

UNDERSTANDING OF ECOTOURISM IN KAMPUNG PATIN VILLAGE, KAMPAR REGENCY, AS A BIOLOGY LEARNING FOR STUDENTS OF SMA NEGERI 2 XIII KOTO KAMPAR

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ABSTRACT

Learning about ecotourism is essential as it promotes environmental awareness, fosters sustainable practices, and empowers communities to protect natural and cultural resources for future generations. This study aims to explore the understanding of ecotourism in Kampung Patin Village, Kampar Regency, as a biology learning medium for students of SMA Negeri 2 XIII Koto Kampar. The study adopts a descriptive quantitative approach, using questionnaires, interviews, and observations to collect data from 30 students in grade XII who participated in a field trip to Kampung Patin. The findings indicate that the students have a good understanding of the ecotourism concepts observed in the village, with an average score of 80.5%. Students demonstrated strong comprehension of ecosystem concepts (85%), environmental awareness (78%), and the benefits of ecotourism-based learning (79%). The field trip activities, including ecosystem observation, identification of local biodiversity, and discussions about environmental impacts, were highly engaging and effective in enhancing students' learning experiences. The results suggest that Kampung Patin Village is a valuable resource for biology education, providing a contextual and interactive learning environment that promotes both cognitive and affective development. The study concludes that integrating ecotourism into biology education offers a promising approach to improve students' understanding of biological concepts and environmental conservation.

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Introduction

The tourism sector is a leading industry and serves as a critical driver for regional development and the enhancement of societal welfare in a nation. This sector has undergone continuous expansion and diversification, emerging as one of the largest and fastest-growing economic sectors globally. All stakeholders—communities, private entities, and government—must work collaboratively and ensure effective coordination in developing tourism in a given area. Community support, through their roles and functions in tourism activities, is one of the primary objectives of tourism development (Butarbutar, 2013).

Community-based tourism is increasingly regarded as a more sustainable alternative, as it emphasizes the active involvement of local communities and their control over tourism development (Jamal *et al.*, 2014). A tourism village represents a form of special-interest tourism designed comprehensively, enabling visitors to fully engage with nature, the local community, and its culture and traditions. Tourists can experience, purchase, and learn about the values of local wisdom that remain deeply embedded in rural life, such as mutual cooperation, traditional rituals, performing arts, and local crafts (Nair *et al.*, 2015). As the dynamics of tourism development in villages continue to grow, the government, as the regulator, has established policies in the form of tourism development strategies, including programs for the development of tourism destinations (Suwena *et al.*, 2010).

Community-based tourism can facilitate the revitalization of cultural heritage or historical legacies that are nearing extinction. The ideal model is the development of sustainable tourism, which positively impacts the livelihoods of rural communities (Muresan *et al.*, 2016). Government-initiated village tourism programs have effectively empowered rural communities to engage in tourism-related activities. These programs grant significant authority to local governments and communities to manage village tourism initiatives, encompassing planning, implementation, and supervision stages (Dangi *et al.*, 2016).

Ecotourism is a form of nature-based tourism that emphasizes the principles of environmental conservation, community empowerment, and environmental education. Kampung Patin Village, located in Kampar Regency, Riau Province, is one of the tourism destinations with significant potential as an ecotourism site. This village is not only known for its catfish aquaculture products but also for its natural beauty, local culture, and environmental management practices, which can support contextual learning, particularly in the field of biology (Muslim *et al.*, 2020).

Biology education at the senior high school level, particularly for grade XII students, encompasses various topics such as ecosystems, biodiversity, and the interactions between humans and the environment. Kampung Patin Village can serve as an alternative learning medium that provides real and relevant experiences for students. Through direct observation, students can gain a deeper understanding of biological concepts, such as interactions within ecosystems, adaptation of living organisms, and the importance of natural resource conservation (Ardoin *et al.*, 2013).

However, the utilization of ecotourism potential as a learning medium is often overlooked. The learning process, which typically takes place in the classroom using lecture-based methods, limits students' opportunities to directly apply theory in the field (Mtapuri *et al.*, 2016). In contrast, experiential learning, such as through visits to tourism villages, can enhance students' understanding, foster environmental awareness, and sharpen their critical thinking skills (Mulyadi *et al.*, 2019).

This study aims to examine the understanding of ecotourism in Kampung Patin Village as a medium for biology education for students at SMA Negeri 2 XIII Koto Kampar. Through this research, it is expected to provide insights into the potential of this tourism village in supporting a more contextual, engaging, and relevant biology education that aligns with students' everyday lives. Furthermore, the findings of this study may offer recommendations for tourism village managers and schools to foster collaboration in integrating education with ecotourism.

Methods

The approach of this study is descriptive quantitative, with data collection through questionnaires, interviews, and observations. Quantitative data are used to measure students' understanding levels, while qualitative data complement the descriptive analysis. This study was conducted in Kampung Patin Village, Kampar Regency, Riau Province. The subjects or samples of this study are grade XII students from SMA Negeri 2 XIII Koto Kampar.

The study spans from November 2023 to September 2024. The sample was selected using purposive sampling, which includes students who have studied biology related to ecosystems and participated in the visit to Kampung Patin Village. A total of 30 students were selected as the sample.

The tools utilized in this study included questionnaires, GPS devices, writing instruments, and cameras. Meanwhile, the materials used comprised all the potential resources and attractions. These students were given a questionnaire consisting of 20 questions covering three aspects: (1) understanding of ecosystem concepts, (2) environmental awareness, and (3) the benefits of ecotourism-based learning. In addition, interviews and observations were conducted to explore students' and teachers' opinions regarding the potential of Kampung Patin Village as a learning medium, documenting field conditions, and observing students' activities and interactions with the environment during the visit.

Data analysis yielded both quantitative and qualitative data. Quantitative data from the questionnaires were analyzed using descriptive statistical techniques. The results, presented as average scores for each aspect of students' understanding, are shown in tables and diagrams. Qualitative data, obtained from interviews and observations, were analyzed using thematic analysis to provide supplementary information supporting the quantitative findings.

The study procedure includes preparatory stages, such as developing research instruments (questionnaires, interview guides, and observation sheets) and obtaining research permits from the school and the Kampung Patin Village management. The implementation stage involves a field visit with grade XII students to Kampung Patin Village, administering the questionnaire to students after the visit, and conducting interviews and observations during the visit.

The data analysis stage involves processing quantitative data from the questionnaires and qualitative data from interviews and observations, and drawing conclusions based on the obtained data. The success indicators for students are determined by their understanding of ecosystem concepts, environmental awareness, and the benefits of ecotourism as a learning medium. Kampung Patin Village is considered a potential learning media for biology education based on the results of observations and interviews (Sugiyono, 2019).

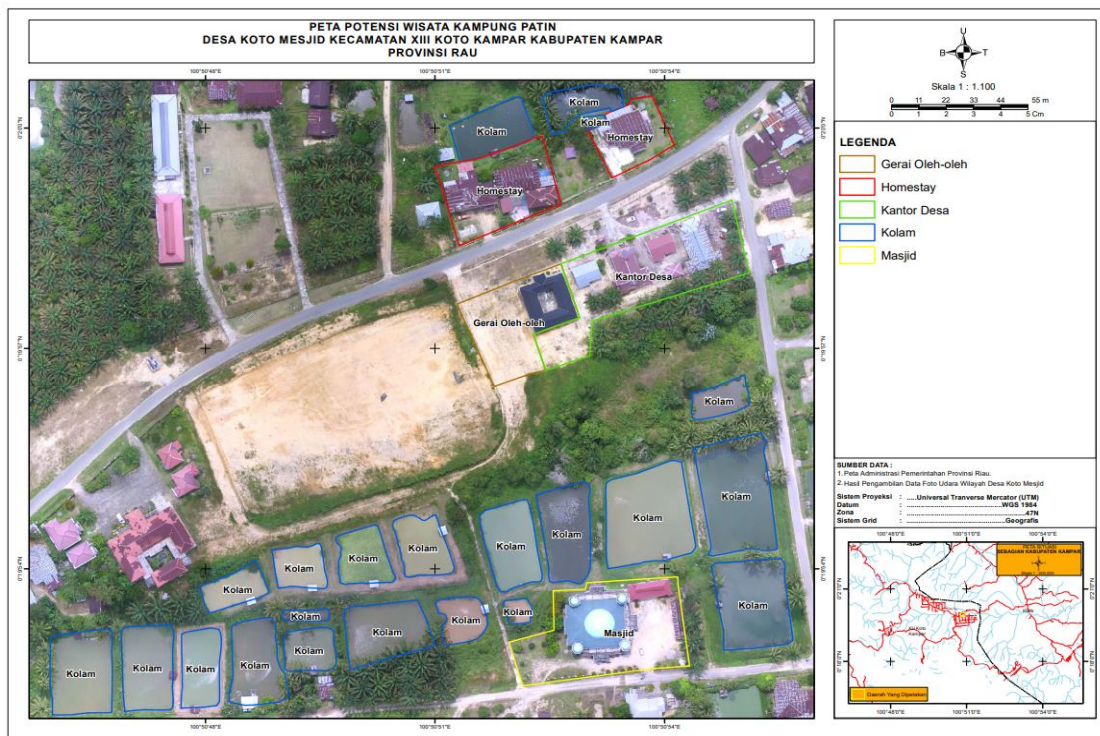


Figure 1. Map of Study Site

Results

Kampung Patin Ecotourism Village is located in XIII Koto Kampar District, Kampar Regency. The village is commonly referred to as Kampung Patin due to its extensive cultivation of Patin fish in specialized fish farming ponds. The Patin fish farming initiative in Koto Mesjid began between 2003 and 2012 with support from PT. Telkom Pekanbaru. Geographically, Koto Mesjid Village is situated on the outskirts of the Koto Panjang Hydroelectric Reservoir (PLTA Koto Panjang). This strategic location makes the village not only a center for inland pond aquaculture but also an area with significant potential for the development of floating net cages (KJA) in the reservoir. The growth of the aquaculture sector in Koto Mesjid is closely tied to the availability of abundant water resources. Initially, the village lacked sufficient water sources and was considered unsuitable for fish farming. However, the discovery of a large underground water supply transformed Koto Mesjid into a well-known freshwater aquaculture hub, utilizing bore wells to support fish farming activities. The development of Koto Mesjid as a Tourism Village serves as an example of community-based tourism, integrating local resources and active community participation to promote sustainable development (Cheris, 2020).

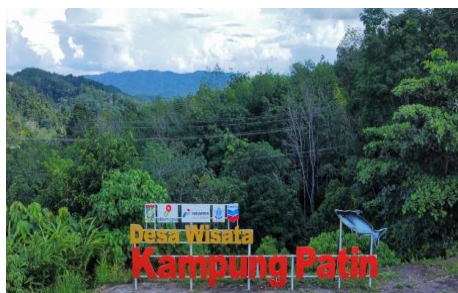


Figure 2. Kampung Patin Ecotourism Village

Table 1. Students' Understanding of Ecotourism in Kampung Patin Village

Aspects	Average Score (%)	Category
Understanding of Ecosystem Concept	85	Very Good
Environment Awareness	78	Good
The Purpose of Ecotourism Learning	79	Good
Total	80,5	Good

This table showed the students' understanding in three key aspects related to ecotourism in Kampung Patin Village. The highest average score was found in the aspect of Understanding Ecosystem Concepts (85%), followed by the Benefits of Ecotourism-Based Learning (79%), and Environmental Awareness (78%). Overall, the students' understanding is categorized as good, with an average score of 80.5%.



Figure 3. Patin Fish Ponds at Kampung Patin Village

Table 2. Student Activities during Field Trip to Kampung Patin Village

Activities	Total Students (%)
Observation of the Patin Fish Pond Ecosystem	100
Introduction to Patin Fish Cultivation Techniques	95
Identification of Local Biodiversity	88
Group Discussion on Ecosystem Interactions	85

This table illustrates the level of student participation in various activities during the visit to Kampung Patin Village. The activity with the highest participation was Observation of the Patin Fish Pond Ecosystem (100%), followed by Introduction to Patin Fish Cultivation Techniques (95%). The Group Discussion on Ecosystem Interactions had the lowest participation rate at 85%, but still falls within the high participation category.



Figure 4. Patin Fish Product at Kampung Patin Village

Table 3. Interview Results with Students and Teachers

Respondent	Key Statements
Student	<ul style="list-style-type: none"> • "The visit to Kampung Patin Village helped me understand ecosystem concepts firsthand." • "Learning became more engaging because it involved real-life experiences."
Biology Teacher	<ul style="list-style-type: none"> • "Kampung Patin Village has great potential as a learning medium due to its biodiversity and environmentally friendly fishery system." • "Ecotourism-based learning can enhance students' understanding while fostering their awareness of the importance of environmental conservation."

This table summarizes the interview results with students and teachers. Students highlighted the benefits of experiential learning at Kampung Patin Village, while the teacher emphasized the village's potential as an educational medium and its role in fostering environmental awareness among students.

Table 4. Student Understanding Level Categories

Understanding Category	Score Range (%)	Number of Students	Percentage (%)
Excellent	81-100	12	40
Good	61-80	14	46.7
Adequate	41-60	4	13.3
Poor	0-40	0	0

This table shows the distribution of students' understanding levels based on categories. The majority of students (46.7%) fall within the "Good" category, while 40% are in the "Excellent" category. No students were categorized as "Poor," indicating that all students have an adequate understanding of the material.

Discussions

The data which highlight the students' comprehension of three critical aspects of ecotourism in Kampung Patin Village. The highest average score, 85%, was achieved in the aspect of understanding ecosystem concepts. This finding aligns with previous studies that emphasize the importance of foundational ecological knowledge in fostering effective ecotourism practices (Kiper, 2013). Following this, the aspect of benefits of ecotourism-based learning recorded an average score of 79%. This supports the notion that ecotourism serves as an impactful educational that such learning experiences enhance students' appreciation for environmental stewardship (Walker *et al.*, 2016). Lastly, environmental awareness scored 78%, indicating a solid understanding but also highlighting potential areas for further development (Zhang *et al.*, 2020). Overall, with an average score of 80.5%, students' understanding is categorized as good. This result is consistent with studies suggesting that hands-on and context-based ecotourism education effectively fosters environmental literacy (Ballantyne *et al.*, 2011).

Kampung Patin Village offers a unique ecotourism experience based on fisheries, integrating environmental, economic, and educational aspects. This aligns with the principles of contextual learning, where students are encouraged to learn from real-world situations. The research findings indicate that learning through ecotourism not only enhances students' cognitive understanding but also fosters their affective awareness of environmental conservation (Mulyadi *et al.*, 2019).

The level of student participation in activities conducted during their visit to Kampung Patin Village, reflecting a high overall engagement across all activities. The highest participation rate, 100%, was recorded for the observation of the Patin fish pond ecosystem. This finding underscores the effectiveness of direct, hands-on learning experiences, which are known to enhance student engagement and understanding of ecological concepts (Powell *et al.*, 2016). Following this, the introduction to Patin fish cultivation techniques achieved a participation rate of 95%. This aligns with research suggesting that experiential learning in real-world settings significantly fosters interest and practical knowledge (Ballantyne *et al.*, 2011).

The group discussion on ecosystem interactions, while having the lowest participation rate at 85%, still falls within the high participation category. This slightly lower rate may be attributed to the nature of discussion-based activities, which often require deeper critical thinking and collaborative effort (Saarinen, 2016). Despite this, the overall high participation rates indicate that the activities were well-designed to engage students and provide meaningful learning experiences (Muslim *et al.*, 2020).

Learning in Kampung Patin Village directly involves students in observation and exploration, aligning with the theory of experiential learning. Learning through experience provides a deeper understanding as students can relate theory to real-world practice. In this study, students were able to better understand the concepts of ecosystems, food chains, and environmental balance after observing them directly in the field (Widodo *et al.*, 2021).

The visit to Kampung Patin Village not only supports the understanding of lesson content but also helps develop students' soft skills, such as critical thinking, teamwork, and environmental responsibility. This type of learning provides a holistic experience that is relevant to students' everyday lives (Trianto, 2017).

The results indicate a generally positive outcome regarding students' understanding of the material, with the majority of students demonstrating solid comprehension. Notably, 40% of students fall within the "Excellent" category, with scores ranging from 81% to 100%, suggesting a high level of grasp of the content. Additionally, 46.7% of students are classified in the "Good" category, which indicates that over 85% of the students have achieved a commendable level of understanding (scoring above 60%). The absence of students in the "Poor" category (0-40%) further underscores the effectiveness of the learning approach employed (Kimmel *et al.*, 2016). This finding suggests that the learning activities, likely influenced by experiential learning during the visit to Kampung Patin Village, were successful in engaging students and helping them retain the key concepts, particularly related to ecosystems, biodiversity, and the environment (Behrendt *et al.*, 2014). The percentage of students in the "Adequate" category (13.3%) indicates that there is still a small group of students who may need additional support to fully comprehend the material. This suggests room for improvement, particularly in providing targeted interventions or reinforcing specific topics to ensure that all students reach a higher understanding level (Sugiyono, 2019).

Conclusion

Although Kampung Patin Village has great potential, this study identified several challenges, such as: limited time for the visit, which made exploration less optimal, need for additional training for both students and teachers to maximize the benefits of ecotourism-based learning. The recommendation for this study are strengthening collaboration between the school and Kampung Patin Village management to develop a more structured ecotourism-based learning program. Then, developing ecotourism-based learning materials integrated with the biology curriculum, particularly for topics on ecosystems and the environment and providing field guides for students to make the visits more focused and directed. This study demonstrates that Kampung Patin Village has significant potential as a contextual, interactive biology learning medium that enhances students' understanding of biological concepts.

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