The stability of *Pianika*'s tempo in elementary school students

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Abstract. One of the problems that arise in elementary school students is difficult to stabilize the tempo track corresponds to a steady beat, particularly in terms of playing the melody, so between *Pianika* with tempo is not aligned. Thus the existence of the application is expected to help train students to maintain the stability of the tempo when playing *Pianika*. The research procedure used in this study, namely: (1) download the toc-toc metronome application; (2) introduces application (3); using the application; and (4) evaluation of the learning process. The research subjects were fifth-grade students in elementary school with aged 10-11 years. The results showed that in stabilizing tempo student's enough difficulty, but after using touch technology in learning, skills students can rise in stabilizing the tempo. It can be concluded, that with the application of toc-toc metronome simplify and enhance the skills students learn music, especially stabilizing the tempo in playing *Pianika*.

1. Introduction

Problem in playing musical instruments is difficult to stabilize student's tempo in playing *Pianika*, in this match with a steady beat. When students play a song the melody does not match with the song, while the melody stopped, but the knocking is not finished and vice versa when the finished beats' melody is still playing. If looking at it necessarily obviously reflected that the problem originated from the instability of the tempo adjusts so that students have an impact on the accuracy of the rhythmic song with time. Therefore, this issue needs to be addressed to improve the skills of students in playing music, more specifically, to stabilize the tempo when playing *Pianika* by using toc-toc metronome application.

There is a lot of research with regard to the use of the metronome as research Hanna and Morris [1], but their research focused upon the effect that the person addressed in the metronome of stuttering. Later research conducted Miller [2], but in the research focused on learning with constructivism approach, then students create own notation using a metronome, in his research that he exposes that every student will easily understand rhythmic notation and symbolically can help students start a rhythmic concept notation itself. As for the research of Kuhn and Booth [3] in the research they do discuss about tempo, but focus more to see the influence of activity plays a melody that varies with the plain melody, on the perception of tempo. There is no research that focuses on stabilizing the tempo by using the metronome android-based. So, we're interested in researching this issue.

The purpose of this research is to improve the skills of the students to play music, especially in terms of stabilizing the tempo when playing *Pianika*, android-based applications by using the metronome. In this research study focused on how students can keep to the tempo of the music when playing inflexible pieces especially *Pianika*. 
2. Methods
The research procedure used in this study, namely: (1) download the toc-toc metronome application; (2) introduces application (3); using the application; and (4) evaluation of the learning process. In this study, the research subjects were fifth-grade students in elementary school, located in the West Java Province, Indonesia, with an average age of 10-11 years, with a total of 22 students.

3. Results and discussion
3.1. Download Application
How to download the toc-toc metronome application very easily simply by using the android-based mobile phones, then open the menu of the playstore in android, search applications toc-toc metronome in the search field and click install of the application of toc-toc metronome then automatically download and is installed directly on the phone. On google apps aplyent store metronome based Android, but consideration of the toc-toc applications, choosing a metronome because the application has features that are complete enough to stabilize the tempo, but it looks very simple so we chose the application of toc-toc metronome on this research to facilitate students in using the application independently (see Figure 1).

![Figure 1](image.png)

Figure 1. Application toc-toc metronome in Google play store.

3.2. Introduces application
At this stage we are introducing application, toc-toc metronome is an application that is used to stabilize the tempo which in this case have the same function with actual metronome, can be obtained in google play store that has functioned the same as the actual metronome tool that is to stabilize the tempo of the music, especially in the study of tempo in playing in stabilizing Pianika. Tempo is a marker of the slowness of a quick piece of music is played, at a tempo, there were tapping certain units of minutes or commonly called bpm (beat per minute). Tempo serves to give the impression to others against an order that sounds beautiful music [4]. In music performances, the tempo is also known as a fundamental element in playing music [5]. A tempo, measuring device called a metronome is a time measuring device commonly used in playing the musical instruments [6]. This application is suitable for this research because it fits with the existing problems, more than that also this application is in accordance with the subject under study, namely elementary school students who still think concretely. Metronome to make the steady beat with less abstract for those students who still learn best through concrete operations [2]. The following is a feature that is available on the application of toc-toc metronome can be seen in Figure 2 below.
3. The use of the application
At this stage, we use the application by connecting the cell phone to the speaker so that the sound emitted is louder and the sound of the metronome is not less dominated by Pianika so that more students feel the tempo being played. Learning is done in groups, each group is given the opportunity to try playing Pianika using the toc-toc metronome application with our guide four times. Although in this activity we were quite confused because after four tries, students still had difficulties and there were still many mistakes in several parts, after we added the metronome sound and gave about five minutes for students to practice with each group new changes were seen.

3.4. Evaluation
At this stage, we do the evaluation in the form of test. The test we did in groups, each group playing the Pianika song of Ibu Kita Kartini with three different tempos, there are 60, 80, and 100 bpm (beats per minute), this activity we do to measure students' skills in stabilizing the tempo. At this stage, each group appears in the future, but in the five, groups were not all students can stabilize the tempo, there are some students who still have not been able to stabilize the tempo with the melody being played or even wrong in some parts, but in a majority of each group can play with right. Most students are difficulty stabilizing a fast tempo 100 bpm. The following Figure 3 on the evaluation stage played Pianika while paying attention to the tempo that comes out of the speakers was connected with the application of toc-toc metronome.
Based on the results of the evaluations that we have done to produce students that students enough difficulties in stabilizing the tempo, however, there is an increase in students in terms of stabilizing the tempo play *Pianika* after using the toc-toc metronome application. The result of the evaluation that is done can be seen from the student's skills before and after using the toc-toc metronome application, which we describe in the form of graphs in Figure 4 and 5 below.

![Figure 3. Evaluation phase.](image)

![Figure 4. The results of the test before using the application.](image)

![Figure 5. The results of the test after using the application.](image)
From Figure 4 and 5 above, we can see that by using the toc-toc metronome application to improve students' skills in stabilizing the tempo, because in addition to attracting the attention of students learning is done in contact with technology, so students are more interested in learning tempo and impact on student skills. This application can also be used to learn to stabilize the tempo independently, both slow, medium or fast tempos. There are many studies that describe how the use of technology in learning can improve student learning outcomes [7-10].

In the process of the research results, obtained showed not all students right in stabilizing the tempo. Look at the time of the evaluation, there are still some students are still less precise in terms of stabilizing the tempo with the melody of the song in some parts, even though the majority of students already in the stabilize the tempo, out of 22 subjects examined, 14 students can stabilize the tempo nicely from start to finish. Eight students were wrong in some parts, and none of the students could not stabilize from beginning to end. However, after we analyze, some of the students who are still wrong in some part influenced by the other factors, namely the students have not been good at memorizing song notations. In other words, the activity was the only influential variable affecting the tempo [3]. Based on the results obtained for further research are important to researchers pay attention to advance the level of memorizing the student against student notation, after completely memorized the next notation can improve in terms of tempo.

4. Conclusion

Based on the research we have done, it can be concluded that the use of the toc-toc metronome application can improve students' skills in stabilizing tempo in playing Pianika. Supported by the majority of people in today's era, they have used android phones so that certainly makes it easier for students to learn to stabilize tempos independently without dependency on teachers.

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