



Application of teachers' pedagogical competencies at State SMA Negeri 1 Biak Kota, Biak Numfor Regency, Papua Province

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Article Info

Article history:

Received July 19th 2025

Revised August 21st 2025

Accepted November 17th 2025

Keyword:

Competence in pedagogy;
Teacher; Education in Papua;
SMA Negeri 1 Biak Kota;
Teacher professional
development.

ABSTRACT

This study aims to describe and analyze the application of teachers' pedagogical competencies in managing a safe and comfortable learning environment, managing effective student-centered learning, and managing assessments, feedback, and reporting oriented to the needs of students at SMA Negeri 1 Biak Kota. This study uses a qualitative approach with a case study design. Data was collected through in-depth interviews, participatory observation, and documentation studies, then analyzed through data reduction, data presentation, and conclusion drawing/verification stages. Data validity was assessed through triangulation and peer discussions. The results showed that teachers had applied pedagogical competencies well, as reflected in the management of a conducive learning environment, the use of innovative learning strategies and methods appropriate to student needs, and the implementation of assessments and feedback to improve learning outcomes. A good pedagogical application was supported by continuous coaching, peer and principal support, teacher professional awareness, and the availability of learning facilities. However, limitations in learning design, low motivation for self-development, and a lack of facilities and infrastructure remain obstacles. Therefore, it is necessary to strengthen aspects of learning innovation, including by improving training programs and providing supporting facilities to strengthen teachers' pedagogical competencies on an ongoing basis.



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INTRODUCTION

Education is an essential factor in improving the quality of human life and building a nation's civilization. Amidst the ever-changing tide of globalization, the quality of education is highly dependent on the role of teachers as the spearhead of learning implementation in educational units. Teachers are not only tasked with transferring knowledge, but also play a role as designers of learning processes that are relevant, humanistic, and adaptive to the needs of students. Teacher professionalism is reflected in their mastery of deep competencies, not only in scientific aspects, but also in the application of pedagogical skills that directly influence student learning experiences. Thus, teacher quality is the main determinant of education quality.

Pedagogical competence is one of the four main competencies of teachers as stipulated in the Regulation of the Director General of GTK Kemendikbudristek No. 2626/B/HK.04.01/2023, along with personal, social, and professional competencies. This competence includes the ability to design, implement, and evaluate student-centered learning processes. Teachers who have mastered pedagogical competence optimally are able to create a conducive, interactive, and meaningful learning environment, as well as conduct reflective assessments that encourage the optimization of student potential.

However, the reality on the ground shows that the implementation of pedagogical competencies has not been fully optimized. Based on preliminary data from SMA Negeri 1 Biak Kota, out of a total of 75 teachers, only 29 have been certified. This imbalance has the potential to affect the quality of learning, especially in terms of planning, implementation, and evaluation oriented towards the needs of students. This school is one of the leading public high schools in Biak Numfor Regency, Papua, with an A accreditation and good academic and non-academic achievements, as well as a large number of

students and high community enthusiasm. These conditions require the optimization of the role of teachers in effectively applying pedagogical competencies to maintain the quality of learning.

Several previous studies have highlighted the importance of teachers' pedagogical competence on student learning outcomes. Research by Jelita, Abolladaka and Simanungkalit (2024) shows a significant relationship between teachers' pedagogical competence and learning outcomes. Meanwhile, Affandi *et al.* (2024) dan Nazhiroh, Septyaningrum and Sari (2024) found that many teachers still experience difficulties in the learning assessment process. Some of the main problems found include teachers' lack of understanding of student characteristics, ineffective learning design and implementation, and inadequate evaluation of learning outcomes. Jannah and Sontani (2018) also emphasized that limited facilities and infrastructure have an impact on student learning motivation. These studies highlight the general aspects of the application of pedagogical competence, but not many have examined the implementation of pedagogical competence in the context of leading schools in Frontier, Outermost, and Disadvantaged (3T) areas such as Papua. This is where the research gap and novelty of this study lie, namely the focus on the study of the application of teachers' pedagogical competence in schools with great potential but facing limitations in professionalism and facilities.

The urgency of this research lies in the importance of improving teacher quality by strengthening pedagogical competence as a strategy to face educational challenges in 3T areas. Understanding the factors that support and hinder pedagogical competence will help formulate more targeted teacher development policies and programs. Based on this, this study aims to describe and analyze the application of teachers' pedagogical competencies at SMA Negeri 1 Biak Kota, as well as to identify the supporting and inhibiting factors that influence it. This research is expected to provide empirical and practical contributions to the development of education quality in the Papua region, as well as serve as a reference for local governments and educational institutions in designing sustainable teacher competency improvement programs in the context of eastern Indonesia.

RESEARCH METHODS

This study uses a qualitative approach with a descriptive design, which aims to describe in depth and systematically the phenomena that occur in the field, particularly related to the application of teachers' pedagogical competencies. The qualitative descriptive approach was chosen because it is able to reveal the social reality and meaning contained in interactions and learning practices in the school environment in a contextual and holistic manner (Creswell & Poth, 2017). The research subjects consisted of the principal, supervisory advisor, teachers, and students who were selected purposively based on their direct connection to the practice of pedagogical competence at SMA Negeri 1 Biak Kota. The research focused on three main indicators of teacher pedagogical competence, namely the management of a safe and comfortable learning environment, the management of effective and student-centered learning, and the management of assessment, feedback, and reporting.

Data collection was carried out using three main techniques, namely participatory observation to observe the learning process directly in its natural context, in-depth interviews to explore informants' views, experiences, and understanding of the implementation of pedagogical competencies, and documentation studies to obtain supporting data of an administrative nature and school policies. The researcher acted as the main instrument in the data collection process, equipped with observation guidelines, interview guidelines, and documentation checklists to maintain consistency and focus in the research. To ensure data validity, source and technique triangulation techniques were used, as well as validation through discussions with peers. Triangulation aims to check the consistency of data obtained from various sources and methods, while peer discussions are conducted to obtain an objective assessment of the interpretation of the data that has been collected.

Data analysis was conducted using the interactive model developed by Miles, Huberman and Saldana (2014), which consists of three main stages. The first stage is data reduction, which involves the selection, simplification, and transformation of raw data into a more focused and meaningful form. The second stage, data display, involves the systematic compilation of information in the form of narratives, matrices, or charts to facilitate understanding and decision-making. Finally, the conclusion and verification stage involves the interpretation of the analyzed data to find patterns, relationships, or

findings that are contextually meaningful. These three stages are carried out continuously and simultaneously throughout the research process, enabling a deep understanding of the phenomenon being studied (Sugiyono, 2019). With this integrated and adaptive methodological approach, it is hoped that the research results can provide a comprehensive picture of the actual implementation of teachers' pedagogical competencies in the context of secondary schools in eastern Indonesia.

RESULTS AND DISCUSSION

Result

The results of the study show that teachers at SMA Negeri 1 Biak Kota have implemented pedagogical competencies quite well, as reflected in three main aspects, namely management of the learning environment, implementation of student-centered learning, and management of assessment, feedback, and reporting. First, in terms of managing the learning environment, teachers are able to create a safe, comfortable, and conducive learning atmosphere, both inside and outside the classroom, as quoted from the following In-1 interview: *"...we always strive to maintain a comfortable and safe school environment as a learning environment. The school implements the adiwiyata program. In addition, SatPol-PP personnel are assisted by SATPAM..."*.

The results of the interview with In-1 were reinforced by In-3, who said that a comfortable school environment also supports the teaching and learning process. Here is an excerpt from the interview: *"Our school environment is safe and comfortable, so we can study calmly. I enjoy studying here because it is cool and the teachers always provide adequate facilities to help us learn. The facilities are also adequate to help us learn, and the teachers who teach are also pleasant."* This statement shows that the physical and psychological atmosphere in the school environment is perceived positively by students. A safe environment and adequate facilities provide a sense of comfort, thereby supporting student engagement in the learning process.

Both interviews indicate that schools and teachers pay attention to and create a safe and comfortable learning environment. Schools manage student behavior, enforce classroom rules, and respond appropriately to dynamics that arise during learning. The interpersonal relationships built with students also reflect a positive and humanistic approach.

Second, in terms of learner-centered learning. In this aspect, teachers have implemented effective learning by applying various innovative strategies tailored to the characteristics of learners. Teachers demonstrate the ability to manage cognitive, affective, and psychomotor aspects in a balanced manner, as well as develop relevant teaching tools and make optimal use of learning media. The learning process is communicative and pays attention to pedagogical principles that encourage active student involvement. The following excerpt from an interview with In-4 reinforces this argument. In the interview, In-4 stated that, *"before teaching, it is necessary to prepare learning tools, create digital-based teaching aids to attract students, and establish a number of learning rules to develop cognitive, affective, and psychomotor characteristics and competencies."*

Third, in terms of assessment management, feedback, and reporting. In this aspect, teachers have understood the importance of learning evaluation as a diagnostic tool for improving the quality of learning. Teachers are able to design and implement assessments on a regular basis, provide constructive feedback, and convey student learning outcomes in a transparent and informative manner. This process is also aimed at supporting learning progress and designing improvements for future learning. This statement is in line with what In-5 said in the following interview.

"We create assessments that are appropriate to the material, fair, proportional, and reliable, and we can design appropriate learning and follow-up so that students achieve maximum learning outcomes. With the results of the assessments, we teachers can easily provide feedback to students so that they know their ability to master the subject matter and can determine the completeness of their learning."

The results of this study also found a number of factors that support the application of pedagogical competencies, namely through coaching and training activities (seminars, workshops, KKG/MGMP), collaboration with colleagues, professional awareness, the availability of learning facilities, and active support from the principal, as stated by In-1 below, *"teachers need to be supported*

to actively participate in competency improvement activities. Teacher collaboration through MGMP and KOMBEL, curriculum development seminars, IHT activities, workshops, training, supervision, IT training, and comparative studies.” The following informant also reinforced the previous informant’s statement. In his interview, In-5 said that *”All of these activities can help teachers gain knowledge.”*

In addition, factors hindering the application of pedagogical competencies include the low ability of some teachers to design contextual learning, minimal motivation to participate in professional development, limited facilities, and conservative learning patterns. Some teachers also face obstacles in mastering technology, conducting comprehensive evaluations, and creating enjoyable and reflective learning experiences. In his interview, In-3 said that *“there are still some teachers who teach conventionally and do not care about learning strategies. These teachers are mostly older teachers who do not use digital media.”* The same statement was also made by In-2 in the following interview, *“low innovation and creativity in managing the classroom and using learning methods.”*

Discussion

Learning Environment Management

Overall, the results of the study show that the three pedagogical competencies of teachers stipulated in the Regulation of the Director General of GTK Kemendikbudristek No. 2626/B/HK.04.01/2023 have been well implemented by teachers at SMA Negeri 1 Biak Kota. Teachers manage a safe and comfortable learning environment for students, which is manifested in various activities, such as managing the classroom environment, the environment outside the classroom, and managing student behavior. Creating optimal learning conditions, being responsive to student behavior, giving reprimands and reinforcement, managing problematic behavior, building positive relationships, mutual respect, setting rules, creating a pleasant learning atmosphere, and ensuring student safety. The results of this study are similar to the findings of Anggraeni, Mayasari and Setyanto (2023), namely that the role of teachers is very important in creating a conducive learning environment. Teachers must ensure that the classroom is clean, organized, and safe to use so that it has a positive impact on the learning process.

Teachers are not only responsible for the substance of the subject matter, but also for ensuring that the classroom is a pleasant and supportive place for students to grow and develop. One of the basic steps that needs to be taken is to maintain classroom cleanliness and order. A classroom that is free of trash, has good lighting, and good air circulation will help students feel physically and psychologically comfortable. A safe atmosphere is very important in the learning process in order to meet the learning needs of students. Based on this opinion, it can be said that teachers consider it important to create a safe and comfortable learning environment in order to encourage students to learn. Making the school environment a safe and comfortable learning environment is the shared responsibility of the school community.

Effective learning management skills include several strategies, such as modifying student behavior by teaching new habits through examples and routine practice, reinforcing positive behavior with praise, and reducing negative behavior through educational disciplinary measures. In addition, teachers can encourage group cooperation by increasing the involvement of all members, handling conflicts between students wisely, and minimizing problems that arise (Slavin, 2018). This is in line with the understanding of teachers at SMA Negeri 1 Biak Kota in addressing the importance of a safe and comfortable learning environment for students, which is reflected in the teachers’ ability to manage student behavior.

Teachers and principals establish strict rules but remain supportive of students by involving them. They build rapport with students, guide and assist students with problems, and continuously urge students to maintain a conducive environment. The results of this study are also in line with Nelsen (2011) opinion in positive discipline theory, that emphasizes that teachers need to build respectful relationships with students, use a consistent and clear approach in setting rules, and avoid harsh punishments and emphasize natural consequences that teach responsibility. This study emphasizes a disciplinary approach based on mutual respect between educators and students. It proposes that positive discipline is not about punishment, but about building loving and consistent relationships. This

approach aims to help students develop responsibility, cooperation, and problem-solving skills without demeaning their dignity.

Teachers understand that strategies for providing a safe and comfortable learning environment not only include preventing and responding to bad behavior, but also making good use of class time. Good classroom management can have an impact on effective learning and can even contribute to excellent learning outcomes (Anggraeni et al., 2023; Mularsih & Hartini, 2019).

Student-Centered Learning

Teachers manage effective learner-centered learning through various activities, such as managing the implementation of learning, communicative teaching and learning processes, responding to learners, learning activities, learning outcomes, and good learning strategies. Teachers are able to manage learners' cognitive, affective, and psychomotor abilities, create a conducive learning climate, and pay attention to learning principles. Teachers are able to develop innovative teaching tools and use learning facilities effectively so that learning runs optimally. These findings are similar to those of Mudarris (2024), who states that setting clear rules and expectations, building positive relationships with students, and using effective classroom management techniques are three important aspects in creating a conducive learning environment. Clear rules provide concrete behavioral guidelines for students, while positive relationships between teachers and students increase motivation and engagement in learning. Effective classroom management techniques help maintain classroom order and maximize learning time. The integration of these three aspects has proven to be key in creating a meaningful and sustainable learning experience for students, supporting their academic achievement and well-being.

The results of the study emphasize that classroom management is not only about maintaining discipline, but also about designing activities that encourage students to exhibit desirable behavior. Teachers are expected to be able to create a supportive atmosphere, provide clear guidance, and use appropriate strategies to guide students to be active and responsible in the learning process. The use of methods in achieving the desired learning outcomes, the selection, determination, and development of methods are based on the conditions of the students who are the targets of learning. Learning is considered effective if it achieves the desired learning objectives in accordance with the achievement indicators. Teachers, as mentors, are expected to be able to create strategic conditions to make students feel comfortable in participating in the learning process.

Teachers at Biak Kota State High School 1 are able to deliver effective learning, as evidenced by several teachers who are able to create a pleasant learning atmosphere so that students have creativity and are able to learn according to their potential. Teachers give students the freedom to learn according to their own learning styles. Even so, teachers still provide guidance. Lessons are linked to real-life situations, conducive learning interactions, and the provision of remedial and diagnostic assistance for students' learning difficulties. In implementing effective learning, students' interest and attention are needed so that they can be actively involved in the learning process. Learning that can be adapted to the nature and character of students. Teachers at SMA Negeri 1 Biak Kota do not only teach based on textbooks, but most teachers realize the importance of the surrounding environment as teaching material. Students in several subjects are guided to analyze it.

The ability of teachers to create a communicative teaching and learning process is one of the indicators of effective student-centered learning. Teachers are able to explain learning materials in their true meaning, facilitate good interaction, focus on teaching competencies, pay attention to communication rules, and understand the material well. The results of this study are in line with the findings of Yusuf (2017), who found that one indicator of effective learning is a communicative learning process. A communicative teaching and learning process has an impact on learning management, learning activities, learning responses, and maximum understanding. Learning is carried out by prioritizing the true meaning, and there are functional communication activities and social interactions that are interrelated between teachers and students.

One indicator of effective learning is a positive response to students by trying to understand their learning needs, providing motivation, and encouraging students to be active in learning, such as asking or answering questions. This is in line with Layton and Deeny (1995) opinion that a positive

response to students can be reflected in several ways, including teachers providing assistance if students have difficulty understanding the material, teachers encouraging students to ask questions or express their opinions, teachers being available to students outside of class hours, and teachers being aware of and caring about what students are learning. With a good response to students, they will be enthusiastic in participating in the learning process, as shown by their enthusiasm for learning.

In the research that has been conducted, it was found that learning activities have been carried out well. Teachers strive to guide students by conducting activities such as training them to make decisions, listening to audio, observing objects, summarizing, discussing, playing accompanied by movements, and encouraging students to express their opinions. The results of this study are in line with the findings of research conducted by Daulay (2016), which found that the use of visual media can improve children's cognitive abilities in recognizing the five senses and their functions, which is part of empowering the mental and intellectual aspects of students.

Teachers at Biak Kota Public High School understand that learning outcomes are not only a measure of the success of teaching students but also a measure of the success of teaching teachers. This study found that student learning outcomes were quite good, as seen from the students' grades on the grade list, in terms of cognitive, affective, and psychomotor aspects. Teachers understand learning outcomes as evaluation material to determine the appropriate learning strategies for students.

Most teachers tailor their use of learning models to the material being taught. In addition to using learning models, it is also understood that it is important to have strategies and pay attention to learning principles in order to implement effective learning. The results of this study are in line with the findings of Nasution *et al.* (2022) that MIS Nurussalam has a learning plan that motivates students to be enthusiastic in the learning process. This MIS also implements good learning media, such as learning by watching instructional videos from teachers. At the end of the lesson plan, this madrasah always evaluates its students to see the extent of their abilities in the learning process.

Teachers understand that learning strategies are a comprehensive approach to learning in managing learning activities to deliver subject matter systematically in order to achieve predetermined learning objectives effectively and efficiently. Learning principles are also considered necessary to understand well, with the aim of guiding the planning and implementation of teaching and learning activities, as well as supporting the improvement of student learning.

Assessment Management, Feedback, and Reporting

Teachers manage student-centered assessment, feedback, and reporting through various activities, such as conducting assessments, providing feedback, and reporting based on a good understanding of the benefits and importance of assessment, feedback, and reporting. Teachers have been able to evaluate the effectiveness of the program, monitor student learning progress, assist students who are experiencing learning difficulties, and provide information on student learning outcomes. Research data shows that the assessments conducted are diagnostic, formative, and summative assessments aimed at measuring students' prior knowledge, learning progress, obtaining information on appropriate teaching methods and strategies, and evaluating the effectiveness of the learning programs that have been implemented.

Assessment in the context of education is a series of activities that are systematically designed to collect, process, and interpret information about the learning process and outcomes of students. The main purpose of assessment is to provide valid and relevant data to support decision-making in the learning process (Trianto, 2011). Assessment is not only carried out at the end of learning activities, but can also be carried out during the learning process. Assessment conducted during the learning process is called formative assessment or process assessment, while assessment conducted after the learning activity ends is called summative assessment or outcome assessment (Abidin, 2014).

The results of the study indicate that feedback is provided both verbally and in writing. In their feedback, teachers correct and describe what is good and what needs to be corrected, and they can motivate students to continue learning and encourage them to identify their weaknesses and strengths in the lessons provided by the teacher. These findings are in line with the results of research conducted

by Windarsih (2016) that feedback is a method used to help students understand a lesson until they have mastered the material that has been delivered.

Furthermore, regarding reporting, this study shows that teachers have a good understanding of the benefits of reporting. Teachers have also carried out reporting that contains information about student achievement in the learning process and is presented openly to help students identify their strengths and weaknesses in learning. Heryanto (2017) states that the collaboration of learning outcome assessment and character assessment greatly facilitates teachers and schools in making accountable decisions that have positive implications for the reciprocal formation of student character. The development of a mechanism for reporting student learning outcomes can be developed in the form of an E-Report application. This application provides information on student activity in the form of data on student learning outcomes and related information based on Android, thereby assisting in the speed and quality of value processing (Surya & Pangestu, 2021). This learning outcome reporting model is presented to obtain various information about student attendance and is useful for the school's Follow-up Action Plan (RTL).

Supporting and Inhibiting Factors

The results of this study indicate that the application of teachers' pedagogical competencies at SMA Negeri 1 Biak Kota is supported by several key factors, namely school support, collaboration with colleagues, teachers' professional awareness, and the availability of learning facilities. School leadership support is manifested through various forms of guidance and training, such as seminars, workshops, Teacher Working Groups (KKG), and Subject Teacher Working Groups (MGMP). These activities play an important role in improving teachers' pedagogical knowledge and skills, especially in designing and implementing learning that is appropriate to the characteristics of students.

In addition, collaboration among teachers is also a significant supporting factor. Through peer discussions, sharing best practices, and joint reflection, teachers have the opportunity to improve their learning strategies and foster a culture of professional learning. Professional awareness that grows from within teachers also strengthens the application of pedagogical competencies, as teachers realize their responsibility in creating effective, learner-centered learning.

These findings are in line with the research by Santoso, Pratama and Zahir (2024), which shows that the availability of adequate facilities and infrastructure as well as the support of school principals have a significant effect on the successful implementation of teachers' pedagogical competencies. School principals play a strategic role in providing learning facilities, creating a conducive working climate, and providing guidance that motivates teachers to continue innovating in the learning process. Thus, leadership and institutional support are important foundations for the realization of professional and adaptive teachers.

On the other hand, this study also identified several factors that hinder the application of pedagogical competencies. Internal factors include the low ability of some teachers to plan and design learning processes, weak motivation for self-development, and limited mastery of learning technology. These conditions have an impact on the implementation of learning, which tends to be conventional, suboptimal learning evaluation, and weak classroom management skills. As a result, the learning process becomes less interactive, monotonous, and less enjoyable for students. External factors that also hinder the implementation of pedagogical competencies include limited learning facilities and dynamic changes in curriculum policy, which require teachers to adapt quickly. These findings are also reinforced by the results of a study by Santoso, Pratama and Zahir (2024), which states that frequent curriculum changes, the large number of new teachers, the crowded education calendar, and the existence of some teachers who are resistant to change and have low motivation are also obstacles in the development of pedagogical competencies, as shown by the results of a study by Pekei, Mataputun and Tanta (2024) in the 3T region, where internet access is still limited and there is a shortage of specialized personnel to manage the Management Information System (MIS) that supports the education/learning process.

The successful application of teachers' pedagogical competencies depends heavily on a number of factors mentioned above, which combine individual factors and institutional support. Therefore, efforts to strengthen pedagogical competencies need to be directed not only at improving teachers'

technical abilities, but also at forming a professional culture oriented towards reflective, collaborative, and innovative learning. In fact, the results of research by Prasetya *et al.* (2024) state that a new paradigm in education/learning development includes integrating artificial intelligence (AI) technology into the educational process. Through AI, teachers can design more effective and efficient learning to achieve quality learning.

CONCLUSION

Based on the results of research and discussion regarding the role of teachers' pedagogical competencies at SMA Negeri 1 Biak Kota, it can be concluded that teachers have demonstrated the optimal application of pedagogical competencies in three main domains. First, teachers are able to manage a safe and comfortable learning environment through student behavior management, enforcement of rules, conflict management, and the creation of a conducive and relational learning atmosphere. Second, teachers implement effective and student-centered learning through communicative teaching and learning processes, responsiveness to student needs, the use of varied learning strategies, and the utilization of supporting facilities. Third, teachers carry out assessments, feedback, and reporting systematically by monitoring student learning progress, providing appropriate interventions for students who experience difficulties, and delivering learning outcome reports in an open and informative manner. In addition, there are significant supporting factors for the application of pedagogical competencies, namely support from the principal, professional development activities (such as KKG/MGMP), peer cooperation, and the availability of learning media. However, there are also obstacles that still need to be overcome, such as limitations in designing learning, low mastery of technology, weak evaluation, and a lack of innovation in learning methods, which cause learning to tend to be monotonous and less enjoyable. In light of these conclusions, it is necessary to organize ongoing coaching programs to improve teachers' pedagogical competencies, particularly in responding to the challenges of 21st-century learning, formulating internal policies that support the creation of a safe and conducive learning environment, strengthening academic supervision, and optimizing the use of assessment results as a basis for learning development. Recommendations for further research are expected to develop a broader study related to the long-term effectiveness of applying pedagogical competence to improve the quality of learning and student learning outcomes.

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