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Experiential and Joyful Learning-Marine Edutourism (Ejoy-Me) Based on Kuala Selangor Nature Park Potential to Improve Environmental Literacy

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ABSTRACT

Kuala Selangor Nature Park has the potential to be packaged as a learning resource to increase environmental literacy through the Experiential and Joyfull Learning-Marine Edutourism (EJoy-ME) learning model. The purpose of this activity is to implement EJoy-ME for Kuala Lumpur Indonesian School students to increase environmental literacy. Activities focused on the open mind EJoy-ME model for SIKL teachers, developing learning tools based on the potential of the Kuala Selangor Nature Park mangrove ecosystem, and implementing EJoy-ME according to the syntax. The implementation of EJoy-ME has proven to be able to increase the environmental literacy of Kuala Lumpur Indonesian School students. This also gets a positive response from students, namely providing environmental material satisfaction, location selection, satisfaction of the learning process.

KEYWORDS

Experiential Learning, Marine Edutourism, Environmental Literacy, Environmental Education

INTRODUCTION

The Malaysian mangroves boast an extraordinary mangrove ecosystem, making them one of the largest in Southeast Asia. This ecosystem provides various goods and services to the environment and its surroundings, such as coastline protection, storm protection, water quality maintenance, microclimate stabilization, tourism, fishing, and the supply of various forest products (Omar et al., 2020). The mangrove ecosystem in Malaysia is home to at least 114 species of flora, which are categorized into true and derived mangroves (Shin et al., 2015). Mangrove ecosystems constitute a complex aspect of marine discussions that can enhance students' environmental literacy. This local potential can serve as a valuable learning resource to instill environmental literacy in students.

The utilization of Malaysia's mangrove ecosystem as a valuable learning resource can be achieved through the Experiential and Joyful Learning-Marine Edu tourism (E Joy-ME) educational model. Marine tourism destinations hold significant potential for being transformed into environmental education resources via marine Edu tourism (ME), which involves the amalgamation of marine environmental education with marine tourism. E Joy-ME encompasses environmental learning activities conducted at marine tourism locations, with the primary objective of enhancing students' marine environmental literacy. This model facilitates students' exploration of ecosystems, biodiversity, environmental issues, and conservation efforts firsthand within marine ecosystems, offering a wide range of enjoyable learning experiences. Therefore, in the development of ME, it seamlessly integrates experiential learning models and joyful learning strategies.

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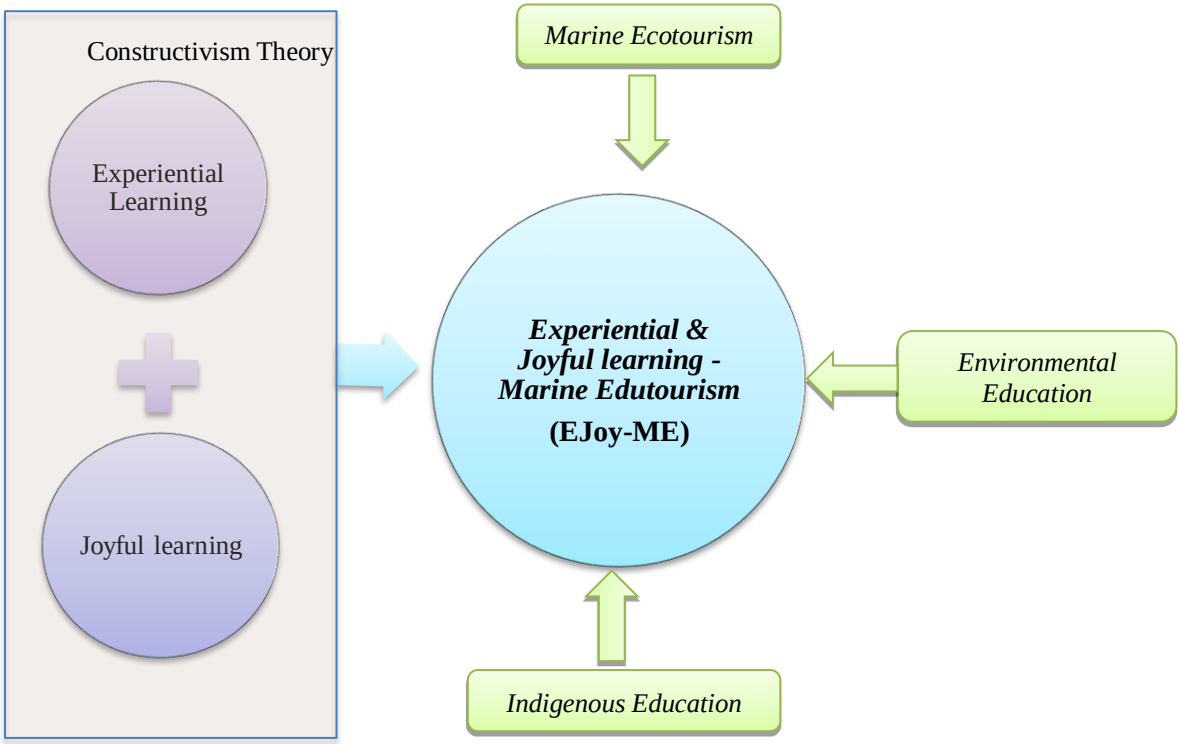

Figure 1. Components of the EJoy-ME Learning Model

The development of this model syntax refers to constructivism theory which emphasizes providing new learning experiences for students while still paying attention to students' prior knowledge and the context of students' daily lives. The syntax of marine edutourism is developed from the syntax of environmental education based on experiential learning coupled with joyful learning strategies. The syntax consists of 6 stages which can be seen in Figure 2.The E Joy-ME learning model was developed by Life (2020) and implemented to date in Wakatobi National Park, Southeast Sulawesi, Indonesia. This learning model has been proven to be effective in increasing high school students' environmental literacy (Hayati, 2020; Hayati et al., 2021). This learning model based on Edu-tourism or educational tourism has been implemented in mangrove ecosystems in various locations and has had a positive impact on student learning outcomes, namely Wakatobi National Park (Hayati et al., 2021), Taka Bonerate National Park(Life, 2017), and Geopark Rammang-Rammang Maros (Life, 2016). Therefore, it would be very effective if the E Joy-ME learning model was used to increase students' environmental literacy.

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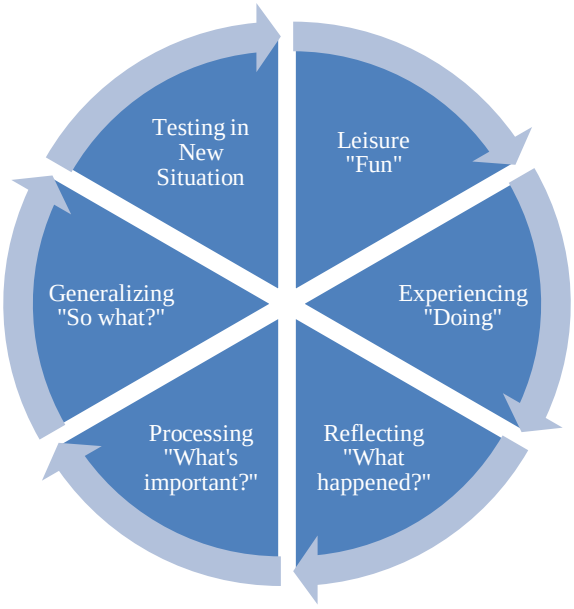

Figure 2. EJoy-ME Learning Model Syntax

Relations between Indonesia and Malaysia are good enough that there are special schools for Indonesian citizens in Malaysia. The school is the Indonesian School Kuala Lumpur (SIKL). This school facilitates the education of children of Indonesian citizens living in Malaysia. The results of the measurements carried outNurwaqidah & Ramli (2019)shows that the literacy of Indonesian students is in the medium-low category. Apart from that hPISA 2006 results show that aspects of environmental science and geoscience performance of Indonesian students are below average, ranking 51st out of 57 OECD countries(OECD, 2009). Damage to marine ecosystems due to human activities also shows low public literacy. Meanwhile, Indonesia is located in the Coral Triangle, so it is rich in marine biodiversity, and is even said to be the epicenter of world biodiversity.(Stehli & Wells, 2014). Indonesian students in Malaysia need to be equipped with good environmental literacy in order to be able to protect Indonesia's marine environment. However, these Indonesian children will return to serve their country, so sufficient environmental literacy is needed to realize environmental sustainability. Providing environmental literacy provisions to SIKL students can be done with a learning model E Joy-ME is based on the local potential of the Malaysian mangrove ecosystem.

Kuala Selangor Nature Park (KSNP) is one of Malaysia's mangrove ecosystems that has the potential to be developed as an EJoy-ME learning resource. KSNP owns more than 90 hectares of Mangrove area. Found 19 main types of flora in this ecosystem(Shishkova, 2021). The main mangrove species found were Avicennia, Rhizophora and Bruguiera(Jahid, 2021).

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The nickname bird park shows the variety of bird species, there are at least 156 types of aves and 57 of them are from abroad such as Russia and Siberia. In 1997, KSNP was considered an Important Bird Area (IBA) by Birdlife International.(Latif et al., 2020). KSNPis home to various species such as silver-leaf monkeys, smooth otters, pangolins, and mangrove tiger butterflies(Joseph, 2021). In addition to the potential for biodiversity above, the mangrove area here is still well covered, so it has the potential to be developed as a learning resource for EJoy-ME. The purpose of this activity is to implement the EJoy-ME learning model as an alternative environmental education that is able to increase SIKL environmental literacy.

METHODS

This activity consists of three major parts, namely opening the mindset of SIKL teachers related to EJoy-ME, developing EJoy-ME tools based on the potential of KSNP, and implementing EJoy-ME for SIKL students. The implementation of the EJoy-ME learning model is adapted to the syntax that has been developed byHayati et al. (2021).

1. **Open Mind EJoy-ME Based on Local Potential for SIKL Teachers**

This activity was carried out to train SIKL teachers to be able to independently apply learning based on the local potential of the Malaysian mangrove ecosystem through the EJoy-ME learning model to increase environmental literacy. A total of 32 SIKL teachers took part in this activity. SIKL teachers are introduced to the EJoy-ME learning model, especially recognizing the syntax of this learning model. SIKL teachers were also given examples of learning tools that had previously been implemented in Wakatobi National Park and had succeeded in increasing the environmental literacy of Wakatobi students.

2. **Development of Mangrove Ecosystem Potential-Based Learning Devices KSNP Malaysia**

2a. Malaysia Mangrove Potential Analysis

Field observations were carried out in Malaysian mangrove ecosystems to analyze the potential of nature as a learning resource. This is also aimed at choosing the right location for implementing EJoy-ME for SIKL students. From several KSNP mangrove ecosystems, a learning route for the Kuala Selangor Nature Park mangrove ecosystem was formulated as a location for implementing EJoy-ME. This ecosystem was chosen based on consideration of its

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potential as an environmental learning resource, its strategic location, and safety or student security considerations.

2b. Making the EJoy-ME Kuala Selangor Nature Park Learning Tool

Furthermore, the EJoy-ME learning tool was made according to the potential of Kuala Selangor National Park as a source of environmental learning. The main purpose of this tool is to increase environmental literacy in the aspect of knowledge in class VII students of SIKL Middle School. The tools developed are Student Worksheets (LKPD), Mangrove Ecosystem Material Booklets, and Knowledge Aspects of Environmental Literacy Assessment Instruments.

3. Application of EJoy-ME to SIKL Students

3a. Preparation

At this stage the measurement of students' environmental literacy was carried out through a pre-test with previously made instruments. Apart from that, a briefing was also conducted to understand the EJoy-ME activities that would be carried out. The briefing is aimed at students and teachers so that activities run smoothly and participants pay attention to safety rules at the site.

3b. Implementation

A total of 44 Class VII students and 4 SIKL teachers took part in this EJoy-ME implementation activity. The implementation is carried out using the EJoy-ME syntax and using pre-arranged learning tools. This activity involves a Kuala Selangor Nature Park guide who acts as a teacher or EJoy-ME facilitator. Utilizing the local wisdom of the Kuala Selangor Nature Park mangrove ecosystem as a learning resource can be done through the Experiential and Joyful Learning-Marine Edutourism (EJoy-ME) learning model to increase SIKL students' marine environmental literacy. The following is a detailed explanation of the implementation of EJoy-ME based on the predefined syntax. The syntax can be seen in figure 2.

1) Leisure "Fun"

this activitybuild students' enthusiasm in studying the mangrove ecosystem. Ecotourism objects at marine tourism locations are a fun way to interact with the marine ecosystem. Marine tourist attractions are an alternative to provide a fun atmosphere for learning. In the

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mangrove ecosystem at Kuala Selangor Nature Park, the attractions provided are interacting and observing the monkey population and planting mangrove seedlings.

2) Experiencing "Doing"

Students are given a learning experience. Students learn about the mangrove ecosystem and its conservation efforts, so it is hoped that from this activity students will have environmental literacy aspects of knowledge. Learning experiences are given in the form of case studies, observations, interactions with tourist objects and discussions with guides.

3) Reflecting "What Happened?"

Students share the results of their learning experiences with their friends. Students exchange experiences and discuss feelings resulting from their experiences. The results of this reflection will determine students' views and actions towards the environment.

4) Processing "What's Important?"

Students analyze the results of their reflections to form new abstract concepts in their minds. Understanding this new concept will influence decision making regarding environmental problems.

5) Generalizing "So what?"

Learners relate experiences to real world examples. Students are given environmental problems, then generalize and make decisions on these problems.

6) Testing in New Situations

Students apply learning outcomes to new environmental problems and apply pro-environmental actions in everyday life. In EJoyME, you can start by looking at the students' pro-environmental attitudes while at marine tourism sites. Students can also be asked to propose solutions to environmental problems that exist in everyday life.

6a. Environmental Literacy Assessment

This activity was closed by conducting a posttest to measure the environmental literacy aspect of students' knowledge after they received environmental education with the EJoy-ME learning

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model. Apart from that, students were given a response questionnaire regarding the implementation of EJoy-ME. Evaluation is carried out by examining weaknesses and strengths in implementing activities. A study of pretest and posttest data was carried out to determine the increase in students' environmental literacy. Data from questionnaires on student responses to activities were also studied to see the impact of EJoy-ME on students.

FINDINGS AND DISCUSSION

The implementation of EJoy-ME based on the local potential of the Kuala Selangor Nature Park has proven to be effective in increasing the environmental literacy of SIKL students. This is shown from the increase in environmental literacy scores on the knowledge aspect of the results of students' pretest and posttest measurements.The positive results of this model cannot be separated from the basic development of the model syntax, namely the integration of experiential learning models and joyful learning strategies. Experiential learning provides students with concrete experiences and opportunities to use their active cognition to intentionally increase knowledge (Kalafatis et al., 2019). Students will seek continuity between past and present experiences, so that personal decisions will maintain continuity either by rejecting new information or to update previous understanding. Students' experiences interacting with the environment or being exposed to environmental problems will be constructed in memory and influence students' pro-environmental decisions. Environmental education and experiential learning are closely related. Methods such as case studies, simulations, visits, debates, projects and guided inquiry facilitate learning and support students understanding real-world problems(Koutsoukos et al., 2015). In addition, experiential learning facilitates students to open their senses to nature and bond with nature to increase their acceptance of environmental realities. The joy of learning has a positive influence on students. Happiness can increase intrinsic motivation, provide an educational experience through positive emotions, and people who feel happy tend to function better in life (Lucardie, 2014). EJoy-ME provides joy during learning through interaction with the marine environment which amazes him and the diversity of marine tourism attractions. Reflection in the EJoy-ME syntax is a process in which an individual becomes aware of an environmental problem and then considers the best way to solve the problem. The results of reflection on experiences with environmental problems will influence their actions towards the environment. Therefore, the EJoy-ME model can be an alternative environmental education to increase students'

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environmental literacy.

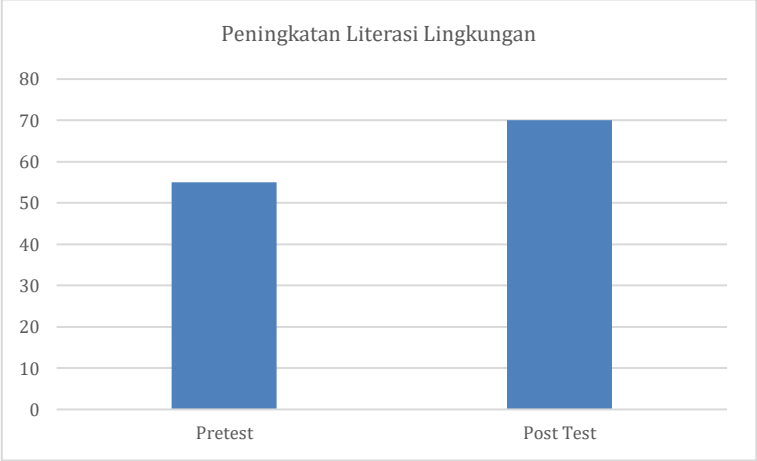

Figure 3. Graph of Increasing Environmental Literacy

In addition, the results of the student response questionnaire to EJoy-ME based on the local potential of KSNP show the positive impact of EJoy-ME, which is as follows.

1. Environmental education through EJoy-ME provides satisfactory information/material services for students. This is shown from the student data which stated that 41% and 57% were very satisfied with the service of providing environmental education materials.

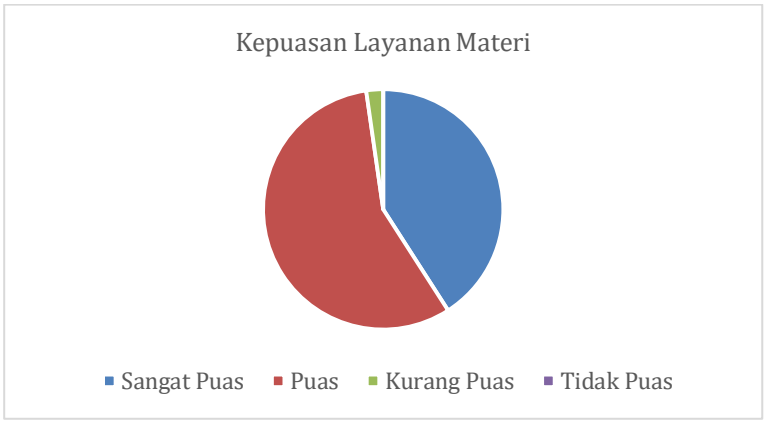

Figure 4. Material Service Satisfaction Response Diagram

2. The selection of Kuala Selangor Nature Park for the implementation of EJoy-ME provides satisfaction for students. It is shown from the data that 84% of students are satisfied with the selection of the Kuala Selangor Nature Park mangrove ecosystem.

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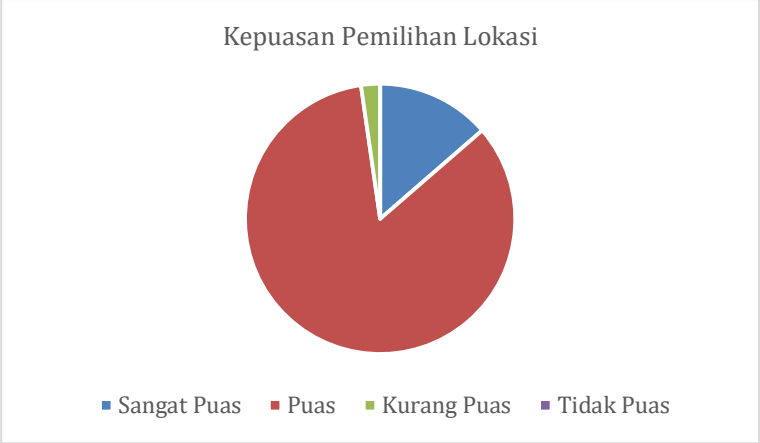

Figure 5. Satisfaction Response Diagram for EJoy-ME Location Selection

3. The learning process through the EJoy-ME syntax provides satisfaction for students in obtaining environmental education services. This is shown from the response data that 75% of students are satisfied with the stages of the learning process or activities provided in EJoy-ME.

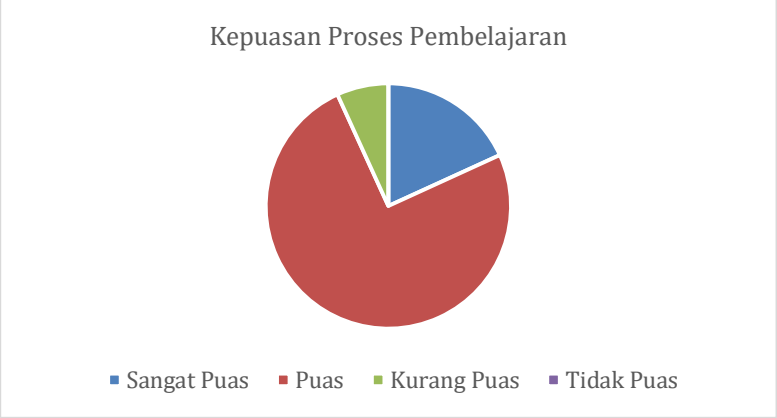

Figure 6. Satisfaction Response Diagram of the EJoy-ME Learning Process

4. EJoy-ME gives the impression of being a fun learning environment for students. This is shown from the response data that 80% of students said learning was fun and 20% of other students said it was very fun.

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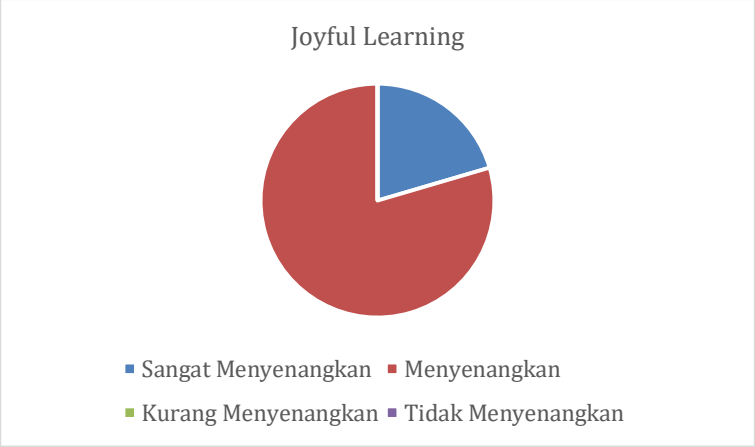

Figure 7. Joyful Learning Response Diagram EJoy-ME

The positive response to the EJoy-ME model based on KSNP's local potential provides reinforcement that this model is very well applied in environmental education or biology subjects.

Environmental education based on experiential learning is effective when done outdoors or outdoor learning(Szczytko et al., 2018)withfield studies or field trips(Yang & Lau, 2019),so this fits with the concept of marine edutourism. Travel is believed to foster enlightenment growth, broaden horizons, and enrich knowledge about history, culture, and community(Yang & Lau, 2019). Interacting with the environment is able to develop a closer relationship with nature and has a tendency to have pro-environmental actions. Outdoor experiences allow students to see first-hand the various components of the environment that influence each other(Jose et al., 2017). Kossack & Bogner inJosé et al. (2017)conveyed that a one-day outdoor field experience had a positive effect on knowledge and attitudes and a sense of connection with nature. Learning with nature also allows students to explore natural problems(Doering & Veletsianos, 2008). Therefore, the EJoy-ME model by providing direct experience at KSNP has a more effective impact in increasing environmental literacy.

CONCLUSION

The implementation of the Kuala Selangor Nature Park potential-based EJoy-ME learning model was able to increase the environmental literacy of Kuala Lumpur Indonesian School students. The implementation of EJoy-ME received a positive response from students, namely providing material satisfaction, choosing a location, satisfying the learning process, and creating a fun learning experience. It is hoped that the EJoy-ME learning model can be

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implemented by SIKL teachers consistently with the local potential that exists in Malaysia.

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