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LEARNING USING THE PROBLEM BASED LEARNING MODEL: ANALYSIS OF TEACHERS' UNDERSTANDING AND ABILITY IN DESIGNING LESSONS

Imam Safi'i[1], Somariah Fitriani[2]
[1]Pendidikan Bahasa Indonesia, Sekolah Pascasarjana, Universitas Muhammadiyah Prof. Dr. Hamka, Jakarta, Indonesia
[2]Administrasi Pendidikan, Sekolah Pascasarjana, Universitas Muhammadiyah Prof. Dr. Hamka, Jakarta, Indonesia
Imamsafii2077@uhamka.ac.id[1], somariah@uhamka.ac.id

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ABSTRAK

Abstrak: Penelitian mengenai kompetensi guru sudah banyak yang melakukan, namun penelitian yang menggali mengenai kompetensi guru dalam menyusun rencana pelaksanaan pembelajaran dengan model pembelajaran berbasis masalah (PBL) belum banyak ditrmukan. Tujuan penelitian ini adalah untuk mengetahui kompetensi guru bahasa Indonesia dalam menyusun rencana pelaksanaan pembelajaran pada pembelajaran berbasis masalah ditinjau dari segi pemahaman struktur dan deskripsi aktivitas dalam pembelajaran yang dilakukan oleh guru. Metode penelitian yang digunakan adalah analisis isi. Pengumpulan data dilakukan dengan teknik padan yaitu dengan memadankan atau mencocokkan pengembangan rencana pelaksanaan pembelajaran dengan tahapan pembelajaran PBL. Sumber data dalam penelitian ini adalah dokumen rencana pelaksanaan pembelajaran yang dihasilkan oleh guru bahasa Indonesia yang mengikuti program pelatihan pendidikan profesional guru di salah satu perguruan tinggi swasta di Indonesia. Analisis data dilakukan dengan membandingkan kesesuaian langkah dan kegiatan pembelajaran yang telah dikembangkan guru terhadap model pembelajaran PBL. Hasil penelitian menunjukkan bahwa hanya 68,97% guru yang menunjukkan kompetensi dalam menjelaskan tahapan pembelajaran berbasis masalah. Kompetensi guru dalam Mendeskripsikan aktivitas pembelajaran Berbasis Masalah dalam Rencana Pelaksanaan Pembelajaran sangat rendah. Rata-rata sebesar 36,21. Hasil penelitian ini menunjukkan perlunya peningkatan tingkat pemahaman dan kompetensi guru dalam menerapkan model PBL dalam rencana pelaksanaan pembelajarannya.

Abstract *The available research on teacher competence is extensive; however, there has been no research on teacher competence in preparing learning implementation plans according to a problem-based learning (PBL) model. The purpose of this study was to understand the competence of Indonesian language teachers in preparing a learning implementation plan for problem-based learning lessons. The research method used is content analysis. Data collection was carried out using the matching technique, namely by matching the development of a learning implementation plan with PBL learning stages. The data sources in this study were 29 learning implementation plan documents produced by Indonesian language teachers who attended a professional teacher education training program at a private university in Indonesia. Data analysis was carried out by comparing the suitability of the learning steps and activities that had been developed by the teachers against the learning model for PBL. The results showed that just 68.97% of teachers demonstrated competence in describing the stages of a problem-based learning lesson. Teacher competence in describing Problem Based Learning learning activities in the Learning Implementation Plan is very low. The average is 36.21.The results of this study indicate the need for an improved level of understanding and competence among teachers in implementing the PBL model in their learning implementation plans.*

A. INTRODUCTION

Professional teachers are expected to always be open-minded and continue to strive to prepare their students to compete globally (Miskiah et al., 2019). Efforts made by teachers to build student competencies begin with the preparation of appropriate and effective learning plans. As stated by Alanazi (2019), effective teaching requires careful

planning and preparation. Learning planning serves as a foundation for teachers to carry out various learning activities (Smith, 2019; Adiguzel, 2021). Preparing a learning implementation plan that shows how certain learning activities and stages will be carried out can be used to evaluate its potential effectiveness (Rodrigue & Enama, 2021).

In addition, critical thinking, collaboration, and problem-solving skills are becoming increasingly essential. One learning approach that emphasizes the development of these skills is Problem-Based Learning (PBL), which has been widely recognized as an innovative learning model. PBL not only encourages students to be actively involved in the learning process but also challenges them to find solutions to real-world problems. Students who participate in learning with the PBL model have a higher success rate compared to students who participate in learning with the traditional model (Li et al., 2020). Students are more skilled at solving problems (Aslan, 2021). In addition, teaching with the PBL model can increase student motivation, critical thinking, independent learning, and long-term knowledge retention (Giuliano et al., 2021). However, in many schools, especially in Indonesia, the understanding and application of the PBL model by teachers is still not optimal. Many teachers have difficulty in designing problem-based learning, both in terms of formulating relevant problems and in managing interactive and participatory learning processes.

Several studies related to teacher competence in preparing lesson plans have been conducted. For example, Rodrigue & Enama (2021) examined teacher competence in making lesson plans, with a particular focus on the Cameroonian context. Ndihokubwayo et al. (2022) conducted a study on which stages and aspects of lesson planning were more difficult for teacher trainees and whether collaboration resulted in better lesson plans. Koberstein-Schwarz and Meisert (2022) reviewed validated and reliable lesson plan analysis protocols to support education stakeholders. In addition, Mendoza et al. (2022) analyzed efforts to develop and validate an instrument to evaluate teachers' collaborative lesson planning practices. There has been no study that specifically examines the implementation of lesson plans using the problem-based learning model. Among the various studies that exist related to the PBL model, none have analyzed its relationship to the preparation of lesson implementation plans. Several studies on PBL, for example Brown (2022), Lonergan et al. (2022), Lee and Son (2022), and Fassbender et al. (2022) emphasizes more on its utilization and effectiveness in learning. Therefore, research that examines teacher competence in preparing PBL-based learning implementation plans is important because it will provide a new picture of the level of teacher pedagogical competence in several areas, including classroom management knowledge, teaching methods, and learning plans and evaluations (Hastuti et al., 2022).

This research is important and interesting to do because it can be part of the effort to improve the quality of learning that is responsive to the challenges of the times. With the increasing demands on students' critical thinking skills, there needs to be an appropriate approach in training teachers to be able to design relevant learning. This study aims to answer the main problem, namely how teachers' understanding and ability in designing problem-based learning can be improved through appropriate interventions, both from a pedagogical and practical perspective. This research is also to be done because it can contribute to improving the quality of education, especially in the application of the PBL model. The results of this study are expected to not only provide an overview of the current state of teachers' understanding and abilities, but also offer practical solutions in the form of training and mentoring that can be applied widely.

B. METHOD

The researchers used a qualitative approach to examine the descriptions of the PBL stages and the specific learning activities that were prepared by the teachers. The study adopted the equivalent method, namely the determination of research data by using determinants or criteria that are separate from the data and not part of the language or object of the research concerned (Sudaryanto, 1993).

The sources of data explored in this study were 29 learning plans prepared by teachers of junior high, senior high, and vocational schools who participated in professional teacher education activities held at one of Indonesia's private universities. During the training, teachers were given an explanation and

overview of various learning models. One of them was the problem-based learning model. Furthermore, teachers were also asked to create a learning implementation plan that utilizes the PBL model.

Data mining was carried out by referring to the rubric shown in Table 1 below, with the aim of determining the accuracy of teachers in describing the stages of the PBL model and the accuracy of teachers in describing the PBL activities or roles of the teacher in the learning implementation plan. The PBL stages and the activities of teachers were derived from the work of Ariyana et al. (2018).

Table 1. Outline of the stages and learning activities for problem-based learning models

PBL Stages	PBL Teacher Activities
Orienting students to the problem	The teacher presents the problem to be solved in groups. The issues raised should be contextual. Problems can be found by students themselves through reading materials or activity sheets.
Organizing students to learn	The teacher makes sure each member understands their respective duties.
Guiding individual and group investigations	The teacher monitors the involvement of students in collecting data/materials during the investigation process
Developing and presenting the work	The teacher monitors the discussion and guides the preparation of reports so that the work of each group is ready to be presented
Analysing and evaluating the problem-solving process	The teacher guides the presentation and encourages the groups to give appreciation and input to other groups. The teacher and students conclude the lesson.

The data collected was then analysed for its tendency level and used as a basis for quantifying the level of understanding and competence of teachers in employing a PBL model in their learning implementation plans. Each teacher's level of understanding was then rated according to the five levels shown in Table 2 below.

Table 2. Range of teacher competency categories

No	Number Range	Information
1	0 – 40.44	Very incompetent
2	45.55 - 55.55	Less competent
3	56.55 - 65.55	Sufficiently competent
4	66.55 - 75.55	Competent
5	76.55 - 100	Very Competent

C. FINDINGS AND DISCUSSION

1. Indonesian Language Teachers' Competence in Describing the Stages of Problem-Based Learning Models in their Learning Implementation Plans

Obtaining teacher competency data in describing the problem-based learning stages was straightforward. The data includes the presence or absence of five categories: orienting students to the problem; organizing students to learn; guiding individual and group investigations; developing and presenting the work; and analysing and evaluating the problem-solving process. Data related to the PBL model stages is important to explore because it establishes the basis of understanding for teachers to describe various subsequent learning activities using the PBL model.

Table 3 presents the results of the analysis of teacher competencies in describing the stages of the PBL model in their learning implementation plans

Average Ability Teacher	Average	Category
orienting students to the problem	68.97	Competent enough
Organizing students to learn	68.97	Competent enough
Guiding individual and group investigations	68.97	Competent enough

Developing and presenting the work	68.97	Competent enough
Analysing and evaluating the problem-solving process	68.97	Competent enough
Avarage	68.97%	Competent enough

As the research findings above show, 20 teachers, or 69%, were able to describe the PBL stages correctly while nine of the teachers, or 31%, were not. These results on the competence of teachers are in line with research by Habibullah (2012), which found that the ability of teachers to develop learning plans is generally sufficient. In addition, this is also in accordance with the findings of Hastuti et al. (2022), who discovered that teacher competencies are not as expected; the results of this study showed many teachers lack pedagogic competence, which is comparable to the results of professional competence scores on the Teacher Competency Test.

In contrast, Susanto (2021) demonstrated that the pedagogic competence, pedagogic knowledge, and initial characteristic profiles of teachers are in the very competent category. His research was based on a sample of 265 teachers across region II of the West Jakarta Municipality. In this study, pedagogic knowledge contributed 62.1% to pedagogic competence, and the initial characteristic profile contributed 49.7% to the teacher's pedagogic competence. In another study by Santri (2017), pedagogic competence directly affected learning outcomes. Meanwhile, pedagogic competence was found to have a positive influence on the effectiveness of learning (Andini & Supardi, 2018).

The creation of learning plans requires cognitive skills that must be mastered by teachers (König et al., 2021). It is part of having pedagogic competence, which is a crucial competency possessed by teachers (Akbar, 2021). Pedagogic competence refers to a teacher's ability to understand the fundamental theories of learning, determine the application of strategies based on the characteristics of students, select appropriate teaching materials, outline the competencies to be achieved, and develop effective learning plans.

The lack of understanding by some teachers regarding PBL stages can be caused by two factors. The first factor is the internal interest and motivation of teachers in carrying out their profession, known as intrinsic motivation (Tang et al., 2020). The second factor is the beliefs teachers have about their success, which also has an influence on their desire to innovate their teaching practices (Beni & Fletcher, 2022).

2. Teachers' Competence in Describing Problem Based Learning Activities in Learning Implementation Plans

Teacher competence in describing learning activities within the PBL model refers to five activities: conveying the problem to be solved; ensuring that each student understands the task that has been given by the teachers; monitoring the involvement of students in collecting data/materials; guiding the preparation of reports to be presented; and guiding presentations and encouraging other groups to give praise and input to other groups and concluding the lesson (Ariyana et al., 2018). Table 4 below shows the teachers' competence in describing learning activities that follow the PBL model in the learning implementation plan for each category.

Table 4. Indonesian language teachers' competence in describing teachers' activities in the problem-based learning model

Average Ability Teacher	Average	Category
Conveying the problem to be solved	13.79	very less competent
Ensuring that each student understands the task that has been given by the teachers	27.59	very less competent
Monitoring the involvement of students in collecting data/materials	51.72	less competent
Guiding the preparation of reports to be presented	34.48	very less competent

Guiding presentations and encouraging other groups to give praise and input to other groups and concluding the lesson	51.72	less competent
Average	36,21	very less competent

Only four of 29 teachers (13.79%) demonstrated competency in describing PBL activities in the first stage of the lesson plan (conveying the problem to be solved). The low frequency of competence shown by teachers in orienting students to the problem is in line with the findings of Jajat (2020). According to his research, teacher competence and literacy in science and technology, class management and communication competence, and social competence have not been optimal. The lack of competence in orienting students in PBL lessons suggests that teachers struggle with providing context in the design of their learning activities. A lack of contextualized learning can affect student performance (Hoogland et al., 2018). Contextual problems not only affect students' academic outcomes, but also students' social functioning (Salavera et al., 2019). Contextuality improves the quality of students' reflection and satisfaction (Alqahtani et al., 2022).

The second stage for teachers in the problem-based learning model is carefully ensuring that each student understands their respective tasks. The ability of students to understand a task allows them to complete the task properly. Therefore, a creative and experiential pedagogical approach is needed to engage students (Rieger et al., 2021). Student performance on optimal academic assignments can improve task completion abilities (List et al., 2019). In the current study, just eight of 29 (28%) teachers described using PBL activities to ensure that students understand the assignments. The low ability of these teachers is in accordance with the findings of research conducted by Andina (2018), who reported that the average teacher competency test score is 41.5%. This indicates that teacher competence is quite low based on the benchmarks specified in the standards of educators and education personnel.

The inability of teachers to describe their efforts to determine the level of student understanding has an impact on the subsequent learning process. An effort to ensure that groups of students have understood the tasks they have been given is normally demonstrated by asking open-ended questions to each group or student. These questions may include the following: What has the teacher instructed? What should be done to solve the problem? What are the stages of problem solving in the text above? The answers to these questions can be used by the teachers to determine whether a re-explanation is needed or if the lesson can continue to the next stage. The use of this questioning is considered a form of authentic assessment. The inability of many teachers to confirm students' understanding shows that teachers do not have adequate competence in conducting authentic and integrative assessments (Adnan et al., 2019).

After ensuring that students have understood what the teacher said, the next step for the teacher is to monitor the involvement of students in collecting data or materials during the investigation process. In the current study, the number of teachers who were able to describe activities to monitor student involvement in learning was 15, or approximately 52%. Even though competency related to using PBL learning activities reached a higher level in this stage, these results have not shown an optimal picture of competence. This is in accordance with the research conducted by Nuryani and Handayani (2020), who showed that, even though teachers already have educator certificates, many of them have inadequate pedagogic and professional competencies.

The quality of monitoring carried out by teachers during learning activities has a clear effect on learning. Proper monitoring will enable students to focus on solving the problems that have been identified. Monitoring needs to be done with a persuasive, motivated, and optimistic attitude towards students' abilities. This is because positive teacher behaviour can increase student involvement in learning activities (Kuril et al., 2021). In addition, monitoring will also build rapport between teachers and students, and proximity will positively increase student engagement in learning (Engels et al., 2021).

The involvement of each student in data collection efforts is essential. Student involvement in learning can be in the form of socio-affective, design, and

organizational aspects (Heilporn & Lakhal, 2021). The involvement of each student in the group problem solving process helps to build cooperation and collaboration. Students with an awareness of intergroup cooperation have deeper thoughts and show more positive emotions (Peng et al., 2022). Students' perspectives on participation and engagement will help their future academic development (Keh et al., 2022). Student involvement is also important in achieving learning outcomes and increasing motivation (Elshami et al., 2022).

The next stage involves the teacher monitoring the discussion and guiding the preparation of group reports. The number of teachers showing competence in designing learning plans containing discussion monitoring activities and report-making guidance was 10 out of 29, or 34.48%. Overall, teachers and students will benefit when teachers provide direction and opportunities for students to learn independently (Cheon et al., 2020). A facilitator or a teacher who emphasizes student learning will focus more on monitoring collective learning and supporting meaning-oriented reflection (Assen & Otting, 2022). Therefore, teachers must be able to design an implementation of learning plan that is able to explore the potential of students to solve problems. Trained and fully attentive teachers will be able to develop better classroom management skills (Beuchel et al., 2022). The findings of one recent study show that the level of teachers' competence in identifying students with suspected cases of learning disabilities is low (Eyo & Nkanga, 2020). Students who engage in teacher-guided group work show the strongest sense of collaborative success (Fung, 2022).

The last stage in the implementation of the PBL model is guiding the presentation and encouraging the students to give appreciation and input to other groups. In addition, the teacher summarizes and concludes the lesson together with the students. Teacher competence in describing these activities was 15 out of 29, or 52%. Allowing opportunities for students to provide feedback on what they have learned can have a positive impact on student learning outcomes (Zhang & Hyland, 2022). Likewise, learning analysis activities can support student engagement, facilitate effective learning, and increase students' awareness about themselves as learners (Silvola et al., 2021). In another study, results show that the certification program is not interpreted as an effort to increase competence, but rather as an increase in welfare (Anggranei, 2020).

The data from the current study shows that the ability of teachers to describe learning activities that align with the PBL model is quite low. There is also a significant discrepancy compared to the data in Table 3 regarding the ability of teachers to the describe problem-based learning stages. This shows that having a procedural understanding of the PBL model stages is not necessarily accompanied by the ability to include PBL activities in one's learning implementation plan. The inability of teachers to describe appropriate learning activities in the PBL model is in line with Rodrigue and Enama (2021), who found that teachers experience many difficulties in reporting learning outcomes, aligning them with assessments, providing variations in assessments and assignments, and asking relevant questions to guide students' work.

The low level of competence of teachers in understanding and describing PBL stages and learning activities can have an impact on teachers' competence in carrying out effective lessons. Therefore, efforts to increase teachers' competence in creating learning implementation plans must always be pursued so that the quality of learning can also improve. This will naturally have a positive impact on students' learning experience (Lamb et al., 2022) and students' academic achievement (Wahyuddin, 2017), which would ultimately have an impact on overall school performance (Vennebo & Aas, 2020). khususnya di tingkat menengah ke atas (Syaharuddin, 2017).

D. CONCLUSION

This study has provided a comprehensive overview of teachers' understanding and abilities in designing learning with the Problem-Based Learning (PBL) model. The results of the analysis show that although most teachers understand the basic concept of PBL, many still face obstacles in implementing it effectively in the classroom. The biggest challenge lies in the ability of teachers to design problems that are relevant to the student's context and manage classroom dynamics so that the learning process can run interactively and participatively.

Through these findings, this study emphasizes the importance of continuous training and more intensive pedagogical support for teachers.

Increasing the capacity of teachers in designing problem-based learning is key to ensuring that the PBL model can be implemented optimally, so that students can develop critical, collaborative, and creative thinking skills needed in today's global era.

The data sources used in this study, which include 29 lesson plans prepared by Indonesian language teachers. Therefore, further research needs to use larger and more varied data sources. In addition, further research on specific learning practices carried out by Indonesian language teachers in PBL learning needs to be conducted. Thus, the data obtained can be used as a comparison between conceptual understanding and practical implementation of the PBL learning model.

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