to assess student learning success based on predetermined goals (Shen, 2007). The ability to create lesson plans is one of the indicators of a teacher's professionalism in the classroom (Kartawagiran, 2011). The better the teacher's competency in compiling the lesson plan document, the more proven the professionalism of the teacher is. It is also assumed that learning will take place better because maximum preparation has been made.

Conclusion

Based on the research results, it can be concluded that the competence of students as chemistry teacher candidates in developing lesson plans (RPP) is quite good, with the scope that there are two categories in it, namely the sufficient category and the good category. The first category is those who have good competence, namely 60%. The second category is classified as having sufficient competence (40%). However, while prospective chemistry teachers' ability to prepare lesson plans in general is good, students' understanding and mastery must be constantly improved and prepared, particularly in terms of the suitability of methods with student evaluation materials. This is shown because it can have implications for fulfilling the pedagogic abilities of prospective chemistry teachers in the future. One way to deal with students who are still categorized as lacking competence in compiling lesson plans is that lecturers can provide further guidance or direct peer tutors to assist those concerned so that they are more skilled and can improve their competence in preparing lesson plans.

Recommendations

Based on the results of the research and conclusions, several things can be recommended so that chemistry education students at FKIP Tanjungpura University have the ability both in terms of knowledge and skills in preparing lesson plans, namely, the provision of knowledge and understanding of lesson plans that are in line with government policies regarding the applied curriculum. This is because the curriculum in Indonesia changes frequently, so student teacher candidates must be prepared for the circumstances and educational situation.

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