

Aesthetics Of Ki Hajar Dewantara and Increasing Learning Creativity Traditional Music of Central Java Based On E-Gamelan Independent Learning for High School Students

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Abstract

This study aims to describe the aesthetics of Ki Hajar Dewantara in the implementation of Javanese traditional music learning independent learning based on E-Gamelan at SMA Negeri 3 Pekalongan class XI.1 and describe the results of learning assessment in the form of practical tests and non-test-assessment-of-students-consisting-of-assessment: activeness, creativity, and cooperation. With the lack of gamelan equipment in schools, as well as the lack of human resources who teach gamelan, the E-Gamelan application is an effective solution that helps students recognize, appreciate, and understand gamelan music interactively. The use of E-Gamelan provides a variety of instruments, complexity, and harmony in learning gamelan music. This reflects Ki Hajar Dewantara's aesthetic concept, which appreciates beauty in various forms. By utilizing 5.0 era technology in independent learning to learn traditional Central Javanese music, learners can more deeply understand gamelan music and develop learners' musical skills. The research method used is mixed or combination (mixed method). Data collection techniques used observation, interviews, and documentation. The results showed (1) the beauty of a wide selection of instruments and variations in playing instruments. (2) the concept of complete aesthetics (volledigheid) appears in the variety of instruments provided. (3) the aesthetics of harmony (laras) reflects the concept of fusion and harmony between various instruments in gamelan music. The results of the research, cycle 1 of 34 learners, with 19 people (55.88%) getting sufficient scores (70-79) and 15 people (44.11%) getting fewer scores. In cycle 2 of 34 learners, 7 people (20.58%) got good grades (80-89) and 26 people (76.47%) got sufficient grades (70-79). The number of learners who scored above 70 or complete was 34 with an average of 78. Suggestions to improve the utilization of E-Gamelan in Javanese traditional music education, (1) development of content and application features. (2) teacher and instructor training. (3) integration with conventional learning.

Keywords : *E-Gamelan, Aesthetics, Ki Hajar Dewantara, Merdeka Belajar, Learning*

Introduction

The preservation and promotion of traditional music in the face of the increasing dominance of contemporary music genres has become a significant challenge for music educators in Indonesia (Abimanyu & Harwanto, 2019) (Awaliyah et al., 2022). One potential approach to overcome this challenge is to integrate the aesthetic principles of Ki Hajar Dewantara, a well-known Indonesia educator, with the use of E-Gamelan technology and the application of the Merdeka Belajar curriculum in traditional music education for high school students (Setyawan & Dopo, 2020) (Shah, 2013).

In class XI, there is material "Playing traditional music according to the diversity in their respective regions" and "Analyzing the development of diatonic music in Indonesia from time to time". In materials that present traditional music (Javanese gamelan) most students experience obstacles, this is possible because of the following things. (1) The condition of students generally

does not know gamelan musical instruments and does not even know them by appreciating pop music more. (2) The general condition of schools from elementary, junior high to high school levels that do not have gamelan instruments. The lack of physical resources limits students' opportunities to interact and learn about these traditional instruments first-hand. However, without the necessary instruments and resources, such an initiative may fail to achieve its goals. (3) The competence of teachers' human resources, the rarer and rarer coaches who teach gamelan to students at the intra and extracurricular levels. Finally, the competence of teachers in organizing gamelan education is very important. There is a scarcity of trained instructors who can effectively teach gamelan music in intra and extracurricular contexts.

The philosophy of Ki Hajar Dewantara emphasizes the importance of fostering a strong sense of national identity and cultural appreciation through education (Rahayuningsih, 2022). The importance of cultural education and character development in Ki Hajar Dewantara's educational philosophy emphasizes that a stronger integration of traditional arts into the curriculum can increase students' appreciation and understanding of their cultural heritage (Tarigan et al., 2022). His aesthetic principles, which he refers to as "Tri Nga", include: Ngerti, Ngrasa, and Nglakoni, which translate to "understanding", "feeling", and "acting" respectively (Rahayu, 2019). These principles are particularly relevant to traditional music teaching, as they encourage students to not only understand the technical aspects of music intellectually but also to engage deeply with cultural and emotional significance. Its aesthetic principles, which highlight the harmony between individuals and their cultural contexts, can be effectively applied to the teaching of traditional music, specifically Javanese gamelan.

Methodology

Research methods when viewed from the foundation of data and analysis philosophy can be grouped into three, namely, qualitative research methods, quantitative research methods, and mixed or combined research methods. Action research is an important methodology in the context of education, especially when it comes to empowering learners and encouraging community participation. This approach emphasizes the active involvement of students in identifying problems, designing solutions, and implementing programs that meet their own educational needs (Kavoura & Bitsani, 2014).

Descriptive research is research to describe and answer the problem of a phenomenon or event that occurs at this time, both about phenomena in a single variable and correlation and/or comparison of various variables (Rahman, 2021). Based on this explanation, it can be understood that the descriptive research method is a method carried out to narrate the situation in the field supported by facts obtained by observation and in-depth research to seek understanding and correctness of the data.

This research uses mixed or combined research, namely action research and aesthetic studies. Where the data is in the form of numbers or scores, values or value statements are analyzed by statistical analysis. This study uses qualitative data with a participatory research method of aesthetic studies as a subject to read the appearance and sound of E-Gamelan. Research contains two main aspects, namely aesthetic interpretation that relies on the researcher as the main instrument so that new meanings are found.

Results and Discussion

The learning outcomes of the Music Arts Subject Phase F (Generally for grades XI and XII of high school) are as follows: At the end of Phase F, students can listen well and carefully, actively and creatively participate in the experience of sound music. Students showed their sensitivity to the elements of sound-music and sensitivity and showed additional insight into various contexts of the music presentation such as song lyrics, the use of the music played, era, style, sociocultural conditions, ecology, and so on. Students produce authentic musical ideas and works by showing sensitivity to sound-music elements and showing knowledge and understanding of the diversity of contexts. Students can involve practices other than music (other art forms, involvement, and use of

appropriate technology) both in a planned and situational manner according to the rules of sound/music (Manalu, 2022). Freedom of Learning can be interpreted as providing flexibility for students to gain knowledge without feeling pressured and independent and for students to calmly relax and study actively without the burden of thoughts or pressure while still paying attention to the nature they have, without any coercion, so that their abilities will be channeled well and they can learn or subdue an area of insight outside their hobby. Thus, the development of their potential, talents, and interests as well as abilities can grow optimally (Rini, 2022).

The use of technology in learning can provide an interesting and positive learning experience for students. One of the technologies that is becoming increasingly popular is mobile devices, which can operate games, videos, music, and so on. Technology can also facilitate collaboration and distance learning, improve access to information, and enrich the learning experience through the use of visuals and multimedia. The use of technology in learning can also help students achieve 21st-century skills such as creativity, innovation, communication, collaboration, literacy, information, and media. Educators must continue to learn and master learning technology to improve student learning outcomes (Lestari, 2020).

The role of technology is a necessity of individual life, which we currently feel both in terms of communication, transactions and so on. Therefore, a concept like this makes us currently in the 5.0 era with an independent learning curriculum policy, that the two are integrated (Marisa, 2021). The era of digitalization is one of the benchmarks for the emergence of an independent learning curriculum. Seeing the above reality, the author uses the medium of E-Gamelan media to accelerate the appreciation and basic techniques of playing gamelan, considering that the IT field is liked by young people, and to accelerate the appreciation of the gamelan instrument itself.

Ki Hajar Dewantara's Aesthetics

In his book "Taman Siswa Education", Ki Hajar Dewantara explained that art is all human actions that arise and live from within the soul, and are beautiful so that they can move the soul of other human feelings. Art is the result of human self-expression which can be in the form of paintings, sculptures, music, dance, literature, and so on (Fuadi, 2019). In addition to the ability to appreciate 'goodness' (ethical values), humans also can appreciate 'beauty' (aesthetic values); Both are mental nature and innate nature of 'order' (order), and although initially arising from emotions, they are not free from the influence of mind movements from the human soul (Sugiarta, 2019). Furthermore, according to Dewantara (2004, p.308), the measure of beauty is 3 conditions: a. assortment or '*verscheidenheid*'; b. complete or '*volledigheid*'; c. barrel or '*harmony*', which includes wirama (rhythme). The theory of beauty according to Ki Hajar Dewantara is still relevant today. The theory can be used to understand and appreciate works of art.

Changes in rhythm or rhythm in songs and gendings when sung by children, such as fast-slow, loud-smooth, strong-weak, regular and harmonious, give the impression of life. Thus, the rhythm or rhythm can arouse enthusiasm in students, which is beneficial for increasing the subtlety of their feelings. Meanwhile, the verse of the song clearly emphasizes the ability to think or argue students' opinions in the use of language. Behind all these aspects, when a song is sung, it encourages learners to strive so that they can sing it correctly. For students who have different voices, they will try to make their voices in line with teachers or other students. This effort shows the will of students, whether they can do it well or not.

Education in the 5.0 Era

Freedom of Learning in the 5.0 era, such rapid innovation has brought a rapid flow of progress in the world of technology that has an impact on social life. Cyber and physical space no longer have limits, so the transformation of education is so significant. The role of technology greatly affects human life both in interacting and making transactions as well as in education (Marisa, 2021).

Education in the 5.0 era is a concept of the part to integrates and balances the development of technological advances and educational problems that integrate the virtual and physical worlds.

Social issues and increasingly advanced technological developments make a teacher must be able to keep up with technological advances that are always undergoing changes or advances (Mudana, 2019).

Gamelan Instruments and Functions.

Gamelan is a traditional musical instrument set in Java and various regions in Indonesia. Gamelan comes from the word *gamelin* Javanese and Balinese meaning hit. Before the entry of wind and swipe musical instruments that conclude the term *karawitan* with vocal completeness. The Gamelan players are called *Niyaga*, the Singer is called *Sinden Waranggana*, and the song played is called *Gendhing* (Soeroso, 1993).

Tuning and making a gamelan orchestra is a complex process. Gamelan uses four tuning methods, namely *slendro*, *pelog*, "*Degung*" (specifically for the Sunda region, or West Java), and "*Madenda*" (also known as the diatonic scale, just like the original minor scale widely used in Europe.) In gamelan music, each instrument has a function. The function of the instrument is to limit the scope of the instrument's obligations, both as a group of rhythm officers and a group of song officers. For the group of song officers, it is arranged in such a way that the motif, *string*, and *wiled* are not the same thing, but can have a variety of motifs, *strings*, and *wiled*. What is meant by function in this case is not the actor factor but the type of instrument. The functions can be grouped as follows: (1) Pamurba rhythm consists of *kendhang*, *bedhug*, and *dhodhogan* ; (2) Pamangku rhythm consists of *kethuk*, *kempyang*, *kenong*, *kempul kecer*, *gong*, *kemanak*. (3) Pamurba songs consist of: *rebab*, *gender barung*, *bonang barung*, *flute*, *gambang*. (4) The song consists of *siter/clempung*, *slenthem*, *demung*, *saron barung*, *saron penerus* (Soeroso, 1993)

E-Gamelan

E-Gamelan is an application created as a means of education and knowledge about gamelan, especially Javanese gamelan. This application was created by Grahutama Art Studio which we can download on the "Google Play Store". for free. The E-Gamelan application uses an audio-visual concept so that it is easy for users to understand. The use of this application is quite easy, namely by pressing the screen with a picture of a gamelan instrument to find out the sound (Jiwandono et al., 2021)

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Figure 1. E-Gamelan Display and Saron Instrument Display

How to play a digital instrument is the same as we play a direct instrument, only we don't use a tabuh instrument, but our fingers must directly touch the image of the instrument on the cellphone screen, for example on the bonang instrument, our fingers must touch the image of the pencon bonang according to the notation of the number we will play. This way of learning E-Gamelan can be used as an alternative to continue learning even though we don't have gamelan tools. So that we can make the best use of our time by continuing to learn and practice gamelan with limited facilities. With audio and visuals that resemble the real form of gamelan, this application is quite helpful for students' understanding, adding skills and knowledge, especially Javanese gamelan. Therefore, the use of the E-Gamelan application as a means of learning media is quite possible to increase students' insight into Javanese gamelan so that the goals of the learning process can be achieved.



Figure 2 : Some students try to play the E-Gamelan application

The learning process of karawitan practice using the E-Gamelan application.

First Meeting

At this meeting, the learning objectives conveyed by the teacher were to know and understand the meaning of Javanese karawitan and the names of gamelan instruments. In the core activity, the teacher explained the subject matter about the meaning of Javanese karawitan and the names of gamelan instruments.

Introductory Activity (20')

- 1). Conveying greetings, prayers, and tadarus (for Muslims) and for non-Muslims (morning devotional),
- 2). Checking student attendance,
- 3). Conditioning students to participate in learning,
- 4). Conveying competencies that will be achieved in learning
- 5). Aperception
- 6). Introducing subject matter
- 7). Convey the learning steps

Core Activities (60')

- 1). The teacher showed a learning video about traditional Javanese gamelan music,
- 2). The teacher explained the PPT of Javanese gamelan traditional music material,
- 3). Students observe and are asked to make observations to several sources to find information about Javanese gamelan instruments,
- 4). Teachers introduce and invite students to get to know Javanese gamelan instruments by downloading the E-Gamelan application through the Play Store
- 5). Students try the traditional Javanese instrument E-Gamelan,
- 6). The teacher demonstrated the technique of playing the kendang, gong kempul, saron, and bonang instruments smoothly *through the E-Gamelan* application,
- 7). Students randomly try to play the instrument techniques of kendang, gong kempul, saron, and bonang with a *smooth kebo giro* through the E-Gamelan application,
- 8). Teachers provide opportunities for students to go on and so forth.

Closing Activity (10')

- 1). Teacher activities with students, namely: a). Making a summary/conclusion of the lesson, b). Reflecting on the activities that have been carried out, Providing feedback on the learning process and outcomes, c). Prepare yourself for the upcoming material.
- 2). Teacher activities are: a). Conduct an assessment, b). Planning follow-up activities, both individual and group tasks, c). Teachers assign students to and assign assignments in groups for the next week's practical assessment.

Second Meeting

At this meeting, the learning objectives conveyed by the teacher were that students could find out the form of gamelan, the categories of types of gamelan, the gamelan scale, and read the gamelan notation.

Introductory Activity (20')

- 1). Conveying greetings, prayers, and tadarus (for Muslims) and reflections for non-Muslims,
- 2). Checking student attendance,
- 3). Conditioning students to participate in learning
- 4). Conveying the competencies to be achieved in learning,
- 5). Apperception
- 6). Introducing subject matter,
- 7). Convey the learning steps

Core Activities (60')

- 1). Students are motivated or stimulated to focus on the topic of the material,
- 2). The teacher asked about the assignment given last week in the form of making a technical group play Javanese gamelan instruments,
- 3). Students are invited to open the E-Gamelan application to prepare for the E-Gamelan practice assessment.
- 4). The teacher tells students to demonstrate the technique of playing traditional musical instruments through the E-Gamelan application smoothly *according to* their respective groups
- 5). Other students observe and take turns assessing in groups
- 6). Teachers provide briefings as well as assessments,
- 7). Together with the students, they concluded the results of the technique of playing traditional gamelan *music smoothly kebo giro*.

Closing Activity (10')

- 1). Teacher activities with students are: a) Reflecting on the activities that have been carried out, b) Providing feedback on the learning process and results.
- 2). Teacher activities are: a). Conduct an assessment, b). Plan follow-up activities, both individual and group assignments, according to the learning outcomes of students and submit a lesson plan for the next material meeting.

Ki Hajar Dewantara's Aesthetics in Learning Javanese Traditional Music based on E-Gamelan

Based on Dewantara's aesthetic theory, the measure of beauty is with three conditions: 1). assortment, 2) completeness, and 3). harmony, so the author describes it as follows:

- 1). Assortment / Variety ("*Verscheidenheid*")

In this E-Gamelan application, eleven gamelan instruments are provided such as *demung, saron, peking, kendhang, bonang barung, bonang successor, slenthem, gender, gambang, gong kempul, and kenong*. All of these instruments we can learn to play the smooth kebo giro along with playing the gending except for the drum, gender, and gambang instruments. In these E-Gamelan instruments, each has a beautiful tone even though it is different and this creates a variety of instrument options that can be explored so that users can feel the aesthetics of different gamelan sound variations.

The aesthetics of the various instruments available in the E-Gamelan application, such as bonang barung, bonang successor, saron, demung, saron successor, slenthem, tap kenong, kempul-gong, gambang create a variety of instrument choices that can be explored in the context of gamelan music. The aesthetics of the variety can be seen in the activity, namely how to play digital instruments in the E-Gamelan application is similar to playing real gamelan instruments. However, this activity is carried out by touching the image of the instrument on the phone screen, creating a variety of different actions in the process of playing and learning. The aesthetic of variety is also seen in the learning objectives which emphasize that the E-Gamelan application can be used as an alternative to learning gamelan without having to have physical instruments. In fact, in the field to present, let alone buy or own original gamelan devices requires large funds and a special place. This creates a variety of learning objectives, including increasing understanding, skills, and knowledge about Javanese gamelan. E-gamelan can also be a bridge (transition) to the original device if the school has such facilities.

The variety of audio-visual beauty can be explained that this application uses an audio-visual concept, creating an experience that resembles the real form of a gamelan. It creates a variety of

beauty in the user experience, combining visual and audio elements to create an engaging environment. This appears to be audio-visual on the E-Gamelan application there is a list of Gending; Lancaran Manyar Sewu – Slendro Manyura, Landrang Asmaradana Irama – Slendro Manyura, Ladrang Ayun-ayun Irama – Pelog Nem, disbandan Udan Mas – Pelog Barang. Through a variety of instruments, activities, learning objectives, and audio-visual beauty, the writing reflects the principle of "assortment" in Dewantara's theory, where variety and diversity are an important part of the educational and artistic approach in the context of E-gamelan applications.

2) Ling cap ("*Completeness*")

In the E-Gamelan application, there are eleven complete gamelan instruments, including various types of gamelan instruments that are generally used in Javanese gamelan performances. Thus, users can experience the completeness of gamelan instruments and have access to all the instruments needed to create a comprehensive gamelan composition or arrangement. Although the instruments of ketuk, kempyang, rebab, flute, siter, and celempung have not been seen in this application. As an alternative educational means, it shows that the E-Gamelan application is designed as a complete and comprehensive educational means to understand gamelan, especially Javanese gamelan. The app includes eleven different gamelan instruments, including demung, saron, peking, kendhang, bonang barung, bonang successor, slenthem, gender, gambang, gong kempul, and kenong. This creates diversity and completeness in the content of the application to meet the learning needs of users. The completeness of the free accessibility of the E-Gamelan application can be downloaded for free through the Google Play Store, which creates wider accessibility for those who want to learn gamelan. The concept of "complete" can also refer to the availability of apps for free, so that more people can access them without financial barriers.

In addition to instruments, the app also offers a studio that allows users to compile gamelan instrument arrangements simply. This adds an element of completeness to the learning process because users can learn not only to play the instrument but also to make their gamelan compositions or arrangements. Supports the limitations of the means that the E-Gamelan application can be used as an alternative to learning gamelan, especially if one does not have direct access to a physical gamelan tool. This creates flexibility in learning and allows users to make the most of their time, illustrating how the app supports users with different levels of access and means. By covering a variety of instruments, free availability, studios for arrangements, and supporting limited facilities, the E-Gamelan application creates a complete impression or '*volledigheid*' in providing comprehensive learning facilities and supporting various user needs in understanding Javanese gamelan.

3). Harmony (Barrel)

The concept of harmony in Dewantara's theory refers to the harmony and balance between elements in art. In the context of E-Gamelan, users can try to play various gamelan instruments simultaneously, creating harmony or harmony between the sounds of the instruments. This allows users to learn and produce works that have elements of harmony in the context of gamelan music. Harmony is also seen in the fact that users have to cooperate with other users (students) to play E-Gamelan to make it sound beautiful. Alignment between the concept of the E-Gamelan application and educational goals. This app is designed to facilitate understanding, skills, and knowledge about Javanese gamelan. This concept creates harmony between education and art in the context of gamelan. The emphasis on audio-visual concepts in the E-Gamelan app creates harmony between audio and visual elements. This helps users better understand and experience gamelan instruments, creating a richer and more immersive experience. The integration of gamelan instruments in the E-Gamelan Application includes a variety of playable gamelan instruments, creating a harmony of instruments in the context of the application. Users can feel the harmony between these instruments when playing them together or combining them in an arrangement.

Although Dewantara's theory mentions harmony in the context of "laras", which includes elements of wirama or rhythm. In the E-Gamelan app, users must play an instrument with an appropriate rhythm, creating balance and harmony in the rhythm of the gamelan music. The E-Gamelan application aims to help understanding, skills, and knowledge, especially about Javanese gamelan. This creates alignment between learning objectives and application implementation. Combining audio-visual concepts, the integration of gamelan instruments, and a focus on wirama, it reflects the principle of harmony or 'laras' in Dewantara's theory, where different elements come together in harmony to achieve balanced educational and artistic goals.

Improving Skills in Playing Central Javanese Traditional Music E-Gamelan

Student assessment is based on an assessment system that is by the learning outcomes of Arts and Culture subjects in Senior High School grade XI. 1 SMA Negeri 3 Pekalongan year 2024. Non-test assessments of students consist of assessments of activeness, creativity, and cooperation and test assessment in the form of practical tests.

Table 1. Results of the skill test for playing traditional Central Javanese music based on Android E-Gamelan cycle I

Category	Interval	F	Score Weight	Presented	Average Value	Completeness
Very Good	90-100		4		70	19/34x100 =
Good	80-89					55,88%
Enough	70-79	19		55,88 %		
Less	0-69	15		44,11 %		
Sum		34		100		

The table shows that the average student score is 70. From cycle 1, a total of 3,4 students obtained score in the fair category. There were 19 p. Therein the interval of 70 - 79, or 55.88%, and those who obtained low scores were 15 people, or 44.11%.

Table 2. Results of the skill test for playing traditional Central Javanese music based on Android E-Gamelan cycle II

Category	Interval	F	Score Weight	Presented	Average Value	Completeness
Very Good	90-100		4		76	33/34x100 =
Good	80-89	7				97 %
Enough	70-79	26		76,47%		
Less	0-69	1		2,94 %		
Sum		34		100		

In the second cycle table of the number of students who obtained scores in the good category, there were 7 people in the interval of 80 - 89 or 97%, who obtained scores in the sufficient category, there were 26 people in the interval of 70-79 or 76, 47%. Students who obtained a score above 70 or who were included in the complete score were 34 students, from the average class score of 78.

If you look at the average test results of students and the completeness of learning, it will classically appear that learning to play traditional E-Gamelan music shows that the research target has been achieved. Students can already play Central Java gamelan music based on Android. This can be seen from the average class score of 78 which has not met the completeness limit determined by the researcher, which is 70. Students who get a score above 70 or who are included in 34 students who are complete, means that all students complete all and achieve the KKTP (Learning Goal Achievement Criteria).

Changes in student behavior after implementing E-Gamelan-based learning of traditional Central Javanese music

Changes in student behavior can be explained by five characteristics of students, namely activeness, creativity, and the ability to cooperate and share. Behavioral results are non-test results obtained through student behavior, teacher journals, student journals, interviews, and photo documents. The results of student behavior can be explained in the following presentation:

Student Activity

In the first cycle, the activeness of students in learning is an important part that must be instilled in students, to become active and dynamic individuals. The activeness of students can be seen from the description of behavior, the results of observations, and the teacher's journal which can be used as consideration to determine the activeness of students. The teacher's observation shows that most of the students enthusiastically and attentively pay attention when the teacher is explaining, explaining, and giving examples of learning to play traditional music. The attention of students is very supportive of the classroom atmosphere to be more conducive, there are only a few students who are still talking to themselves, lack attention, and are busy themselves when the teacher is explaining the material. In cycle II, the activeness of students in following the learning process can be seen from the description of behavior, observation results, and teacher journals which can be used as consideration to determine the activeness of students. The teacher's observation showed that most of the students enthusiastically and attentively paid attention when the teacher was explaining, explaining, and giving examples of learning to play Javanese traditional gamelan music with E-Gamelan media techniques. Students' attention is better than in stage 1, students participate in learning enthusiastically. Based on the results of the teacher's notes on the aspect of activeness and students' response to learning the technique of playing traditional Central Java E-Gamelan, students gave a good response, especially female students.

Student's Creativity

In the first cycle, the creativity of students in the game has not been seen. Elaboration is still as it is, there is no addition of creative elements in it. Based on the teacher's journal, almost all groups in the assessment of group assignments are less creative, such as in the monotonous bonang game without expression and lack of variety. In the second cycle, the creativity of students in playing traditional Central Java E-Gamelan music has been seen. The games of each group are varied, there has been an element of creativity added to it. Based on the teacher's journal, all groups have been able to play traditional music quite well and are pleasant to hear.

Student Cooperation

The results of the teacher's observations and diaries can explain that the aspect of cooperation in the early stages, is quite good, but there are still some students who are not active in group work. During group work in discussions and looking for completeness of the material, there were still some students who were indifferent to their group, but after being reprimanded and given understanding, they finally joined and started to work in their group. The results of the teacher's observations and diaries can explain that in the aspect of the second phase of cooperation, is quite good, but there are still some students who are not active in group work. When looking to play or do together, but after being reprimanded and given understanding, they can finally collaborate in their group.

Conclusion and Suggestions

The reflection of the initial assessment stage was carried out based on the results of the test and the results of non-tests on learning to play traditional Central Java E-Gamelan music that had been carried out. The test results showed that the research target had not been achieved. This can be seen in the achievement of scores that have not met the KKM even though the average score for the material is 70 and 72. Students who obtained the above score or who were included in the completion were 19 students, while the other 15 students were still incomplete. Reflection in stage 2 of learning to play traditional E-Gamelan music shows that the research target has been achieved. Students can already play Central Java E-Gamelan music. This can be seen from the average class score of 78 which has not met the completeness limit determined by the researcher, which is 70.

Students who get a score above 70 or who are included in 34 students who are complete, means that all students complete everything and achieve KKTP.

The results of the first cycle of non-tests obtained through behavior descriptions, teacher journals, student journals, interviews, and photo documents, it is known that the behavior of students while learning to play Central Java E-Gamelan music shows that the character of students in terms of activeness, creativity, and cooperation still needs to be changed to be better. However, based on the results of the second cycle of non-tests, the behavior of students while learning to play Central Java E-Gamelan music shows that the character of students in terms of activeness, creativity, and cooperation has become better.

This is because not all students behave well, including there are still students who do not pay attention when the teacher explains, talk to friends outside the lesson discussion, do not discipline practice group cooperation, and do not respect friends who are being assessed. However, some other participants have also shown positive attitudes and behaviors, especially female students. There is a close relationship between the aesthetics of Ki Hajar Dewantara and the use of the E-Gamelan application as a means of learning traditional Javanese music.

Based on Dewantara's aesthetic theory, the three main conditions for beauty are various, complete, and harmonious (barrel). The explanation of how the E-Gamelan application meets these three requirements is as follows: Assortment (*Verscheidenheid*): **First**, the E-Gamelan application offers a variety of different gamelan instruments, creating a variety and choices for users. It reflects the beauty in the variety of instruments, activities, learning objectives, and audio-visuals provided by the app. **Second**, namely: complete (*Volledigheid*): This application includes eleven gamelan instruments, a studio for arranging arrangements, and can be downloaded for free. This creates an impression of completeness in providing comprehensive learning facilities and supporting various user needs in understanding Javanese gamelan. **The third** is Harmony (*Laras*): The E-Gamelan application allows users to create harmony between different gamelan instruments. Users also need to work together to create harmony in the music they play through the app.

Some suggestions that can be taken to further improve the use of the E-Gamelan application and understand the aesthetics of Dewantara in the context of traditional Javanese art and music education include **First**, Content Development: E-Gamelan application developers can continue to develop content by adding more gamelan instruments, gending, and learning materials. This can enrich the user experience and create more variety in learning gamelan. **Second**, Teacher Training: training is needed for teachers or teachers of Javanese traditional arts in using the E-Gamelan application in learning. This will help them be more effective in supporting students in understanding gamelan music through technology. **Third**, Integrating with Conventional Learning: The E-Gamelan application can be used more effectively if it is integrated with conventional learning in schools or traditional art institutions. This allows the use of technology to support traditional teaching. **Fourth**, Learning Outcome Measurement: Application developers can provide features to measure user learning progress. This will help teachers and students to monitor their progress in understanding gamelan music. **Fifth**, Introduction to Aesthetic Concepts: More emphasis can be placed on teaching the aesthetic concept of Ki Hajar Dewantara in the context of traditional Javanese art and music. This will help students understand how important beauty and harmony are in art and music.

With the application of the above suggestions, the use of the E-Gamelan application in the education of Central Javanese traditional arts and music can be more effective and can provide greater benefits for students in understanding Javanese traditional culture and art as well as understanding the aesthetics of Dewantara.

References

1. Abimanyu, D. E. Y., & Harwanto, D. C. (2019, December 8). Aransemen Lagu "Lelo Ledung" Menggunakan Idiom-Idiom Pentatonik Gamelan Jawa Pada Piano Solo. 1(2), 87-100. <https://doi.org/10.24036/musikolastika.v1i2.29>

2. Awaliyah, N. A., Widiyawati, Y., & Nurwahidah, I. (2022, September 16). Development of HOTS Science Test: Ethno-Science Technology Engineering and Mathematics (STEM) based on Javanese Gamelan. Universitas Negeri Yogyakarta, 6(2), 81-90. <https://doi.org/10.21831/jser.v6i2.51878>
3. Dewantara, K. H. (2004). *Karya Ki Hajar Dewantara. Bagian Pertama Pendidikan*.
4. Fuadi, T. M. (2019). Dodaidi: Budaya Mengayunkan Anak dalam Masyarakat Aceh (Perpektif Filsafat Pendidikan Ki Hadjar Dewantara). *Jurnal Pencerahan*, 13(1), 79–96.
5. Jiwandono, M. D., Octavianingrum, D., & Djatmiko, G. (2021). Aplikasi E-Gamelan Sebagai Alternatif Media Pembelajaran Praktik Karawitan Secara.1–9.
6. Kavoura, A., & Bitsani, E. (2014). Methodological Considerations for Qualitative Communication Research. *Procedia - Social and Behavioral Sciences*, 147, 544–549. <https://doi.org/10.1016/j.sbspro.2014.07.156>
7. Lephen, P. (2023). Pendidikan Karakter Pada Sekolah Dasar Berbasis Estetika Teater Antonin Artaud (Keresahan Zaman dan Produksi). *CES*, 564–578.
8. Lestari, W. (2020). Efektifitas Penggunaan Media Edutainment Di Tengah Pandemi Covid-19. *AKSIOMA: Jurnal Program Studi Pendidikan Matematika*, 9(2), 413–423. <https://doi.org/10.24127/ajpm.v9i2.2783>
9. Manalu, J. B. (2022). Pengembangan Perangkat Pembelajaran Kurikulum Merdeka Belajar. *Mahesa Centre Research*, 1(1), 80–86. <https://doi.org/10.34007/ppd.v1i1.174>
10. Mudana, I. (2019). Membangun Karakter dalam Perspektif Filsafat Pendidikan Ki Hadjar Dewantara. *Jurnal Filsafat Indonesia*, 2(2), 75-81. <https://doi.org/10.23887/jfi.v2i2.21285>
11. Marisa, M. (2021). Inovasi Kurikulum "Merdeka Belajar" di Era Society 5.0. *Santhet: (Jurnal Sejarah, Pendiikan Dan Humaniora)*, 5(1), 72. <https://doi.org/10.36526/js.v3i2.e-ISSN>
12. Rahman, Z. (2021). *Metodologi Penelitian Kualitatif Berbasis Blended Learning*.
13. Rini, B. (2022). Merdeka Belajar Dalam Perspektif Ki Hajar Dewantara. *Elementa: Jurnal PGSD STKIP PGRI Banjarmasin*, 4(1), 15–25. <https://doi.org/10.33654/pgsd>
14. Rahayuningsih, F. (2022). Internalisasi filosofi pendidikan Ki Hajar Dewantara dalam mewujudkan profil pelajar Pancasila. *Social Jurnal Inovasi Pendidikan IPS*, 1(3), 177-187. <https://doi.org/10.51878/social.v1i3.925>
15. Rahayu, S. (2019). Estetika Wangsalan dalam Lagu Sindhenan Karawitan Jawa. *Gelar Jurnal Seni Budaya*, 16(1). <https://doi.org/10.33153/glr.v16i1.2338>
16. Rahayu, S., Rosita, R., Rahayuningsih, Y., Hernawan, A., & Prihantini, P. (2022). Implementasi Kurikulum Merdeka Belajar di Sekolah Penggerak. *Jurnal Basicedu*, 6(4), 6313-6319. <https://doi.org/10.31004/basicedu.v6i4.3237>
17. Setyawan, D., & Dopo, F. (2020, September 2). Developing Eastern Culture-Based Arts Education To Improve Student's National Identity. *Knowledge E*. <https://doi.org/10.18502/kss.v4i12.7586>
18. Shah, S. M. (2013, October 1). Contextualizing the Transmission of Malaysian Traditional Music. Elsevier BV, 93, 1000-1004. <https://doi.org/10.1016/j.sbspro.2013.09.318>
19. Sugiarta, I., Mardana, I., Adiarta, A., & Artanayasa, W. (2019). Filsafat pendidikan Ki Hajar Dewantara (tokoh timur). *Jurnal Filsafat Indonesia*, 2(3), 124-136. <https://doi.org/10.23887/jfi.v2i3.22187>
20. Sumarno. Tejo. (2022). Pengaruh Penggunaan Aplikasi E-Gamelan Terhadap Minat Belajar Siswa SMP Tunagrahita Ringan Pada Pembelajaran Seni Karawitan di SLB A YKAB Surakarta
21. Sumarsam. (2003) *Gamelan " Interaksi Budaya dan Perkembangan Musikal di Jawa*. Yogyakarta : Pustaka Pelajar Offset
22. Soeroso. (1993). *Bagaimana Bermain Gamelan*. Jakarta : Balai Pustaka
23. Tarigan, M. (2022). Filsafat Pendidikan Ki Hajar Dewantara dan Perkembangan Pendidikan di Indonesia. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*, 3(1), 149–159. <https://doi.org/10.33487/mgr.v3i1.3922>
24. Tarigan, M., Alvindi, A., Wiranda, A., Hamdany, S., & Pardamean, P. (2022). Filsafat pendidikan Ki Hajar Dewantara dan perkembangan pendidikan di Indonesia. *Mahaguru*

-
- Jurnal Pendidikan Guru Sekolah Dasar, 3(1), 149-159.
<https://doi.org/10.33487/mgr.v3i1.3922>
25. Yektiana, N., & Nursikin, M. (2022). Integrasi pendidikan nilai dalam pembelajaran dari segi perspektif Ki Hajar Dewantara dan John Dewey. *Jiip - Jurnal Ilmiah Ilmu Pendidikan*, 5(4), 1279-1284. <https://doi.org/10.54371/jiip.v5i4.560>