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Angklung Bina Nusantara Application as an Alternative Music Learning Media for PGMI Students

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ABSTRAK

Penelitian ini bertujuan untuk mendeskripsikan pemanfaatan aplikasi Angklung Bina Nusantara sebagai alternatif media pembelajaran musik bagi mahasiswa PGMI. Latar belakang penelitian ini adalah pembelajaran musik yang masih cenderung teoritis dan konvensional, keterbatasan alat musik fisik, serta rendahnya kepercayaan diri sebagian mahasiswa dalam praktik musik. Penelitian ini menggunakan pendekatan kualitatif deskriptif dengan dukungan data kuantitatif sederhana. Data diperoleh melalui observasi, wawancara, angket respons mahasiswa, dokumentasi, dan penilaian praktik. Analisis penelitian menggunakan kerangka Technological Pedagogical Content Knowledge atau TPACK untuk melihat keterpaduan antara teknologi, pedagogi, dan konten pembelajaran. Hasil penelitian menunjukkan bahwa penggunaan aplikasi Angklung Bina Nusantara memberikan dampak positif terhadap pembelajaran musik. Sebelum penggunaan aplikasi, 63% mahasiswa mengaku memiliki kemampuan musik rendah. Setelah aplikasi diterapkan, mahasiswa menjadi lebih percaya diri, aktif berlatih secara mandiri, mampu memahami unsur dasar musik seperti nada, ritme, dan harmoni, serta mampu memainkan lagu sederhana secara berkelompok. Hasil penilaian praktik menunjukkan bahwa sebagian besar mahasiswa memperoleh nilai pada kategori baik hingga sangat baik, yaitu pada rentang 4,00–5,00. Dalam perspektif TPACK, aplikasi ini mendukung aspek teknologi melalui penggunaan media digital, aspek pedagogi melalui pembelajaran aktif dan kolaboratif, serta aspek konten melalui penguatan pemahaman musik angklung berbasis budaya lokal. Dengan demikian, aplikasi Angklung Bina Nusantara dapat digunakan sebagai media alternatif yang praktis, interaktif, dan kontekstual dalam pembelajaran musik bagi mahasiswa PGMI.

Kata kunci: Angklung Bina Nusantara; media pembelajaran; pembelajaran musik; PGMI; TPACK.

ABSTRACT

This study aims to describe the use of the Angklung Bina Nusantara application as an alternative music learning media for PGMI students. The background of this research is music learning that still tends to be theoretical and conventional, the limitations of physical musical instruments, and the low confidence of some students in music practice. This study uses a descriptive qualitative approach supported by simple quantitative data. Data were obtained through observation, interviews, student response questionnaires, documentation, and practice assessments. The research analysis uses the Technological Pedagogical Content Knowledge or TPACK framework to see the integration between technology, pedagogy, and learning content. The results of the study show that the use of the Angklung Bina Nusantara application has a positive impact on music learning. Before using the application, 63% of students admitted to having low musical skills. After the application is implemented, students become more confident, actively practice independently, are able to understand basic elements of music such as tone, rhythm, and harmony, and are able to play simple songs in groups. The results of the practical assessment showed that most students obtained scores in the good to very good category, namely in the range of 4.00-5.00. From TPACK's perspective, this application supports the technological aspect through the use of digital media, the pedagogical aspect through active and collaborative learning, and the content aspect through strengthening the understanding of angklung music based on local culture. Thus, the Angklung Bina Nusantara application can be used as a practical, interactive, and contextual alternative media in music learning for PGMI students.

Keywords: Angklung Bina Nusantara; learning media; music learning; PGMI; TPACK.

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INTRODUCTION

Music learning in the education of prospective madrasah ibtidaiyah teachers has an important position because music is not only related to aesthetic skills, but also to the development of creativity, sense of taste, motor coordination, the ability to work together, and appreciation for culture. For students of the Madrasah Ibtidaiyah Teacher Education Study Program (PGMI), mastering the basics of music learning is a relevant pedagogical provision, considering that they are expected to be able to design art learning that is interesting, contextual, and in accordance with the characteristics of elementary school-age students. In the context of basic education, music is seen as having a role in children's development, both in terms of expression, learning experience, and the formation of a pleasant learning atmosphere.

One of the challenges in learning music for PGMI students is the limited musical experience and access to musical instruments. Not all students have a background in musical arts, the ability to read notation, or the opportunity to practice using instruments directly. On the other hand, music learning should ideally not stop at theoretical understanding, but also need to involve practical activities, exploration of sounds, rhythmic-melodic experiences, and musical cooperation. This condition requires alternative learning media that is easily accessible, simple to use, and able to help students experience the process of music in a more concrete way.

Angklung is one of the traditional Indonesian musical instruments that has educational and cultural value. UNESCO designated Indonesian Angklung as a Representative List of the Intangible Cultural Heritage of Humanity in 2010. UNESCO explains that angklung is an Indonesian musical instrument composed of two to four bamboo tubes in a bamboo frame and played by shaking. The angklung character played collectively makes it relevant for music learning because it emphasizes listening, pitch accuracy, coordination, discipline, and cooperation between players. These values are in line with the needs of art learning at PGMI which not only emphasizes musical skills, but also social experiences and cultural appreciation.

However, the use of angklung as a learning medium often faces practical obstacles. The availability of adequate angklung devices, practice rooms, procurement costs, and instrument maintenance can be an obstacle, especially in classrooms with a large number of students. Similar obstacles are also often found in learning music arts in schools, such as the limitations of supporting musical instruments, the lack of special spaces, and the limitations of teachers' skills in providing practical examples. Therefore, there is a need for alternative media that can bridge these limitations without eliminating the essence of the musical experience to be achieved. The development of digital technology opens up opportunities for the use of gadget-based applications as a medium for learning music. Mobile learning is considered to have the potential to support learning because it allows more flexible, interactive, and close access to the daily lives of students and students. A systematic study of mobile learning in higher education shows that mobile-based learning can support interaction, content creation, communication, collaboration, and learning effectiveness. In the context of music education, the use of digital applications is also developing as a means to help understand concepts, practice musical skills, and increase learning motivation.

One of the applications that can be used in this context is Angklung Bina Nusantara. Based on the description on the App Store, this application allows users to choose a tone, shake the phone, and then produce an angklung sound according to the selected tone. The app also provides a note locking feature so that it doesn't change accidentally as well as an angklung vibrating mode, so that multiple users can play different notes together to form a simple angklung game. These features show that the app not only serves as a sound simulation, but also has the potential to be used as a collaborative musical practice medium.

From the perspective of learning technology, the use of applications such as Angklung Bina Nusantara can be understood as an effort to integrate technological knowledge, pedagogy, and music content. Mishra and Koehler developed the framework of Technological Pedagogical Content Knowledge (TPACK), which is an understanding of how technology can be combined with pedagogical strategies and teaching materials in a meaningful way. Thus, the use of angklung applications in PGMI student learning is not enough only to see the availability of technology, but

also from how the application is designed in learning activities, for example to recognize the high and low notes, play simple melody patterns, practice group coordination, or develop music learning designs based on local culture.

Research on application-based music learning media has shown that digital applications can be an alternative in helping students understand music concepts and practice in a more interesting way. For example, the development of the Android-based Musicroid app is aimed at helping students understand the concept of chords and how to play them in learning the art of music. Research on application-based music learning media has shown that digital applications can be an alternative in helping students understand music concepts and practice in a more interesting way. For example, the development of the Android-based Musicroid app is aimed at helping students understand the concept of chords and how to play them in learning the art of music.

Although much research has been done on application-based music learning media, most studies still focus on the development of general music applications, Android-based applications for chord recognition, or the use of digital media in music learning in schools. Studies that specifically place the Angklung Bina Nusantara application as an alternative music learning media for PGMI students are still relatively limited. In addition, previous research has not examined the integration between digital music applications, local culture-based music learning, and pedagogical needs of PGMI students as prospective MI teachers. Therefore, the research gap in this article lies in the lack of studies that discuss the use of the Angklung Bina Nusantara application in the music learning of PGMI students using the Technological Pedagogical Content Knowledge or TPACK framework. The novelty of this research lies in the use of the Angklung Bina Nusantara application as a digital music learning medium based on local culture which is analyzed through the integration of technological aspects, pedagogy, and music learning content.

This research was conducted on students of the Madrasah Ibtidaiyah Teacher Education Study Program or PGMI UIN Sunan Kudus who took the MI/SD Arts and Culture course. The selection of PGMI UIN Sunan Kudus students as a research sample was based on their direct involvement in music learning using the Angklung Bina Nusantara application. PGMI students are considered relevant as research subjects because they are prospective MI teachers who need to have the ability to design art learning that is simple, creative, contextual, and in accordance with the characteristics of madrasah ibtidaiyah age students. Based on this context, the formulation of the problem in this study is how to use the Angklung Bina Nusantara application as an alternative music learning media for PGMI UIN Sunan Kudus students, how to respond and engage students in the use of the application, and how the Angklung Bina Nusantara application supports the integration of technological aspects, pedagogy, and music learning content based on the TPACK framework.

Based on this description, this article departs from the need to examine the potential of the Angklung Bina Nusantara application as an alternative music learning media for PGMI UIN Sunan Kudus students. The focus of the study is directed at how this application can help students recognize the sounds and tones of angklung, provide a simple musical practice experience, increase student involvement in learning, and strengthen music learning based on local culture and digital technology. By using the TPACK framework, this research is expected to contribute to the development of music learning media within PGMI, especially in presenting art learning that is more practical, contextual, and adaptive to technological developments.

Research Methods

This study uses a descriptive qualitative approach supported by simple quantitative data. This approach was chosen because the research aims to describe the use of the Angklung Bina Nusantara application as an alternative music learning media for PGMI students, especially related to the process of using the application, student responses, learning benefits, and obstacles that arise during the activity. Descriptive qualitative research is suitable to be used to understand learning phenomena contextually because the data studied is not only in the form of numbers, but also experiences, responses, interactions, and meanings that arise in the learning process. In the study of application-based music learning media, digital technology can be used as an auxiliary medium to support the understanding and experience of learning music, as seen in the development of the Musicroid

application as an Android-based music art learning medium. The research on Android-based music media development shows that digital applications can be designed to help students understand music material through more practical and accessible devices.

The grand theory used in this study is Technological Pedagogical Content Knowledge or TPACK developed by Mishra and Koehler. The TPACK framework is used because this study examines the use of digital applications in music learning which involves three main elements, namely technology, pedagogy, and learning content. Mishra and Koehler explained that TPACK is a framework of teachers' knowledge in integrating technology into learning by considering the relationship between technology, pedagogical strategies, and teaching materials. Koehler and Mishra also emphasized that TPACK is a development of pedagogical content knowledge that incorporates the technological dimension as an important part of modern learning practices. In this study, the technological aspect is seen from the use of the Angklung Bina Nusantara application, tone selection features, sound quality, accessibility, and ease of use. The pedagogical aspect is seen from the lecturer's strategy in using the application, the form of learning activities, student involvement, and individual and group interactions during the learning process. The content aspect is seen from the suitability of the application with the musical material, especially the introduction of angklung sounds, tones, simple melody patterns, rhythms, and appreciation of traditional Indonesian music.

The subject of this research is a student of the Madrasah Ibtidaiyah Teacher Education Study Program at UIN Sunan Kudus who took the MI/SD Arts and Culture course. The subjects were chosen purposively, namely based on the direct involvement of students in learning music using the Angklung Bina Nusantara application. In addition to students, lecturers who teach courses are also used as informants to obtain data on learning planning, media use, and assessment of the relevance of applications in music learning. The selection of informants is purposively relevant in qualitative research because researchers need informants who are considered to know, experience, and understand the phenomenon being studied. The object of this research is the use of the Angklung Bina Nusantara application as an alternative medium for music learning. This application is not positioned as a complete replacement for physical angklung musical instruments, but as an auxiliary medium that can be used when learning faces the limitations of musical instruments, practice rooms, rehearsal time, or students' musical experiences.

Data collection techniques are carried out through observation, interviews, student response questionnaires, and documentation. Observation is used to observe the learning process, student activities, application usage, involvement in music practice, as well as obstacles that arise during learning. Interviews were conducted with students and lecturers to obtain more in-depth information about the experience, perception, benefits, and limitations of the Angklung Bina Nusantara application. The student response questionnaire was used to obtain supporting data regarding the ease of use of the application, media appeal, clarity of sound, benefits for understanding music material, and suitability of the application with music learning for PGMI students. Documentation is used to complete the data through photos of activities, learning notes, screenshots of the application, survey results, and other supporting documents. The research instrument consisted of observation guidelines, interview guidelines, student response questionnaires, and documentation sheets. The use of several data collection techniques is intended so that the data obtained is more complete and can reinforce each other.

Data was analyzed using an interactive analysis model that included data reduction, data presentation, and conclusion drawn. Miles, Huberman, and Saldaña's interactive analysis model is used because it is suitable for managing qualitative data through the process of data sorting, information compilation, and conclusion verification on an ongoing basis. The data from observations, interviews, questionnaires, and documentation were reduced by selecting information relevant to the focus of the research, then presented in the form of a narrative description that was strengthened with interview excerpts and a simple percentage of the questionnaire results. Data analysis is also directed based on the TPACK framework to see the integration between application technology, learning strategies, and angklung music content. The validity of the data is carried out through triangulation techniques and source triangulation. Technical triangulation is carried out by comparing the results of observations, interviews, questionnaires, and documentation, while source

triangulation is carried out by comparing information from students and teaching lecturers. Through this procedure, this research is expected to be able to provide a complete picture of the potential of the application of Angklung Bina Nusantara as an alternative music learning media that is practical, contextual, and relevant for PGMI students.

Results

The results of the study show that the use of the Angklung Bina Nusantara application for PGMI UIN Sunan Kudus students has a positive impact on the music learning process. Before the app was used, music learning still tended to be theoretical and conventional. Students do not understand the basic elements of music such as tone, rhythm, and harmony, and are not used to using digital applications as a medium for music practice. After the application is applied, students are able to play simple songs, understand musical elements, and show improved abilities in pitch accuracy, rhythm, and group cohesion. Field data showed that before the activity, 63% of students admitted to having low musical skills, while after using the application, students became more confident and actively practiced independently. The results of the practical assessment also showed that most students obtained scores in the good to very good category, namely in the range of 4.00-5.00.

The use of the Angklung Bina Nusantara application also has an impact on changing the learning atmosphere. Students who previously tended to be passive in music practice become more active, enthusiastic, and involved in group activities. Learning becomes more interactive because students not only receive explanations from lecturers, but also try directly using the application to play notes, follow rhythm, and adjust the game with group members. In addition, students stated that learning music became easier to understand, fun, and less boring. This condition shows that the Angklung Bina Nusantara application is able to increase student participation and confidence in music learning.



Figure 1 Practice of using the Angklung Bina Nusantara application in music learning for PGMI students

In terms of the use of digital media, the results of the study show that students and lecturers are able to operate the Angklung Bina Nusantara application in the learning process. Before the use of applications, learning had not made optimal use of digital media. Once the application is implemented, learning becomes more flexible because students can practice independently outside the classroom. Lecturers can also conduct evaluations through practice video recordings and digital evaluation sheets. Thus, the app helps overcome the limitations of physical musical instruments, practice time, and practice rooms in music learning.

In general, the results of the study show that the Angklung Bina Nusantara application can be used as an alternative music learning media for PGMI students. This application supports the improvement of students' musical skills, strengthens involvement in group practice, and helps

students get to know angklung as a traditional instrument that can be adapted through digital technology. Therefore, the Angklung Bina Nusantara application can be positioned as a practical, interactive, and contextual learning media in music arts learning for prospective MI teachers.

Discussion

The findings of the study show that the Angklung Bina Nusantara application has relevance as a music learning medium because it is able to connect digital technology, learning strategies, and angklung music content. This is in line with the Technological Pedagogical Content Knowledge or TPACK framework developed by Mishra and Koehler. TPACK explained that the integration of technology in learning is not enough to just present digital devices, but must consider the relationship between technology, pedagogy, and learning content. Mishra and Koehler explained that TPACK is a framework for teachers' knowledge in integrating technology into learning by building a link between technological knowledge, pedagogical knowledge, and content knowledge.

In the Technology Knowledge aspect, the use of the Angklung Bina Nusantara application shows that technology can help overcome some obstacles in music learning, especially the limitations of physical musical instruments and practice time. Students can use digital devices to recognize notes, try out simple song patterns, and practice independently. Lecturers also get convenience in providing practical assignments and conducting evaluations through digital documentation. This finding is in line with the research of Purwanto, Widaningrum, and Nurfitri who developed the Musicroid application as an Android-based music art learning medium. The research shows that digital music applications can be used as a practical learning medium and are easily accessible to students.

In the aspect of Pedagogical Knowledge, the Angklung Bina Nusantara application encourages more active, participatory, and collaborative learning. Students not only learn musical concepts theoretically, but also engage directly in the practice of playing notes, following rhythms, and working together in groups. This change is important because learning music requires hands-on experience so that students can understand musical elements more concretely. Within the framework of TPACK, learning technologies must be selected and used in accordance with pedagogical strategies and the characteristics of the material being taught. Koehler and Mishra emphasized that TPACK places technology, pedagogy, and content as three interconnected components in learning practice.

In the Content Knowledge aspect, the Angklung Bina Nusantara application helps students understand basic elements of music such as tone, rhythm, harmony, and simple song playing. In addition, this application also introduces angklung as part of the local culture that can be developed in technology-based learning. Thus, the learning content is not only oriented to musical skills, but also to the introduction and appreciation of traditional Indonesian music. The findings on this content aspect complement previous findings on the technology and pedagogical aspects, so that the use of the Angklung Bina Nusantara application can be understood as a form of integration between digital media, active learning strategies, and traditional music materials. To clarify the relationship between these three aspects, a summary of research findings based on the TPACK framework is presented in Table 1.

Tabel 1 1 Research Findings Based on the TPACK Framework

Aspects of TPACK	**Research Findings**
Technology Knowledge	Students and lecturers are able to operate the Angklung Bina Nusantara application; Learning becomes more flexible, efficient, and adaptive to digital technology.
Pedagogical Knowledge	Learning is changing from conventional to more active, participatory, collaborative, and fun.
Content Knowledge	Students better understand tone, rhythm, harmony, and are able to play simple songs through digital angklung practice.
TPACK	The application successfully integrates digital technology, active learning strategies, and traditional angklung music content as a music learning medium for PGMI students.

CONCLUSION

Based on the results of the research, the use of the Angklung Bina Nusantara application can be concluded as an alternative music learning media that is relevant for PGMI students. This application is able to help overcome the limitations of music learning which previously still tended to be theoretical, conventional, and constrained by the limitations of physical musical instruments and practice time. After the application was applied, students showed improvement in understanding the basic elements of music, especially tone, rhythm, harmony, and the ability to play simple songs in groups. Field data showed that students who previously claimed to have low musical skills became more confident, actively practiced independently, and obtained practical scores in the good to excellent category.

Viewed from the framework of Technological Pedagogical Content Knowledge or TPACK, the Angklung Bina Nusantara application is able to integrate aspects of technology, pedagogy, and learning content. In terms of technology, the application helps students and lecturers adapt to digital media so that learning becomes more flexible, efficient, and easy to evaluate. In terms of pedagogy, the app encourages more active, participatory, collaborative, and fun learning. In terms of content, the application helps students understand angklung music material while strengthening their appreciation for traditional Indonesian music. Thus, the Angklung Bina Nusantara application can be positioned as a music learning medium that is practical, interactive, contextual, and in accordance with the needs of PGMI students as prospective MI teachers.

However, the Angklung Bina Nusantara application is more appropriate to be used as an alternative or supporting media, not as a complete replacement for physical angklung musical instruments. The experience of playing angklung directly is still necessary so that students can gain a more complete musical experience, especially in the aspects of movement, playing techniques, sound sensations, and real musical cooperation. Therefore, this application can be used as a medium for initial introduction, independent practice, strengthening the concept of tone and rhythm, and supporting music learning based on local culture in the PGMI environment.

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