

# Profile of Elementary School Teachers' Pedagogic Competence in Implementing Scientific-Based Thematic Learning and Higher-Order Thinking Skills

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## RESEARCH ARTICLE

# Profile of Elementary School Teachers' Pedagogic Competence in Implementing Scientific-Based Thematic Learning and Higher-Order Thinking Skills

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## ABSTRACT

The article aimed to identify the profile of elementary school teachers' pedagogic competence in implementing scientific-based thematic learning and Higher-order thinking skills (HOTS). The qualitative study involved primary data sourced from observation sheets and interviews. The obtained data were analyzed by Miles and Huberman's method. The results discovered that: 1) the overall pedagogic competence of teachers in SDN 4 State Elementary School in Talaga Jaya, SDN 5 State Elementary School in Limboto, and SDN 19 State Elementary School in Tibawa was in "good" category in the aspect of learning design. 2) The overall pedagogic competence of teachers in SDN 4 State Elementary School in Talaga Jaya and SDN 5 State Elementary School in Limboto was in "good" category in the aspect of learning activities implementation. Meanwhile, teachers in SDN 19 State Elementary School in Tibawa only achieved "adequate" category in this aspect. 3) The overall pedagogic competence of teachers in SDN 4 State Elementary School in Talaga Jaya and SDN 5 State Elementary School in Limboto was in "good" category in the aspect of learning evaluation. Meanwhile, teachers in SDN 19 State Elementary School in Tibawa only achieved "adequate" category in this aspect. Based on the findings, this study recommends that education stakeholders must continue to carry out capacity building for teachers in the form of strengthening the pedagogic competence of teachers based on Multiple Intelligence so that teachers have intellectual, emotional, and spiritual skills as pioneering teachers in supporting the Merdeka Belajar program in elementary school.

## KEYWORDS

Pedagogic Competence, Thematic Learning, Scientific Approach, HOTS

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## 1. Introduction

Learning process refers to an effort to obtain the required knowledge, skills, and attitude in a study. Teachers play an important role in actualizing the meaningful learning process and encouraging a sound learning situation for the students. Teachers are also expected to be creative and innovative in presenting the learning materials; this can be conducted in several scopes by implementing critical and creative thinking ability and higher-order thinking skills (henceforth referred to as HOTS). In addition, Siswono (2018) points out that HOTS orientates towards critical and creative thinking competence. Based on Bloom's Taxonomy, the implementation of the 2013 Curriculum adopts HOTS at the level of analyzing, evaluating, and creating.

One of the fields in which the teacher's creativity plays a significant role is the design and composition of lesson plans. A lesson plan refers to the learning procedures and management description plan to achieve one or more basic competencies as set in the competency standard and elaborated in the syllabus. In other words, a lesson plan is the planning of learning that refers to a particular basic competency within the curriculum or syllabus (Mulyasa, 2013). The main target expected by the teacher in learning

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is the achievement of a learning process that can produce attitudes, skills, and knowledge that are in accordance with the learning objectives. In this case, the achievement of HOTS in students is one of the goals and expected learning outcomes. Maylani's (2020)

research suggests that HOTS affects the learning achievement of third-grade students at Al-Ihsan Islamic Elementary School.

A preliminary study conducted in state elementary schools in Gorontalo Regency highlights that teachers have implemented thematic learning from the first to sixth-grade students as the output of the 2013 Curriculum implementation. However, HOTS was yet to be implemented in these schools. This is observable from the lack of incorporation of HOTS in the learning planning. HOTS becomes significant for students to be able to analyze, evaluate, and create products from their learning outcomes. The mandate of the 2013 curriculum and 21st-century learning is carried out thematically with a scientific approach and is supported by the application of HOTS in improving the quality of education. In this case, the success of the implementation of learning needs to be identified as a consideration in improving the implementation of the learning process.

Based on the previous notions, a study is significant to be carried out under the title of 'Profile of Elementary School Teachers' Pedagogic Competence in Implementing Scientific-Based Thematic Learning and Higher-Order Thinking Skills.'

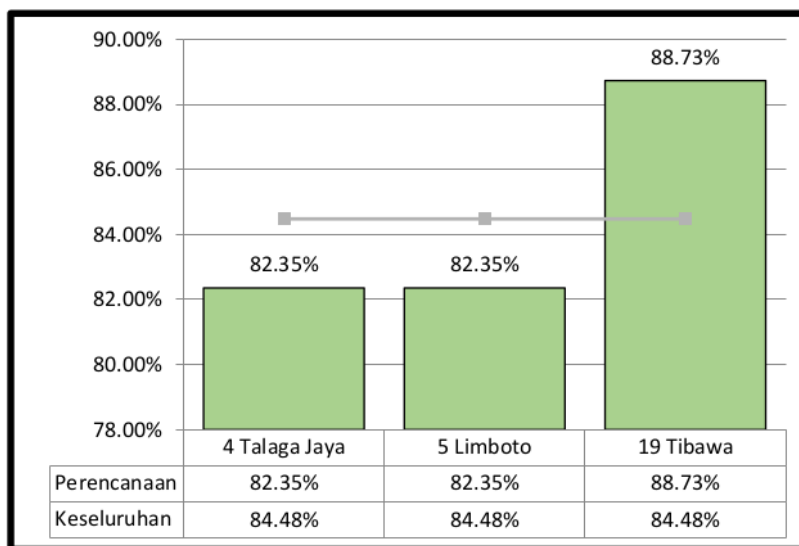
**2. Methodology**

The research was conducted on elementary school teachers in Gorontalo regency as the object of study. It took place from September 2021 to April 2022. The focused schools of the study comprised: SDN 4 State Elementary School in Talaga Jaya (accredited A), SDN 5 State Elementary School in Limboto (accredited B), and SDN 19 State Elementary School in Tibawa (accredited C). The primary data were obtained by observation sheet and interview. The qualitative study applied Miles and Huberman's method for data analysis.

**3. Results**

**3.1 Profile of Elementary School Teachers' Pedagogic Competence in Implementing Learning Design**

As based on the observation sheet, the profile of elementary school teachers' pedagogic competence in implementing scientific-based thematic learning and higher-order thinking skills is presented in Figure 1 as follows.



**Figure 1.** Profile of elementary school teachers' pedagogic competence in implementing learning design

Based on the figure above, it is interpreted that SDN 19 State Elementary School in Tibawa achieves the best results in the lesson plan aspect because of conformity to the rules in the preparation of the lesson plan. Meanwhile, SDN 4 State Elementary School in Talaga Jaya and SDN 5 State Elementary School in Limboto received the same score. This indicates that the aspect of preparing lesson plans needs to be improved for a more optimal learning design.

### 3.2 Profile of Elementary School Teachers' Pedagogic Competence in Implementing Learning Activities

The results of the achievement scores for aspects of the implementation of learning activities by elementary school teachers are presented in the following table:

**Table 1. Learning implementation evaluation**

No	School	Achievement	Percentage (%)	Criteria
1	SDN 4 Talaga Jaya	117	94.35	Very good
2	SDN 5 Limboto	111	89.52	Very good
3	SDN 19 Tibawa	93	75.00	Good
	<b>Mean</b>		<b>86.29</b>	<b>Very good</b>

Source: Primary Data, 2022

The table above indicates that improvements are needed in the implementation of learning by teachers, especially regarding preliminary activities and closing activities in learning activities. The implementation of learning in schools is not in accordance with the standards of the intended learning implementation process. This discrepancy is found in the introductory component, i.e., in indicators asking challenging questions, conveying the benefits of learning materials, demonstrating matters related to the theme, and checking entry behavior. The teachers' pedagogic competence is analyzed in the processes and stages of learning activities that apply the scientific approach. The analysis result is elaborated on below.

#### 3.2.1 Preliminary Activities

The teachers at the research site have carried out preliminary activities in accordance with the established process standards. Preliminary activities are an obligation for teachers to start learning in the classroom. However, sometimes there are teachers who forget or even do not carry out preliminary activities well, such as at the point of conveying activity plans and assessment plans. Preliminary activities are important to instigate students' focus on the material to be studied in class activities.

#### 3.2.2 Core Activities

The main learning activities have been carried out by the teachers quite well. The results in the "adequate" category indicate that several points still need improvement, such as linking the material to the development of science and technology, linking the material to other materials, and time allocation. Meanwhile, with regard to scientific learning, teachers in elementary schools in Gorontalo Regency have shown good performance, as can be seen from their willingness to provide learning introductions as a reflection of the previously taught material. This is a significant aspect of evaluation material in each meeting. The teachers also applied a scientific approach in delivering teaching materials.

#### 3.2.3 Closing Activities

The teachers have been able to carry out closing activities in learning in accordance with the provisions. The teachers have made a summary of the material being taught and then reflect on the learning activities. The results are at the "adequate" level, considering that several points have not been carried out optimally, especially in the follow-up by providing directions for the next activity and giving assignments to students.

**3.3 Profile of Elementary School Teachers' Pedagogic Competence in Implementing Learning Evaluation**

The evaluation result of the profile of the pedagogic ability of elementary school teachers in implementing the evaluation of scientific-based thematic learning and HOTS is presented in the following table:

**Table 2. Evaluation of Elementary School Teachers' Pedagogic Competence**

Description Matrix		Judgment Matrix	
Intent	Observations	Standard	Judgment
Effectiveness of learning process and students' learning outcomes	Actualization of the achievement of the benefits of teacher pedagogic competence in scientific-based integrated thematic learning on learning effectiveness by 94.29% in A-accredited schools, 91.30% in B-accredited schools, and 80.00% in C-accredited schools; the teachers' creativity is quite lacking in the learning activities	Benefits to (1) effective learning, (2) systematic learning, (3) attractive learning, (4) meaningful learning, (5) student's learning interest and motivation, (6) student learning outcomes	Most of the student learning outcomes are in accordance with the minimum mastery criteria but are still at the lower threshold. This is due to the unattractive approach that has not been able to boost students' learning motivation.

Source: Processed Data (2022)

The previous table illustrates that the teachers' pedagogic competence to produce quality learning was yet to be optimal, particularly in the aspect of the lesson plan. The optimization of this aspect is of importance to encourage students' mastery of concepts and contexts of subjects of study. With good pedagogic competence, teachers will find it more feasible to implement scientific-based integrated thematic learning in class. This will promote the students' reception of learning materials and will improve their performance and learning outcomes to meet the minimum mastery criteria.

**4. Discussion**

**4.1 Profile of Elementary School Teachers' Pedagogic Competence in Implementing Design of Scientific and HOTS-Based Thematic Learning**

The teachers' pedagogic competence in implementing learning design arrives in "good" category with a score of 84.48%. Such indicates that teachers in the three schools were able to formulate learning design that is in accordance with the set criteria. The learning design is the initial description of the teachers' performance in composing a learning map that implicates an ideal and effective learning process for both teachers and students. Based on the figure above, it is interpreted that SDN 19 State Elementary School in Tibawa achieves the best results in the lesson plan aspect because of conformity to the rules in the preparation of the lesson plan. Meanwhile, SDN 4 State Elementary School in Talaga Jaya and SDN 5 State Elementary School in Limboto received the same score. This indicates that the aspect of lesson plan preparation needs to be improved for a more optimal learning design.

This result is in line with Siswoyo (2007:119), who points out that teachers are professional educators whose main duties are to educate, teach, guide, direct, train, assess, and evaluate the students. Despite that publications and references related to teachers' competence are abundant, the problems related to this issue still and will remain to persist along with the dynamics and uncertainties of the future. Sudarsono (2013: 133) argues that the procedure of improving competence calls for the guidance and nurturing of students' critical thinking and problem-solving competence. Thus, certain processes of learning are conducted to achieve these objectives.

**4.2 Profile of Elementary School Teachers' Pedagogic Competence In Implementing Learning Activities Of Scientific And Hots-Based Thematic Learning**

Based on the findings, the teachers' performance in learning activity implementation still requires improvement, particularly in the preliminary and closing activities. These results are due to the lack of compatibility between the implementation of learning in schools and the standard of the learning implementation process. Teachers play an important role in education during the Industrial Revolution 4.0 Era. Sukartono (2018) describes three crucial points that teachers must make, namely preparing students to be able to create jobs that do not currently exist, preparing students to solve problems that do not yet exist, and preparing students to be able to use technology.

Teachers need to formulate learning strategies that are able to facilitate students' development. Astuti et al. (2019) revealed that teachers are at the forefront of education. However, in the Industrial Revolution era, the teacher's role was gradually marginalized with the presence of Google Assistant. To restore the central role of the teacher, a more attractive learning strategy must be applied. There are six learning strategies that can be applied in the Industrial Revolution 4.0 era: (1) assisting students in learning, (2) providing opportunities for students to develop and excel, (3) strengthening Character Education, (4) increasing technology literacy, and (5) improving teaching effectiveness. This suboptimal result is a serious alarm for education stakeholders to pay

attention to, where teachers must continue to improve their professionalism. According to Hasan (2010), the development of teacher professionalism is a global concern because teachers play a role in providing scientific and technological information as well as nurturing survivability and competitiveness in the era of hyper-competition.

#### **4.3 Profile of elementary school teachers' pedagogic competence in implementing evaluation of scientific and HOTS-based thematic learning**

The teachers' pedagogic competence in implementing learning evaluation arrives in "good" category with a score of 81.48%. Such indicates that teachers in the three schools possess good pedagogic competence in conducting an evaluation of the learning stages, involving the assessment rubric that is appropriate for the improvement of students' learning interests and outcomes. The good performance in learning evaluation is impactful on the follow-up conducted by the teachers.

Overall, these results are in accordance with Suryati (2014) that increasing teacher pedagogic competence will prevent a monotonous atmosphere in learning activities that makes students lose interest, learning material reception, and concentration in learning. Therefore, teachers are required to improve their pedagogical competence. The authors identify several important points in improving pedagogic competence for teachers.

The previous notions are supported by Wuryandari (2018), who opines that: 1) The teacher's pedagogic competence has been optimal in aspects of mastering student characteristics, curriculum development, developing student potential, and needs to be optimized in aspects of mastery of learning theory, educative learning principles, communication with students, evaluation, and assessment; (2) Empowerment of teacher pedagogic competence is carried out by preparing Classroom Action Research; (3) Obstacles faced in empowering teachers' pedagogic competencies are limited funds, lack of ability of teachers to operate ICT, and improper infrastructure.

#### **5. Conclusion**

The article aimed to identify the profile of elementary school teachers' pedagogic competence in implementing scientific-based thematic learning and Higher-order thinking skills (HOTS). The study found that (1) the overall pedagogic competence of teachers in SDN 4 State Elementary School in Talaga Jaya, SDN 5 State Elementary School in Limboto, and SDN 19 State Elementary School in Tibawa was in "good" category in the aspect of designing scientific approach and HOTS-based thematic learning. (2) The overall pedagogic competence of teachers in SDN 4 State Elementary School in Talaga Jaya and SDN 5 State Elementary School in Limboto was in "good" category in the aspect of implementing activities of scientific approach and HOTS-based thematic learning. Meanwhile, teachers in SDN 19 State Elementary School in Tibawa only achieved "adequate" category in this aspect. (3) The overall pedagogic competence of teachers in SDN 4 State Elementary School in Talaga Jaya and SDN 5 State Elementary School in Limboto was in "good" category in the aspect of evaluating the scientific approach and HOTS-based thematic learning. Meanwhile, teachers in SDN 19 State Elementary School in Tibawa only achieved "adequate" category in this aspect.

The article further expresses several recommendations: (1) it is important for teachers to compose learning designs that are more flexible, innovative, and according to standards, especially in terms of learning scenarios, learning resources, and assessment of learning outputs. Teachers are also required to conduct self-evaluation on the lesson plans that are prepared, as well as the suitability of the lesson plans with the expected learning goals; (2) the Gorontalo District Education Office must continue to strive to carry out capacity building for all education personnel such as school supervisors, school principals, and teachers by providing reinforcement, allocating a budget for education personnel to pursue further studies, and conducting competency training and increasing commitment for teachers in carrying out their responsibilities as educators; (3) it is important for school principals to familiarize teachers with being active in religious activities, increasing gratitude, and practicing sincerity and honesty in daily life. In addition, it is recommended for education personnel to provide direction and integrate classroom lessons with spiritual values.

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