International Proceeding
Universitas Tulungagung
2025

THE ROLE OF TEACHER PEDAGOGIC COMPETENCIES IN STRENGTHENING ENVIRONMENTAL CHARACTER THROUGH TATANEN IN BALE ATIKAN

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Abstract

This article examines the role of teachers' pedagogical competence in the implementation of Tatanen at Bale Atikan as a local content to strengthen students' environmental character. This study used a library research method by reviewing the latest literature related to pedagogy, environmental education, and Education for Sustainable Development (ESD). The results of the study indicate that teachers play a crucial role in integrating environmental values into lesson planning, teaching strategies, and evaluation. Through hands-on activities such as planting, caring for plants, and managing the school garden, students not only improve their ecological literacy but also develop caring attitudes, responsibilities, and sustainable habits. The success of the program depends on teacher role models, consistent habituation, and school institutional support. In conclusion, Tatanen at Bale Atikan is an innovative learning model that aligns with ESD principles and has the potential for wider replication, although it still faces challenges such as limited facilities, teacher competence, and institutional support.

Keywords: *Pedagogical Competence, Order in Bale Atikan, Character Education*

INTRODUCTION

Education is a fundamental tool in preparing the younger generation to face life's challenges while preserving environmental sustainability. In an era of globalization marked by accelerated technology and industrialization, environmental issues have become a major issue demanding the attention of the educational sector. A UNESCO report (2021) emphasized that education must transform from merely transferring knowledge to developing students' character and ecological awareness. This aligns with the national policy of Strengthening Character Education (PPK), which places environmental awareness as a key pillar of the curriculum (Ministry of Education and Culture, 2020). In this effort, teachers play a strategic role as both facilitators and role models for students. One aspect that determines a teacher's success is pedagogical competence. Pedagogical competence encompasses not only the ability to design, implement, and evaluate learning but also the skills to integrate character values into every learning process (Uno, 2016; Mulyasa, 2017).

Teachers with high pedagogical competence are able to create contextual and meaningful learning experiences, so that students not only understand the material cognitively but also internalize environmental awareness in real life (Sudjana, 2019). In the context of Indonesian education, local content learning has great potential as a means of character development. One

form of local content innovation is Tatanen di Bale Atikan, a program based on local wisdom that emphasizes farming activities, environmental management, and cultural preservation as part of the learning process. Through Tatanen di Bale Atikan, students are not only introduced to practical agricultural skills but also encouraged to develop ecological awareness and a sense of responsibility for environmental sustainability (Hikmat, 2021; Suryana & Kamil, 2022). This program aligns with the experiential learning approach, which emphasizes learning through direct experience (Kolb, 2015).

By managing the land, caring for the plants, and seeing tangible results, students more easily understand the link between human behavior and environmental sustainability. Furthermore, Tatanen at Bale Atikan also supports the implementation of UNESCO's Education for Sustainable Development (ESD), which directs education toward ecological, economic, and social sustainability (UNESCO, 2017). However, the implementation of Tatanen at Bale Atikan will only be effective if supported by the teachers' pedagogical competence. Competent teachers not only make this program a practical activity but also are able to design it as a learning medium integrated with the curriculum and indicators of environmentally conscious character. They are able to use a differentiated approach, provide authentic assessments, and create an inclusive learning environment so that all students can actively engage (Tomlinson, 2014; Lickona, 2019).

Thus, teachers act as agents of change, connecting the goals of character education with real-world practices in schools. Based on this, the study of the role of teachers' pedagogical competence in strengthening environmentally conscious character through Tatanen in Bale Atikan is relevant because it can provide a theoretical and practical foundation for the development of local wisdom-based education. Theoretically, this study broadens understanding of the relationship between pedagogical competence and environmentally-based character education. Practically, the results can provide input for teachers, schools, and policymakers in formulating more effective, contextual, and sustainable learning strategies. Therefore, this research is crucial to make a tangible contribution to the development of character education in Indonesia.

RESEARCH METHOD

This research uses a library research approach, a research method that relies on the analysis of various literature sources relevant to the research topic. According to Zed (2014), library research is a series of activities related to collecting library data, reading, recording, and processing research materials from written sources. This is in line with Nazir's (2017) opinion that library research aims to find the theoretical basis, concepts, and results of previous research that serve as the foundation for answering research problems. In the context of this research, library research was conducted by reviewing books, scientific articles, research journals, policy reports, and official documents related to three main aspects: teacher pedagogical competence, environmental character education, and the implementation of Tatanen in Bale Atikan as local content.

Creswell (2018) emphasized that literature review plays a crucial role in identifying conceptual frameworks, identifying research gaps, and providing an academic foundation for formulating systematic arguments. This research process involves several stages. First, source

identification is carried out by identifying relevant keywords such as "teacher pedagogical competence," "environmentally conscious character education," and "Tatanen in Bale Atikan." Second, literature selection is carried out by considering the quality and recency of the sources, especially those published between 2015 and 2023. Third, critical analysis of the literature content is carried out to identify patterns, similarities, and differences in perspectives among authors.

According to George (2008), critical analysis in literature review is essential to ensure that research results are not merely descriptive but also able to provide a new synthesis. Fourth, the synthesis is compiled in the form of conceptual findings that explain the role of teachers' pedagogical competence in strengthening environmentally conscious character through Tatanen in Bale Atikan. Therefore, this research method is not oriented towards field data collection, but rather on the exploration, interpretation, and synthesis of various academic literature. The results obtained are expected to enrich conceptual understanding and provide practical recommendations for the development of local wisdom-based education that supports the formation of students' environmentally conscious character.

RESULT AND DISCUSSION

The Role of Teachers' Pedagogical Competence in Local Content Learning

Teacher pedagogical competence is a key pillar in ensuring the quality of the learning process, especially in the implementation of local content oriented towards character building. Shulman (1987) emphasized that pedagogical competence is not merely technical skills, but rather in-depth knowledge of how to transform teaching materials into meaningful learning experiences. In the context of Tatanen in Bale Atikan, teachers are required not only to understand the substance of farming and environmental management activities but also to have the ability to integrate these activities with learning objectives that emphasize strengthening environmentally conscious character. Tatanen-based learning design in Bale Atikan requires teachers to design an operational curriculum that adapts local content to student needs. Darling & Hammond et al. (2020) emphasized that pedagogically competent teachers are able to connect students' learning experiences with contextual issues, including environmental challenges relevant to their daily lives.

For example, teachers might not only assign students to plant vegetables but also encourage them to understand the importance of food sustainability, water conservation, and ecological ethics. Thus, the learning design not only meets cognitive targets but also serves as a means of fostering students' ecological awareness. Integrating environmental values into lesson plans and learning strategies requires teachers to be creative in linking learning activities to character values. According to Banks (2020), effective education is one that instills social values and collective responsibility through real-life experiences. In this regard, simple activities such as sorting organic and inorganic waste in the school garden can serve as indicators of environmental character learning. This aligns with Loughran's (2019) study, which states that teachers' pedagogical competence is closely related to their reflective ability to design learning activities that build student awareness.

The selection of methods, media, and evaluation also demonstrates the significance of pedagogical competence. Project-based learning methods have been shown to be effective in

fostering collaborative skills while instilling the value of responsibility (Kokotsaki, Menzies, & Wiggins, 2016). Teachers with pedagogical competence will adapt these methods to the Tatanen context at Bale Atikan through planting or garden maintenance projects. Meanwhile, the use of digital media such as plant growth tracking applications can complement students' direct experience with technology, in line with 21st-century needs (Voogt & Roblin, 2019). Evaluations conducted by teachers also need to be authentic, measuring not only cognitive achievements but also affective and psychomotor skills. Shepard et al. (2018) emphasize that competency-based assessment requires teachers to observe changes in students' actual behavior, not just test scores. In the Tatanen context at Bale Atikan, evaluation can be conducted through portfolio assessments of student activities, involvement in garden maintenance, and consistent attitudes in maintaining the school environment.

This demonstrates that teachers with high pedagogical competence are able to position evaluation as a learning tool, not merely a selection tool. Furthermore, a teacher's pedagogical competence is also related to their role as moral and social role models for students. According to Day and Gu (2019), a teacher's pedagogical effectiveness is determined not only by their teaching skills but also by their integrity and commitment to practicing the values they teach. In the context of Tatanen at Bale Atikan, teachers who consistently demonstrate environmental awareness, such as by conserving water or participating in maintaining the school garden, will more easily instill these values in students. Thus, the role of teacher pedagogical competence in local content learning at Tatanen at Bale Atikan includes designing a contextual curriculum, integrating environmental values into learning strategies, selecting appropriate methods and media, and implementing authentic evaluation. All of these aspects demonstrate that pedagogical competence not only determines the success of the learning process but also serves as a strategic instrument in fostering students' character who care about the environment and are committed to sustainability.

Implementation of Tatanen in Bale Atikan as a Medium for Character Education

The implementation of Tatanen at Bale Atikan as a local content has a strategic dimension in character education because it integrates farming activities, environmental care, and learning based on local wisdom. This program essentially positions students as active subjects directly involved in real-life learning experiences. Through these activities, students are not only taught practical skills but also internalize the values of responsibility, environmental care, and social cooperation. According to Sterling (2010), environmental-based education is a transformative approach because it helps students understand the interconnectedness of ecological, social, and ethical aspects in everyday life. The forms of learning activities in Tatanen at Bale Atikan are very diverse, such as planting vegetables, caring for medicinal plants, utilizing organic waste for compost, and managing school grounds as a living laboratory. These activities align with Orr's (2011) view, which emphasizes that environmental education must involve students in activities that emphasize ecological sustainability and provide real-life experiences in preserving nature.

Thus, students not only learn theoretical biology or science concepts but also relate them to the practice of maintaining ecosystem balance. The principle of experiential learning is the theoretical foundation for the implementation of Tatanen at Bale Atikan. Kolb (2015) explains

that experiential learning, through a cycle of concrete experiences, reflection, conceptualization, and active experimentation, can strengthen students' understanding and attitudes. Dewey (2015) also emphasizes that experiences connected to everyday life have a transformative power to shape character. In the context of Tatanen, students not only plant but also reflect on the meaning of maintaining plant survival, understand the role of ecosystems, and design new ways to care for the environment. This principle forms the basis of character education because environmental awareness is not sufficiently taught through lectures but must be cultivated through direct involvement. Students' success in understanding ecological concepts through direct practice has been demonstrated in various studies. According to Rickinson et al. (2019), student involvement in environmental activities outside the classroom can improve ecological literacy, collaborative skills, and learning motivation.

Monroe, Plate, and Oxarart (2017) expressed a similar sentiment, emphasizing that experiential environmental education can foster positive attitudes toward conservation. In the practice of Tatanen at Bale Atikan, this success is evident in students' increased concern for the cleanliness of the school environment, their awareness of conserving natural resources, and their habit of disposing of waste properly. In addition to providing practical experience, Tatanen at Bale Atikan also reinforces collective and social values. Farming activities are carried out in groups, fostering attitudes of cooperation, discipline, and mutual assistance. According to Chawla and Derr (2012), environmental-based learning that involves social interaction has great potential in building empathy and shared responsibility for nature. This aligns with the spirit of character education, which emphasizes the integration of cognitive, affective, and psychomotor aspects. Furthermore, the implementation of Tatanen at Bale Atikan also aligns with the Education for Sustainable Development (ESD) agenda launched by UNESCO.

UNESCO (2020) emphasizes the importance of education that encourages students to develop critical thinking skills, ecological awareness, and decision-making skills that support sustainability. In other words, this program is not just a local practice, but part of a global effort to shape a generation that cares about the future of the earth. From an evaluation perspective, the success of Tatanen at Bale Atikan can be seen not only in the harvest results or technical skills of students, but also in changes in their daily behavior. For example, students who practice watering plants sparingly or reusing organic waste demonstrate a deeper internalization of values than just theoretical knowledge. According to Rieckmann (2017), an indicator of the success of sustainable education is the extent to which students demonstrate concrete, consistent behavioral changes in environmental protection. Thus, the implementation of Tatanen at Bale Atikan can be viewed as a holistic character education model, as it combines academic dimensions, life skills, and the formation of an environmentally conscious attitude.

Strengthening Environmentally Concerned Character in Students

Strengthening students' environmental stewardship cannot be seen solely from a cognitive perspective, such as their understanding of ecological concepts, but must also be

demonstrated through concrete behavior. Relevant behavioral indicators encompass three key aspects: concern, responsibility, and environmental stewardship. Concern is demonstrated by students' sensitivity to environmental issues, such as noticing wilting plants, feeling moved by the sight of piled-up trash, or demonstrating empathy for animals and plants. Responsibility is reflected in students' willingness to consistently carry out environmental duties without being reminded, such as watering plants regularly, maintaining the cleanliness of the school garden, or composting organic waste. Environmental stewardship, on the other hand, reflects a deeper internalization of values, such as disposing of trash properly, conserving electricity and water, and imparting these positive habits to others.

Rau, Nicolai, and Stoll-Kleemann (2022) stated that pro-environmental behavioral change can only be considered significant if it demonstrates long-term consistency, occurs across multiple contexts (school, home, community), and is undertaken voluntarily without coercion. Therefore, indicators of student behavioral change need to measure the dimensions of duration, frequency, and transfer of behavior to daily life. Lange (2023) added that evaluation of environmental character should use triangulation methods, such as direct observation, activity portfolios, and student reflections, to obtain a holistic picture of the extent to which behavioral change has actually occurred.

The Role of Teachers in Providing Role Models and Habits

Teachers play a fundamental role in the internalization of environmental values. Students' character will not develop optimally if teachers only deliver verbal instructions without providing concrete examples. Teachers' role models, whether in attitudes, speech, or actions, serve as effective learning tools because students learn through observation and imitation. Papadopoulou, Kazana, and Armakolas (2020) emphasized that the success of school garden-based education is strongly influenced by teachers' commitment to consistently practicing environmentally friendly behaviors.

Furthermore, teachers act as agents of habituation. The habituation process is carried out through simple routines, such as inviting students to regularly water plants every morning, clean the garden together, or collect organic waste for composting. When these routines are repeated, a habitus forms that sticks with the students. According to Lange (2023), consistent habituation with social reinforcement from teachers can strengthen the formation of pro-environmental character because students not only know what is right but also become accustomed to doing it.

Furthermore, teachers also function as facilitators of reflection. Kong and Chen (2024) emphasized that effective school garden-based interventions don't stop with physical experiences, but continue with reflective discussions about the meaning of those experiences. Teachers can encourage students to keep daily journals, analyze plant changes, or discuss the impact of human behavior on the natural world. In this way, learning not only develops technical gardening skills but also fosters a deeper understanding of ecological responsibility. However, in practice, teachers face significant challenges. Limited learning time, a lack of specialized competency in garden management, and minimal school support often hinder the optimal implementation of teachers' roles. Therefore, Papadopoulou et al. (2020) emphasize the importance of teacher training programs oriented toward garden-based learning and

education for sustainable development (ESD). With this training, teachers will not only acquire technical gardening skills but also the pedagogical skills to integrate these activities into student character development.

Linkages to Education for Sustainable Development (ESD)

The principles of Education for Sustainable Development emphasize the integration of knowledge, attitudes, and skills in shaping a generation responsible for sustainability. The implementation of Tatanen in Bale Atikan can be positioned as a concrete form of ESD because it combines cognitive (understanding of ecosystems), affective (care and empathy for nature), and psychomotor (farming and environmental management skills) aspects.

According to Kong and Chen (2024), school garden-based activities can foster children's interest in nature while fostering deeper ecological awareness. This demonstrates that ESD extends beyond global discourse and can be concretely realized in the classroom through simple practices like gardening. Rau et al. (2022) also found that environmentally-based educational interventions are more effective when linked to supportive school policies, ensuring that environmental learning is not confined to a single program but becomes part of the school culture.

Sanchez et al. (2024) added another important dimension: the link between school gardens and nutritional literacy. Through planting and managing garden produce, students learn not only about ecology but also about healthy eating and sustainable lifestyles. This suggests that Tatanen at Bale Atikan can contribute to broader ESD goals, encompassing health, social, and environmental aspects.

Thus, the implementation of Tatanen at Bale Atikan in the context of strengthening environmentally conscious character is not merely a local activity, but part of a global education strategy oriented toward sustainable development. This model is not only relevant in the context of inclusive schools in Indonesia but can also be replicated as a best practice in environmentally-based character education in various countries.

CONCLUSION

Teachers' pedagogical competence plays a crucial role in the success of Tatanen at Bale Atikan, a local content program focused on fostering environmentally conscious character. The implementation of farming, plant care, and school garden management provides students with a learning environment through contextual, real-world experiences. This process not only strengthens ecological understanding but also fosters positive behaviors such as caring, responsibility, and environmental stewardship in everyday life. The resulting impact demonstrates that Tatanen at Bale Atikan can be an effective medium for character education while supporting the Education for Sustainable Development (ESD) agenda. However, challenges remain, including limited resources, varying teacher competencies, and uneven institutional support. This highlights the need for further support to ensure the program's sustainability and broader contribution to environmentally-based character education.

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