

ASSESSING EXPERIENCE OF LEARNING GAMELAN INSTRUMENT VIA TECHNOLOGY UTILIZATION DURING COVID-19 PANDEMIC

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Abstract

The COVID-19 pandemic has changed the landscape of how people work, learn, communicate, and spend their leisure time. Music education is no exception, where technology has shifted the conventional method of instruction among music instructors during Online and Distance Learning (ODL). Most attention is given to immediate development of platforms and tools to aid music teaching and learning, yet a few studies conducted to assess the university students' musical instrument learning experience upon technology utilization. Hence, this study aims to assess the learning experience among university students who learn Gamelan (traditional music) instruments using two online platforms; mobile application (app) and Massive Open Online Course (MOOC) during Gamelan lessons. Our study gathered data from 63 participants, taking HKB113 Gamelan 1 course at University Teknologi MARA (UiTM) Cawangan Pahang Raub Campus. These students used one of the Gamelan instrument mobile apps, Saron and MOOC via UFUTURE platform during their Gamelan lessons. A post-experience questionnaire was then distributed among the students. The questionnaire was obtained and extracted based on the relevant items in Exit Survey and Students' Feedback Online (SuFO). The results of the Post-Experience Questionnaire, which include (i) knowledge, (ii) course content, (iii) method and tool used, (iv) and (v) the ability in playing the Gamelan instrument show the effectiveness of the utilization of the Saron mobile application and MOOC contents via UFUTURE being used. This study contributes to the literature regarding technology utilization during the pandemic in the context of learning music in higher institutions. Besides, this study offers insights and opportunities for the mobile app providers and MOOC developers in the field of musical instrument software development industry.

Keywords: Gamelan Learning Experience, Massive Open Online Course (MOOC), Mobile App, Online Platform, Open and Distance Learning (ODL)

Introduction

Coronavirus disease (COVID-19) was first discovered in November 2019 in China and started to spread around the world in early 2020 (Davidson, 2020). COVID -19 was announced as pandemic by the World Health Organisation (WHO) in March 2020 (WHO Director-General's Opening Remarks at the Media Briefing on COVID-19 - 11 March 2020, 2020). Due to the pandemic Covid-19, the landscape of how people live has changed. According to Mazlan et al.

(2021), governments especially in Malaysia implemented Movement Control Order (MCO) as one of the initiatives to prevent and break the spread of the Covid-19 pandemic. Any outdoor activities and the operation of many areas from educational to business sectors are restricted and must follow the standard operating procedure (SOP) outlined by the government (Mazlan et al., 2021). Many educational institutions around the world including Malaysia have to change the way of learning and teaching process by implementing the ODL strategy to replace the traditional way which is face-to-face learning to the online learning strategy (Chung et al., 2020).

Technology integration has transformed the process of learning musical instruments, providing unprecedented accessibility and convenience. The use of the internet and mobile devices such as smartphones, tablets and laptops into the distant learning process allows for the delivery of online lectures, seminars, webinars and classes at any time and in any location (Salakhova et al., 2020). Video conferencing application such as Skype, Zoom and Webex enable educators to provide online classes to students and the students may access it from both a computer and a tablet with a phone (Salakhova et al., 2020). Online learning or MOOC now offer extensive courses and tutorials, allowing students to get knowledge and materials from anywhere in the world (Faisal & Kisman, 2020). There are several learning management system available to be used for online learning such as Google Classroom and UFUTURE which used by UiTM (Zakariah et al., 2021). Thus, the students can study independently, watch previous lectures or presentations again, and learn at their own speed (Salakhova et al., 2020). Mobile applications that offer virtual instrument simulations give students a priceless chance to develop their abilities and techniques in a virtual setting, doing away with the need for actual instruments (Mazlan et al., 2021). Utilizing technology such as online learning and mobile application has transformed the teaching and learning strategies in music education. The students now can learn music and attending class from anywhere and anytime.

Gamelan 1 (HKB113) is part of the co-curricular subjects enrolled by the diploma students in UiTM Cawangan Pahang Raub Campus. The students who registered HKB113 are required to be in campus to learn this subject because one of the teaching methods for this subject is through practical and hands-on training. The Gamelan instruments are provided by the university. The students will be guided and monitored by the instructors during the face-to-face session. However, since March 2020, the students and instructors have to follow the ODL strategy due to the pandemic Covid-19. They have to learn the Gamelan lesson online, using self-study method and practice on their own. The students are not allowed to be in the campus due to MCO and most of the students do not have the set of Gamelan instruments at home because the price is high (Mazlan et al., 2021). Since learning musical instruments naturally fits practice-based approaches, this situation could be challenging for both students and teachers without the right approach and solution (Mazlan et al., 2021).

Hence, the instructors of HKB113 have decided to use a mobile application called Saron as a tool to replace the actual Gamelan instrument. It is a mobile application that was developed based on Android and can be downloaded from Play Store (Apriani & Julia, 2019). The application will allow the students to experience the gamelan instrument via the application (Apriani & Julia, 2019). Besides that, the application is available for the students to utilize independently at any time and place. Besides, the students will utilize the Massive Open Online Course (MOOC) via UiTM in-house platform UFUTURE to assist them in learning Gamelan. This ODL strategy will enable the students to study Gamelan by themselves which they have the flexibility to study at any places and any time according to their own pace (Zakariah et al., 2021).

Thus, the aim of this study is to access the learning experience of the HKB113 students who used the Saron mobile application and MOOC via UFUTURE during the Gamelan lessons. A post-experience questionnaire was then distributed among the students. The

questionnaire was obtained and extracted based on the relevant items in Exit Survey and Students' Feedback Online (SuFO). These two surveys being carried out among UiTM students to obtain feedbacks from the students for every course that they enrol in current academic semester. This study contributes to the literature regarding the current teaching and learning strategy which is Open and Distance Learning (ODL) during the pandemic, the methodologies of teaching and learning during ODL, teaching music online during COVID-19 pandemic and the learning music process via mobile application and MOOC platform. This study might offer insights and opportunities in the development of musical applications towards the providers and the developers of mobile applications. The organization of this paper is as follows: 1) Introduction, 2) Literature Review, 3) Methods, 4) Results and Discussion and lastly 5) Conclusion.

Literature Review

Open and Distance Learning (ODL)

According to Bradley and Yates (2000), Nayak et al. (2020), and Kant (2020), ODL is one of the most rapidly growing fields of education today and has an extensive impact on all education delivery systems. ODL is a system of education wherein lecturers and students need not be present either at same place or same time; but is flexible in regard to modalities and timing of teaching and learning. This adoption of technology has enriched the popularity for online learning in educational industries as it offers limitless potential in terms of flexibility and accessibility. Moreover, the usage of the technology among the lecturers who implement ODL can improve the interaction as well as collaboration among students (Saima et al., 2012).

Students experienced ODL has tremendous advantages including learning at their own pace. ODL offers students the opportunity to study on their own and have the opportunity to learn at any time, from anywhere at their own stride. In addition, ODL offers the opportunities to promote interaction between students and lecturers as well as with experts. According to Croxto (2014) online courses with high levels of interactivity lead to higher levels of student motivation, improved learning outcomes, and satisfaction over less interactive learning environments. This results in higher-order thinking skills among students.

Teaching and Learning Methodologies During ODL

Italics Singh and Thurman (2019) discovered 46 definitions for online learning over the course of a 30-year literature review, several of which are interchangeable, and online education or eLearning is commonly described as the use of web-based technology to bridge the gap between the teacher and the student. According to Amity (2020), there are three ways of online learning either asynchronous, synchronous and hybrid online learning. First, the asynchronous online learning method is referred to as unsynchronized method of learning, granted that the participation of the teacher and the students can be distinct. This method is similar to recorded online lecture method. While the synchronous method is the reflect of asynchronous method, since the participation of a teacher and a student should be simultaneously present, they should meet online on whichever platform they decided to work on and cooperate just like they do in a real-time classroom. In a simple word, this method uses live online lecture as the way of knowledge transfer. The last one, the hybrid online learning method is a combination of both synchronous and asynchronous ways of learning online.

Among the application used for creating a medium or virtual classroom for the students and the lecturer to communicate to each other are WhatsApp, Telegram, Google classroom, Signal, and Kaizala. WhatsApp was the most preferred platform as it is easy to handle and does

not require any technical skills for operating, especially by school students (Selvaraj et al., 2021). Furthermore, WhatsApp has always been the go-to application for communication now. Besides that, there are also those who prefer Telegram because of the existence of extra functions in Telegram compared to WhatsApp. For example, Telegram lets users share larger file and longer videos. There are also some of the educators especially in higher learning institution who used Google Classroom as the medium for their online learning sessions. This is because the students in the higher-level education are more mature to explore the new technology by themselves and the majority of them have their own mobile phone devices as compared to the school students.

Educators who preferred recorded lecture as their method to transfer the knowledge to the students, used various application to share or upload the recorded video directly into the virtual group classroom created or into video sharing platforms like YouTube, TikTok etc. Meanwhile, educators who preferred live online lectures as their method to share the knowledge to the students, arranged their online classes using the online platforms of Google Meet mostly, while small number of them used Zoom, WebEx, and Microsoft teams to support their live lectures. This preference for synchronous online classes might have been attributed to the fact that it resembles regular face-to-face classes more which is a must in higher education (Hrastinski, 2008). Asynchronous learning, which uses recorded lectures, may not be as effective as face-to-face learning since students are less aware of their responsibilities to study, especially during this time. Live classes allow for more real-time contact, and quick feedback adds to the dynamic nature of online learning.

Teaching Music Online During COVID-19 Pandemic

During the pandemic period, the closure of educational institutions has affected the curricular activities such as musical instrument lessons at universities, as many of them had to complete their learning by interacting remotely with instructors that they might have never met in person. Formerly, learning musical instruments could be done face to face using hands-on approach, and now it is impossible. Without proper approach and solution, this situation could cause difficulties among students and instructors, as learning musical instruments obviously fit the practice-based approaches (Mazlan et al., 2021). In this sense, music instructors worldwide need to be agile in seeking for practical and creative solutions in order to switch from practice into technology – based situation. The COVID-19 pandemic completely changed the music education landscape. Thus, music educators used social networking sites to share lesson materials they had created such as recorded videos, rubrics, accompaniments, lesson plans, songs, tracks etc.

However, being able to utilize the available tools effectively requires an understanding not only on the technology itself, but also the effective teaching approach. In this sense, music instructors should analyze and match the uses and technologies with the particular content of the musical instruments. It is impossible for music instructors to utilize all available resources to select the most effective tools (Lv & Luo, 2021).

Learning Music via Mobile Application

The invention of Internet and the rapid growth of smartphone technology leads to the emergence of the trend of using mobile applications in various aspects of life. Nowadays, people could perform daily activities with mobile phone applications anytime and everywhere (Elkhair et al., 2019). Besides, mobile application is also one of the recent advancements that supports and extends learning beyond conventional classroom. In this sense, mobile applications become a significant educational tool that provide an effective platform to all level

of learners. Further, mobile learning applications emphasize on the delivery approach where learners could move in terms of objects, locations, times and social interactions. It supports for collaboration involving students and teachers from different locations and help students where they can work in groups rather than working individually in solving some problems, and they can share the solutions with the whole class.

Today, students are familiar with mobile apps as it provides students with music understanding and skills in a more personal environment (Cho et al., 2019). Further, many researches discussed regarding technologies as effective tools for facilitating learning in music. It is reported that there are seven types of app which can be used in music education: rehearsal/performance assistance, creating music, teaching instruments, providing virtual instruments, audio/video recording, listening resources, and organizational support. A study conducted on the advantages of mobile applications in learning process and the results show that mobile app able to develop critical thinkers among the students (Ravi Sunitha & Elina, 2020). Besides, the study concludes that mobile app plays a remarkable role in shifting the traditional approach into online learning process.

Learning Music via MOOC Platform

Massive Open Online Course (MOOC) is a learning approach that is widely used around the world as one of the ODL strategies that can be implemented during the COVID-19 which the students will have their own pace of study, flexibility in time and can be accessed at any places (Zakariah et al., 2021). The concepts that is implemented in MOOC are massive connection, e-learning and openness which mean there is no restriction of registration because most of the MOOCs platforms are free for all people around the world (AlQaidoom et al., 2020). MOOC platform is not opened only for certain institutions but to all learners around the world (Zakariah et al., 2021).

The teaching and learning processes through online are implemented in MOOC platform such as virtual feedback and interaction, sharing recorded video, online discussion and evaluation (AlQaidoom et al., 2020). The instructors will provide all the course materials in the MOOC platform such as lab tutorials, music instruments demonstrations and lecture notes. People around the world can join and study based on their own pace when using the MOOC platform as long as they have the internet connection (AlQaidoom et al., 2020). They can use and have all the materials provided many times such as watch the recorded videos and read the notes given repeatedly. Besides, the instructors and the learners can conduct discussions, evaluations and feedback through online at any time and any places.

Methods

A total of 63 diploma students of UiTM Pahang Raub Campus who enrolled HKB113 Gamelan 1 were the participants of this study. HKB113 is one of the co-curricular courses offered by Universiti Teknologi MARA that provides the basic understanding of Gamelan music. This study was conducted during the second semester of ODL (March – August 2021) implementation using Post-Experience Questionnaire and distributed to students after each ODL session ended from Week 2 to Week 14 of the semester. The primary objective of this study is to assess the learning experience among university students who learn Gamelan (traditional music) instruments using both platforms; mobile app and MOOC.

The App

The Saron app used in this study is a free app for Android published in the Audio File Players list of apps, part of Audio & Multimedia. It is developed by PTD Studio. The Saron Digital app is easy to access because it is already available in the Google Play Store, so we only have to download it. Saron is a musical instrument which is used in the Gamelan. It has 7 bronze bars placed on top of a resonating frame as shown in Figure 1. The Saron app enable students to touch the bars and experience the real sound of every note of it.



Figure 1: Saron Mobile App

HKB113 MOOC via UFUTURE

HKB113 Gamelan I MOOC is developed by the HKB113 course instructors. This platform provides an extensive online Gamelan classroom that comprises notes, teaching videos, performance videos and instrument demonstration. The developers utilize UFUTURE as one stop center platform that locate course materials and students' performances (Gamelan ensemble) showcase. Figure 2 shows the topic contents of HKB113 MOOC.

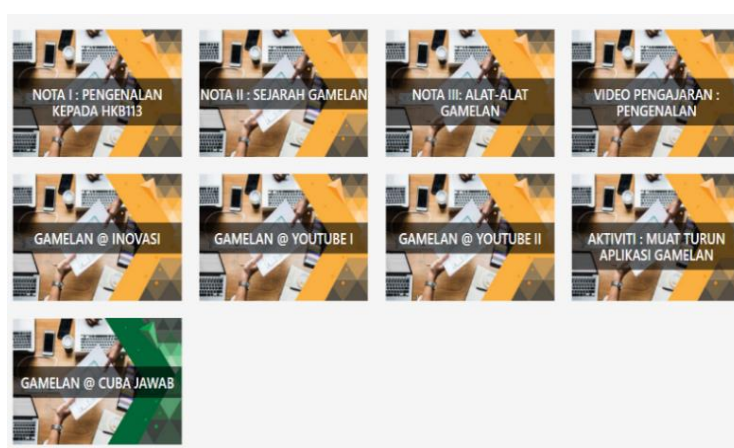


Figure 2: Topic Contents of HKB113 MOOC

Procedures

The student's Gamelan lessons lasted for 4 months from March to July 2021. The instructor demonstrates how to use Saron app to the HKB113 students. All students were required to install the Saron app in their mobile phones. For the treatment period, students were asked to play different Gamelan songs for every two weeks by using the app. By the end of the semester, a post-experience questionnaire was administered and carried out among 63 Gamelan students.

The Instrument

Once the utilization period of Saron app was completed, a post-experience questionnaire was then distributed among the students. The questionnaire was obtained and extracted based on the relevant items in Exit Survey and Students' Feedback Online (SuFO). These two surveys being carried out among UiTM students to obtain feedbacks from the students for every course that they enroll in current academic semester. Exit Survey and SuFO are among the mechanisms to facilitate faculties, academic centers, and UiTM branch campuses to improve the quality of teaching and learning activities. The questionnaire consisted of 5 items regarding the overall impression and experience of HKB113 Gamelan 1 course. The measure level adopts the four-digit Likert quantitative scales ranging from 1 ("Strongly Disagree") to 4 ("Strongly Agree"). Items were designed as shown in **Table 1** to elicit different kinds of information; (i) knowledge, (ii) content, (iii) method and tool, (iv) and (v) on the ability to demonstrate and play Gamelan instrument.

Table 1: Post Experience Items

No.	Items
1	I have increased my knowledge from taking the course.
2	I am able to understand the content of this course.
3	The method and tool used in this course has enhanced my learning ability.
4	I am able to play Gamelan instrument in a systematic manner.
5	I can play Gamelan instrument in a systematic manner.

Results and Discussion

The objective of this descriptive analysis is to report the data using frequencies and means to see the feedback patterns by the students. Besides, descriptive analysis being conducted to gain a deeper understanding of each student, including their opinions and perspectives on using mobile app and MOOC during Gamelan lessons. **Table 2** shows the overall mean scores of every item asked in the Post Experience Questionnaire distributed among the students. 4-point Likert scale is used to measure their experience which is: Strongly Disagree (1), Disagree (2), Agree (3), and Strongly Agree (4). It is showed that students were strongly agreed that there is an increase of knowledge from taking the course with highest mean score 3.6. It is also revealed that technology is effective to increase the understanding among the students with mean score 3.3. This outcome was predicted since the students have their own pace of study, flexibility in time and can access the learning materials at any place at any time. Next, familiarization with mobile apps supports and extends their learning ability with a mean score of 3.5 for item 3. Next, among the students expressed their agreements in item 4 and item 5 with similar mean score of 3.5. This is supported by the advantages of mobile apps and MOOC itself, such as

flexibility and accessibility, which have motivated the student to set their own pace of study in a systematic manner. Besides, the advanced features of mobile applications and MOOC too support collaboration involving students and instructors from different locations and help students where they can work in group rather than working individually in learning the instruments, and they can share their experience with the whole class. Overall, students are strongly agreed with course with high average mean score of 3.48. Accordingly, high agreement value for each item showed that students were agreed with the knowledge, content, method, and tool used for HKB113 throughout the semester.

Table 2: Mean Score Post Experience Questionnaire

No	Item	(1)	(2)	(3)	(4)	Mean
n=63						
1	I have increased my knowledge from taking the course.	0	0	26	37	3.6
2	I am able to understand the content of this course.	1	3	36	23	3.3
3	The method and tool used in this course has enhanced my learning ability.	0	0	33	30	3.5
4	I am able to play Gamelan instrument in a systematic manner.	0	3	28	32	3.5
5	I can play Gamelan instrument in a systematic manner.	0	2	26	35	3.5
Average Score			3.48			

Conclusion

As the results of the present study suggest, the student's impression and learning experience on the utilization of Saron mobile app and MOOC during Gamelan lessons are perceived positively. The results of the Post-Experience Questionnaire, which include (i) knowledge, (ii) course content, (iii) method and tool used, (iv) and (v) the ability in playing the Gamelan instrument show the effectiveness of the utilization of the Saron mobile application and MOOC via UFUTURE being used. This study contributes to the literature regarding mobile app and MOOC utilization during the pandemic in the context of music education in higher institutions. Accordingly, music instructors and students do not need to be present either at same place or same time and are flexible in regard to modalities and timing of teaching and learning musical instruments. Besides, this study offers insights and opportunities for the mobile app providers in the field of musical instrument software development industry.

Ethics Statement

The research does not require research ethics approval.

Authors' Contribution

“Writing – Original draft preparation: Mohd Azim Zainal; Literature Review: Mohd Azim Zainal, Juhaida Ismail; Methodology: Rozeleenda Abdul Rahman; Writing – Mohd Azim Zainal, Afifah Bazlla Md Soom, Roger Canda

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Conflict of interests

The authors declare that there are no conflicts of interest with this paper.

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