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E-Module of Macapat Song Art Course to Improve Effectiveness of Students' Independent Activities

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ABSTRACT

This study aims to analyze the effectiveness of e-modules designed with a step-by-step exercise model in supporting student activities in learning *Tembang Macapat*. The research was conducted using classroom action research involving five main learning activities, including notation practice and vocal exercises. Observations were made over two learning days. Results showed that students initially focused heavily on complex tasks, while simpler tasks were completed more gradually. On the second day, student performance became more balanced and efficient, indicating adaptation to the structured e-module design. Activity 4 showed increased engagement, reflecting deeper cognitive involvement. The findings suggest that structured e-modules can improve learning efficiency and student independence in traditional music education. This study contributes to the integration of local cultural content into digital learning tools and offers a practical model for designing adaptive and culturally responsive learning resources in arts education.

Keywords: Tembang Macapat, e-Module, Effectiveness, Student Activities

INTRODUCTION

The Macapat Song Art course is a course that includes the study of rules, *cengkok*, *titi laras*, *pathet*, types and characteristics of each song form, creating *cakepan* songs, and the ability to sing each song. It emphasizes the form of *macapat* to improve singing skills in Javanese language learning at schools, integrating science and technology with a responsible attitude. This course includes assignments, practice, discussion, presentation, and reflection. This aligns with Kolb and Kolb (2017), who state that practice-based learning enables students to gain direct skills and understand material in context, thus enhancing their overall educational experience.

Nevertheless, students—particularly those from non-artistic backgrounds—face various challenges in learning *Macapat*. The tonal structure of *macapat* differs significantly from modern diatonic music commonly heard and sung, requiring adjustment to the pentatonic system. Additionally, the need to master both *pelog* and *slendro* scales, each with its own tonal characteristics, presents a steep learning curve. Differences in vocal range between male and female students also demand differentiated instructional approaches. The wide variety of *cengkok* and song types further complicates memorization and performance for beginners.

To respond to these challenges, the researcher proposes the use of an electronic teaching module (e-module) as a support tool for learning. E-modules, which are presented in digital formats such as PDFs, videos, and interactive applications, offer flexible access and the potential for multimedia enrichment. However, their application is not without limitations. Real-time feedback from instructors is often lacking, digital literacy among students may vary, and the nuances of vocal intonation and expression rooted in traditional practice are not easily replicated through digital means. Therefore, while the e-module offers a promising alternative to conventional methods, its design must carefully address these pedagogical and cultural considerations to ensure effective and meaningful learning outcomes.

The use of e-modules in learning offers several advantages, such as flexibility in time and place, accessibility across digital devices, and the ability to include interactive features like animations, videos, and audio that support students' understanding of complex material. Several previous studies have shown the effectiveness of e-modules in supporting independent learning and improving learning outcomes. For example, research by Pratama and Widyastuti (2020) demonstrated that students using e-modules showed increased motivation and retention. Similarly, Al-Jarf (2018) found that students in the experimental group using e-modules outperformed those in the control group in terms of achievement and engagement. In the context of arts education, Hasan et al. (2023) showed that the implementation of an e-module for *Macapat* learning was positively received and validated by experts, indicating its instructional value. These findings suggest that e-modules are not only effective for content delivery but also contribute to resource efficiency, learning personalization, and long-term educational sustainability. This current study builds upon previous research titled "Design of E-Module for Macapat Song Art for MBKM Students Across Study Programs" (2019), with the developed product now being implemented in the learning of the Macapat Song Art course.

Based on the background of the problem explained above, the following problem formulations can be taken: "How is the learning design for the Macapat Song Art Course using E-Module?" "How is the Macapat Song Art Course learning implemented using E-Module?" "How is the improvement of students' abilities and independent activities in learning the Macapat Song Art Course using E-Module?"

The purpose of this study is to describe the learning design for the Macapat Song Art Course using E-Module. Describe the implementation of learning for the Macapat Song Art Course using E-Module, and explain the improvement of students' abilities and independent activities in learning the Macapat Song Art Course using E-Module.

Understanding previous studies is essential to building a strong foundation for new questions in academic research. Understanding previous studies illustrates the current study and identifies gaps in knowledge that must be addressed, paving the way for innovative approaches and methodologies. Understanding previous studies is essential to developing a comprehensive framework that informs and guides future questions. The following are relevant previous studies: 1) Effectiveness of Using E-Modules in Mathematics Learning. Case Study: Grade VII Students of SMPN 1 Surakarta. (Agustin, L.

S., & Setyaningsih, R. A.) This study tested the effectiveness of using e-modules in mathematics learning for grade VII students of SMPN 1 Surakarta. The results showed that using e-modules can improve students' conceptual understanding and learning outcomes. 2) Development of Problem-Based Physics E-Modules on Work and Energy Materials for Grade X High School Students. (Fauzan, A., Prayitno, B. A., & Mujtahidah, M.) This study was conducted to develop problem-based physics e-modules on work and energy materials for grade X high school students.

Understanding previous studies is essential to building a strong foundation for new questions in academic research. Understanding previous studies illustrates the current study and identifies gaps in knowledge that must be addressed, paving the way for innovative approaches and methodologies. Understanding previous studies is essential to developing a comprehensive framework that informs and guides future questions.

The following are relevant previous studies. A study on the effectiveness of using e-modules in mathematics learning for Grade VII students of SMPN 1 Surakarta by Agustin and Setyaningsih tested how e-modules can improve students' conceptual understanding and learning outcomes. Another study by Fauzan, Prayitno, and Mujtahidah focused on developing problem-based physics e-modules for Grade X high school students. The results indicated that these e-modules helped students understand the concepts of work and energy and improve their learning outcomes. Wulandari and Sumarni conducted research on the application of e-modules to improve descriptive writing skills in Grade VIII students of SMP Negeri 1 Kedungreja. Their findings revealed that the use of e-modules significantly enhanced students' writing abilities. Research by Al-Jarf (2018) aimed to evaluate the effect of e-modules on student achievement in chemistry. In this study, e-modules were used as supplementary learning tools for the experimental group, while the control group received conventional instruction. The results showed that the experimental group achieved better learning outcomes. Similarly, Chih-Cheng and Chih-Hsuan (2019) developed a physics e-module for junior high school students and evaluated its effectiveness in improving students' understanding. Their findings demonstrated that the module improved students’ comprehension of physics concepts and increased their learning motivation. Hasan et al. (2023) conducted research on the design of the Macapat Song Art e-module for MBKM students across study programs. The module was successfully validated by experts, receiving a score of 3.7 from material experts and 3.8 from design experts. The study shows that using e-modules in learning can provide significant benefits, including improvements in learning achievement, reading and writing skills, learning interest, and time efficiency. However, it should be noted that the success of e-module implementation also depends on proper design and application.

E-Modules or electronic modules are learning materials or teaching materials that are systematically and structurally arranged in digital format. These can be accessed via electronic devices such as computers, laptops, tablets, or smartphones. Electronic modules can contain theories, case examples, and exercises or questions to help students understand and master the learning material.

According to Pramono (2015), electronic modules are teaching materials systematically and structurally arranged in digital format. These can be accessed via electronic devices such as computers, laptops, tablets, or smartphones. According to Supriyanto (2016), electronic modules are teaching materials based on information technology that can be accessed via electronic devices, such as computers or smartphones. Electronic modules can contain learning materials, practice questions, and assessments. This is also in line with the opinion of Mahfudz (2018), who explains that electronic modules are teaching materials arranged in digital format and can be accessed via the Internet. This module contains learning materials, assignments, and practice questions that can help students understand and master the learning material. According to Priyanto (2019), an electronic module is a teaching material structured and systematically arranged in a digital format that can be accessed via electronic devices such as laptops, tablets, or smartphones. This electronic module contains learning materials presented as text, images, and videos. According to Rukmini and Suyadi (2020), an electronic module is a teaching material systematically arranged and structured in a digital format that can be accessed via electronic devices such as computers, laptops, tablets, or smartphones containing learning materials and assignments.

The advantages of electronic modules in learning include: 1) Electronic modules are more interactive so that students can easily interact with learning materials, such as clicking, selecting, and moving objects on the screen, to increase students' attraction and interest in learning. This is also stated in the Ministry of National Education (2009), which explains that electronic modules can improve students' learning motivation because they use sophisticated technology and attract students' attention 2) Students are more flexible in studying material at a time and place that suits their individual needs—according to Shih, Chuang, & Hwang, (2010) explained that electronic modules can make it easier for students to access learning information anytime and anywhere using electronic devices such as laptops, tablets, or smartphones. 3) Electronic modules are more efficient in displaying information more efficiently and effectively than printed books. In addition, electronic modules can also present materials with various media such as audio, video, and animation. 4) Electronic modules are easier to learn with an attractive and easy-to-understand display so students can understand the learning material more quickly. This also agrees with Hsu, Wang, & Huang (2013), who stated that using electronic modules can improve students' critical and analytical thinking skills because students must process and understand the information provided in the electronic module. 5). By using electronic modules, students learn independently and develop independent learning skills. Moghadam & Mahmoodi (2013) stated that active learning methods such as assignments, practice, discussion, presentation, and reflection allow students to learn independently and develop independent learning skills.

There are advantages to electronic modules but disadvantages to electronic modules in learning, including: (1) To access electronic modules, students need adequate electronic devices such as laptops, tablets, or smartphones. This can be an obstacle for students who do not have these electronic devices

(Policelli & Wang, 2022). (2) Electronic modules are generally accessed via the Internet, requiring stable and fast internet access. Students who live in areas where internet signals are difficult to reach may have difficulty using electronic modules (Smith & Garcia, 2021). (3) Learning using electronic modules can limit social interaction between students and between students and teachers. In line with this, Hsu, Wang, & Huang (2013) argue that the lack of social interaction between students and teachers in using electronic modules significantly reduces social presence and negatively impacts learning engagement. (4) Requires technological skills so that students less skilled in using technology can have difficulty using and utilizing electronic modules. Brittain (2025) and Lee & Chen (2019) further emphasize that insufficient digital literacy and confidence can hinder effective use of e-modules among learners.

Tembang macapat is a product of Javanese culture that still exists today and is still developing in Indonesia, especially on the island of Java. The lines in the Tembang Macapat are considered a literary work. As explained in KBBI, the definition of point two is 'poetry' (Language Development and Fostering Agency, 2016). According to Anto et al. (2019), tembang is a series of words that are rhythmized with sound and emphasize harmony. This literary work functions as entertainment and a means to convey moral and cultural values passed down from generation to generation. Creativity in creating tembang macapat continues to grow, with many modern artists and poets adapting this traditional form to express their experiences and views on contemporary life. This was also stated by Basir & Marifatulloh (2018) that tembang macapat is a bridge between tradition and modernity, creating space for dialogue between cultural heritage and relevant contemporary issues. Tembang Macapat is also taught in tembang art courses at various educational institutions so that the younger generation can understand and appreciate the cultural richness contained in this art form. According to Rochadiana et al. (2022), with a deep understanding of macapat songs, the younger generation is expected to be able to preserve and continue this tradition while providing innovations that are relevant to the context of their time.

METHODS

This study uses a Classroom Action Research (CAR) design, which is considered suitable for improving teaching practices and learning outcomes through iterative cycles of planning, action, observation, and reflection. The CAR method was chosen because it enables direct intervention and immediate evaluation in real classroom settings, making it ideal for testing the effectiveness of e-modules in the Macapat Song Art course.

The research was conducted in the Javanese Language and Literature Education Study Program at the State University of Surabaya, involving undergraduate students enrolled in the Macapat Song Art course. A purposive sampling technique was used, selecting 28 students from the 5th semester based on course enrollment. The research consisted of two cycles, each including problem analysis, planning, action implementation, observation, and reflection. Data from each cycle were analyzed to identify improvements and determine whether the targeted indicators of success had been met.

To assess student activity and learning outcomes, several data collection techniques were used. Observations measured participation during learning activities, performance tests evaluated students' ability to sing *Tembang Macapat*, and questionnaires along with interviews captured student responses to the use of e-modules. Instruments included structured observation sheets, a singing performance rubric, and a Likert-scale questionnaire. The scoring system used in performance evaluation followed a 0–100 scale, with a minimum mastery standard of 75. A score of 56, for example, indicates that the student has not yet met the required level of competency in the given learning indicators. The test result data for pre-action, cycle one, and cycle two were analyzed using the formula:

$$M\ (\mathrm{T}) = \frac{\sum X}{N}$$

The indicator of the research success criteria is the ability to sing macapat songs, which is said to be successful if 75% of all students get a B o,r above. In contrast,e for the response, the application of the response approach can be said to be well received by students if 75% of students give a positive response. The test results in cycle I were analyzed, followed by finding the difficulties experienced by students during the learning process. In cycle II, students are expected to get good results. The test results in cycle I were analyzed, followed by finding the difficulties experienced by students during the learning process. Furthermore, improvement steps will be formulated to overcome these difficulties and increase learning effectiveness in the next cycle.

RESULT AND DISCUSSION

The action planning in the first cycle was carried out by preparing lecture devices consisting of Semester Learning Plans (RPS) for three meetings. The teaching materials used include E-Modules containing essential and relevant materials to support student understanding and various additional learning resources that can enrich their learning experience. The evaluation instrument will be given as a project that students will work on. This project is designed to test students' understanding of the material taught while encouraging them to apply these concepts in authentic contexts.

Cycle I discuss students' difficulties in the Macapat Song Art course. To find out the challenges in learning, the researcher created four activities to identify indicators of problems in education. These activities evaluate students' understanding of basic concepts, singing Macapat Songs, and interpreting Macapat song art. The four activities include 1) practicing Srambahan/scales, 2) practicing song notation, 3) inserting notation into song cakepan, and 4) practicing song cakepan notation. The following is a summary table of the results of the four activities from the first day to the third day.

Table 1. List of Activities

Activities	First Day				Second Day				Third Day				
	1	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	
Practicing *Srambahan*/scales	56	56	56	5	34	25	2	2	37	18	2	2	
Practicing song notation	9	9	9	49	6	47	4	6	5	44	7	3	
Inserting notation into song *cakepan*	9	9	9	6	3	20	31	9	5	7	39	8	
Practicing tembang notation and *cakepan*	4	4	4	2	4	6	7	12	1	2	12	10	

The data presented in Table 1 show the outcomes of five activities carried out over two cycles, each consisting of three consecutive days. In Activity 1, student performance appeared stable in the first cycle with a consistent score of 56. However, during the second cycle, the numbers dropped sharply from 34 to only 2 on the final day. This significant decrease may suggest that students had begun to grasp the material more thoroughly, resulting in fewer repeated attempts or errors. Similarly, Activity 2 began with a stable score of 9 in the first cycle, followed by a sharp increase in the second cycle, peaking at 47 on the second day before slightly decreasing. This pattern reflects a growing level of student understanding and engagement over time.

Activity 3 showed similar stability in the first cycle, starting with a score of 9. However, during the second cycle, student participation became more varied, reaching a peak of 31 on the third day. This indicates a likely improvement in student performance and comprehension. In Activity 4, the scores were consistent at 4 during the first cycle and rose to 12 by the end of the second cycle, which can be interpreted as a sign of developing mastery. Overall, the declining trends in some activities suggest increased understanding, while fluctuations across other activities reflect the natural progression of the learning process.

Figure 1. Activity Diagram

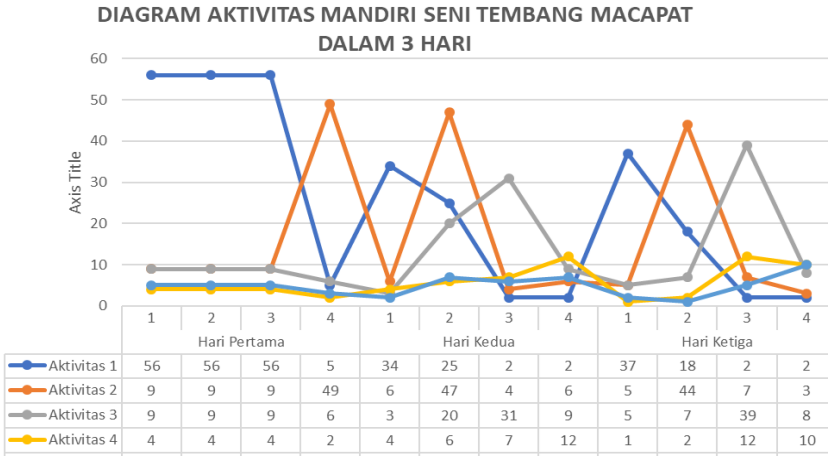

Table 2 shows the total results of five activities carried out over three days:

Table 2. Three Days Activity

Activity	First Day	Second Day	Third Day	Total
Practicing *Srambahan*/scales	56	34	25	115
Practicing song notation	9	47	44	100
Inserting notation into song *cakepan*	9	20	39	68
Practicing tembang notation and *cakepan*	4	6	12	22

In Activity 1 (practicing *srambahan*/scale), a total of 115 students participated over the three days. The highest number was recorded on the first day, with 56 students involved. However, this number dropped significantly to 34 on the second day and further declined to 25 on the third day. This downward trend could suggest that the material became more challenging as the days progressed, or that students began focusing more on understanding the material in depth, resulting in fewer but more engaged participants.

In Activity 2 (practicing *tembang* notation), student participation totaled 100. The activity started with only 9 students on the first day, but the number jumped significantly to 47 on the second day, then slightly decreased to 44 on the third. The sharp increase on day two may indicate that students were beginning to grasp the material better and felt more confident to participate. The slight drop on the third day might reflect either a natural shift in focus or the difficulty in sustaining engagement over time.

In Activity 3 (inserting notation into *tembang cakepan*), there was a steady increase in student involvement, with a total of 68 students participating. The numbers rose from 9 on the first day, to 20 on the second, and 39 on the third. This gradual increase suggests that students were becoming more comfortable and confident with this more complex task. It also indicates a growing level of mastery as they applied what they had learned in previous activities.

For Activity 4 (combining *tembang* notation and *cakepan*), the participation numbers were lower overall, with 22 students in total. It started with 4 students on the first day, then increased slightly to 6 on the second day, and doubled to 12 on the third. Although the numbers were not as high as in other activities, the upward trend suggests that students were gradually gaining the confidence to engage with this integrative task. It's likely that this activity, which combines multiple skills, required more preparation and familiarity with the previous material.

Overall, the patterns of increase and decrease in participation show that students were not only engaging with the material but also adapting to different levels of difficulty. Some activities showed a decline, possibly due to deeper individual focus, while others increased, suggesting growing confidence and understanding. These patterns highlight the importance of gradual scaffolding and sustained support

throughout the learning process.

To calculate the average of the four types of activities in five activities in three days, the formula is used: Average = Total score / Number of days, as seen in table 3.

Table 3. Average Activity Points

Activity	Total	Average
Practicing *Srambahan*/scales	115	38.33
Practicing song notation	100	33.33
Inserting notation into song *cakepan*	68	22.67
Practicing tembang notation and *cakepan*	22	7.33

It can be seen that activity 1 has the highest average, 38.33, indicating that this activity has a more dominant value compared to other activities. Activity 5 has the lowest average, which is 5.67, reflecting that this activity is more stable but with a smaller value than other activities. The following is a table showing the results of the percentage increase in students who do activities in each activity and day.

Table 4. Increase in Students' Activity

	Hari Pertama				Hari Kedua				Hari Ketiga			
	1	2	3	4	1	2	3	4	1	2	3	4
Aktivitas 1	88.8 %	88.8%	88.8%	7.93%	53.9%	39.68%	3.17%	3.17%	58.7%	28.57%	3.17%	3.17%
Aktivitas 2	14.28%	14.28%	14.28%	77.7%	9.52%	74.6%	6.34%	9.52%	7.9%	69.8%	7.9%	4.76%
Aktivitas 3	14.28%	14.28%	14.28%	9.52%	4.76%	31.74%	49.2%	14.28%	7.9%	11.1%	61.9%	12.69%
Aktivitas 4	6.34%	6.34%	6.34%	3.17%	6.34%	9.52%	11.1%	19.04%	1.58%	3.17%	19.04%	15.87%

Table 4 shows that the percentage of student involvement in each activity is relatively high, especially in the first activity (88.8%), which indicates that students need more time and attention to understand the material presented through the e-module in the early stages. The percentage of student involvement in other activities is relatively low, ranging from 7.93% to 14.28%, indicating that students are still adapting to this learning format.

On the second day, a significant decrease was seen in the first activity, 53.9%, and other activities, with a percentage range from 3.17 percent to 49.2%. This decrease indicates that students are getting used to using the e-module, which allows them to complete tasks faster and more efficiently. On the third day, the percentage of involvement in the first activity, 58.7%, continued to decline, while the participation rate in other activities remained stable at 3.17% to 19.04%. This percentage indicates that students have achieved an increased understanding of the Tembang Macapat material, so the material allows students to focus more on more challenging activities. Figure 2 is a distribution diagram of students who carry out activities in each activity per day:

Figure 2. Distribution Diagram

Aktivitas 1	34.00%	67.86%	96.43%	60.00%	39.29%	55.36%	96.43%	60.00%	8.82%	28.00%	0.00%	0.00%
Aktivitas 2	44.00%	388.89%	22.22%	93.88%	33.33%	422.22%	55.56%	87.76%	16.67%	85.11%	75.00%	50.00%
Aktivitas 3	44.00%	22.22%	333.33%	33.33%	66.67%	122.22%	244.44%	50.00%	66.67%	95.00%	25.81%	11.11%
Aktivitas 4	75.00%	50.00%	200.00%	400.00%	0.00%	50.00%	75.00%	500.00%	75.00%	100.00%	71.43%	16.67%

On the first day, there was an initial spike in activity 2, in the Tembang notation practice activity; this activity may be more challenging, so students tend to focus more at the beginning. The high percentage (388.89%) could indicate a great effort to understand or complete the activity. While the stability of other activities, namely activities 1 (practicing notation into cake pan), 3 (practicing inserting tembang notation), and 4 (practicing srambahan/scales), tended to show a mild to moderate increase, indicating that students worked on these activities after completing more challenging activities.

On the second day, there was a significant decrease in several activities (for example, activity 2), indicating that students had begun to understand or adapt to the task. Students may be more efficient in completing these activities than on the first day. Activity 4 reached a high spike on this day (500%), which could indicate students' primary focus on specific activities that may require more time or effort. On the second day, there was a general decrease in all activities, indicating that students understood the task better and needed less time to complete the activities.

CONCLUSIONS

The findings of this study indicate that the integration of E-modules into the *Tembang Macapat* course has contributed positively to the development of students' independent learning skills. Rather than merely increasing participation rates, the use of E-modules appears to promote more focused and meaningful engagement, as reflected in the shift from repetitive practice toward deeper understanding and critical reflection. The observed decline in the frequency of student involvement in some activities across days suggests increased efficiency and confidence in mastering the material, rather than disengagement.

This pattern points to the potential of E-modules not only as a learning tool but also as a

pedagogical strategy that fosters autonomy, critical thinking, and sustained interest. For future development, it is recommended that the E-module be refined by incorporating varied levels of difficulty, integrating interactive assessments, and embedding multimedia elements such as audio-visual demonstrations of *Tembang Macapat* performances. Further research could explore the long-term impact of E-module-based learning on students' performance in live performances, their appreciation of Javanese literary heritage, and its applicability in other traditional arts education contexts.

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