Learning Music Rhythm Through Application of Fruity Loops in Courses Music for Early Childhood

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Abstract. Rhythm as the basis for forming music certainly has an important and fundamental role in being able to be applied in other musical materials such as vocals and songwriting. The practical rhythm learning method used still does not use learning media that supports meeting learning outcomes. There are plenty of uses for learning rhythm that can bolster the applicability of theoretical knowledge of its use in classroom art instruction. Fruity Loops is a type of music software that is very popular with electronic musicians and various musicians who are not involved in the digital world. Identifying out how useful the Fruity Loops media program is for teaching musical rhythms is the main goal of this study. Pre-experimental design type one group pretest-posttest (initial test, single group final test) is used in this research procedure. It is known that the pretest average is 67 and the posttest average is 71 based on the findings of the paired sample test. Thus, it can be concluded that using the Fruity Loops media software helps the students learn and improve their abilities to play musical rhythms.

Keywords: Rhythm, Early Childhood, Fruity Loops

1 Introduction

Early Childhood Education (PAUD) is a development program designed for children under the age of six (six) years. This involves creating learning plans that support children's physical and spiritual development and help them prepare for school. This is related to the Decree of the Minister of Education and Culture Number 0486/U/1992 Chapter II Article 3 Paragraph 1 which states that the Kindergarten program is designed to help lay the foundation for future growth and development of students in terms of attitudes, behavior, knowledge, skills, and creativity. Teachers who are aware of children's needs and help them reach age-appropriate developmental stages are essential to providing high-quality education. Education is an effort to guide children from birth to reach physical and spiritual maturity in interactions with nature and their environment [1]. Universities must provide learning that meets teacher competency requirements in order to produce great teaching staff. In contrast, program learning outcomes focus more on what students can do or demonstrate in a broader scope, student performance results, and are produced based on the student's point of view and the needs of the field (world of work). Teachers as facilitators and tools in learning in an institution. Teachers are a factor that determines the quality of education because teachers deal directly with students in the learning process in the classroom.

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Efforts to prepare students to have the competence of a PAUD teacher certainly require the right steps and strategies. Course learning outcomes, in the concept of learning in higher education, emphasize everything that students have obtained at the end of the lecture, the lecturer's concepts and analysis, and are prepared based on the lecturer's point of view. As a means for students to meet demands and overcome problems in the field or world of work, the program's learning objectives are the embodiment of actions and skills from everything they already know and understand according to their knowledge and abilities. Additionally, students must have the skills needed to become preschool teachers.

In order to improve students' understanding and mastery of Music for Early Childhood subjects and prepare themselves to face industry demands, media is needed that can optimize learning of musical rhythms. Yunanto stated that the role of technology in developing good teaching materials for students, so that progress must be followed by developments in thinking and understanding of technology which spur us to always create new ideas and innovations [2]. The technological era offers advantages and disadvantages. As a result, three obstacles in various fields emerged. The field of education or learning is one of them. Apart from being applied and absorbed, music education fosters students' creativity and ability to express themselves according to their stage of development. All levels of education strive to achieve the same goals in music education: 1) Developing a sense of artistry in each student by helping them grow to become musically aware, responsive to music, and able to express themselves through music; 2) Develop the ability to assess music creatively and critically in accordance with national culture; and 3) Have options to use as a basis for further music education.

Music has a very important role in the early childhood education curriculum. Through musical activities, children can develop various important skills from an early age. Music is not only entertainment, but also a means of improving children's emotional, social and motor intelligence. In the early childhood education curriculum, musical activities can help children learn in a fun way. Through singing, dancing, and playing simple musical instruments, children can improve their motor coordination. Additionally, through participating in music groups, children learn to cooperate, share, and develop their social skills. Music also has a positive influence on children's cognitive development. Learning rhythm, melody and tempo can improve children's comprehension and memory skills. Music can indeed increase creativity and make children create their imaginations. On the other hand, music can also improve and teach other intelligence, through music it can stimulate children's memory [3]By including musical elements in the early childhood education curriculum, we can create a fun learning environment and stimulate children's holistic development.

In order for students to have extensive knowledge about song expression, they must have musical experience through singing, playing music, dancing, and listening to music during the process of teaching music in the classroom. The importance of music in students' lives will be taught through their understanding of musical aspects such as rhythm, melody, harmony, form and style of music, as well as expression as part of the musical experience. Music plays an important role in the learning process. Music is part of art, art and early childhood cannot be separated, because children like beauty, fun and excitement [4]. This is in line with research from Aisyah which explains that learning music is able to recognize numbers using music media in experimental classes and children experience development. Music can be used as a medium for learning and with music children will feel comfortable and create a pleasant atmosphere so that children enjoy it more and can accept the learning given by the teacher [5].

Lecture material in the Music for Early Childhood course, PG-PAUD FIP UNIMED study program, studies material about the characteristics of music for early childhood, basic theory

of music (rhythm, melody and harmony), vocals, singing for early childhood, children's musical ensembles , and compose songs for early childhood. Jamalus also said that musical elements can also be grouped into two groups, namely the basic elements of music and elements of musical expression. The main elements of music consist of rhythm and melody only. Meanwhile, elements of musical expression include harmony design, tempo and dynamics. Even though there are two views regarding the grouping of musical elements, the musical elements in songs must still be seen in unity as elements that form the building of a song or composition [6]. Rhythm or rhythm which is the basis of musical composition is of course very important for the application of other musical elements such as vocals and songwriting. Jones explains that rhythm is - "Rhythm is concerned with the duration or length in time of individual sounds". "(George explains that rhythm is determined by the length or length of time of a sound. The length and shortness of the sound is depicted with symbols called notations), then the length and shortness of silence are also depicted with symbols called rest marks" [7]. Meanwhile, Soeharto said that rhythm is a regular, flowing movement, due to the constant appearance of accents. Its beauty will be felt more by the interweaving of different values of the sound units. Rhythm is also called Rhythm, Rhythm, or Rhythm [6].

Students enrolled in music classes must be competent in playing rhythms that can be used with voice and other musical instruments. The material in learning musical rhythms is knowing the names and values of block notation as well as number, pulse, tempo, time signature and scales. According to Eko to be able to master music theory, the first thing that must be mastered is reading notation, because, if it is like learning to read, then notation is a description of the written letters used for reading [8]. Notations or often called notes are symbolized by notation symbols or are often called musical notes. According to Bonoe, notation is a symbol of musical writing, while block notation is a form of musical writing written on five flat lines (staves) to indicate the high and low levels of a tone or sound. Block notation symbols are universal or apply in all parts of the world on [7].

Based on the results of observations made during the learning process. When discussing material about musical rhythm, for example learning basic music theory, namely reading and playing block notation, students have difficulty understanding and playing 1/8 or half beat notation. Half-beat notation is a notation that is quite often used in early childhood songs, so learning methods and media are needed that can overcome these obstacles so that learning outcomes achieve optimal results.

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Musical rhythm learning activities in early childhood music courses in the PG-PAUD study program are only uses visual media in the form of notation pictures so that some students experience problems in understanding how to play the notation in its entirety. Learning media that helps achieve educational goals is still not utilized in a practical approach and is still produced based on theoretical demands and is not equipped with supporting applications to achieve learning outcomes. Applications such as Fruity Loops (Fl Studio), Cubase, Sibelius, and Acid Music Studio are among them.

Fruity Loops is an application or software used to create digital music works. Slameto explains that Fruity Loops is a digital music software where this software can be used as reference material in learning good sound design which prioritizes how to write notation

according to their respective competencies so that they can create a character in the composition [2]. This application is widely used by digital music practitioners and lay people who are creative in the field of music, because operating this software is not too difficult. The Fruity Loops application can be obtained easily because it is available on Playstore in mobile and desktop versions. With this practicality, the Fruity Loops application can be used by students in the PAUD study program to optimize the results of learning musical rhythms and of course make it easier for students to be creative in creating music for early childhood.

Based on the explanation above, the author is interested in conducting research with the title "Effectiveness of Applying Fruity Loops in Rhythm Learning in Music Subjects for Early Childhood". It is hoped that using the Fruity Loops application can be a solution for students to answer the needs for learning arts, especially music, in the elementary school environment in the future.

Prerequisites are required to cover teaching materials with musical concepts, in accordance with previous research conducted by Pispian Rahman and Yudi Sukmayadi "Using Fruity Loops Studio in Learning Tonal Music Concepts by Creating Popular Music for High School Students" literature study. When students are given the task of composing popular music, they need to practice their vocal tone a lot. This will help them become more advanced musicians [9]. The following literature review is entitled "Use of Fruity Loops Software in Creating Musical Works in Basic Music Computer Learning in the Music Education Study Program, Faculty of Languages and Arts, Medan State University" and was completed by Hottua Siringoringo in 2020. Research shows that the use of Fruity Loops software by students to create musical compositions produced some excellent results, as illustrated by their ability to follow the instructor's guidance. Of the two studies, the research carried out was different, namely the Fruity Loops application was used to study musical rhythms as a first step before creating musical works, but the research carried out in both cases used the application to create music lessons.

Creating efficient learning materials to enhance rhythm learning in Music for Early Childhood courses is the main goal of this research. Meanwhile, the specific objectives of the research are as follows: 1. Create teaching materials for Music courses for Early Childhood based on the Fruity Loops application for teaching rhythm that is easy to use. 2. Create educational material that maximizes the results of rhythm learning in the Music for Early Childhood course by using the Fruity Loops application as a model. 3. Create educational material for the Music for Early Childhood course that is based on the Fruity Loops application and is useful for teaching rhythm.

In order for students to compose musical works for the early childhood environment and achieve maximum results, this research must be completed to satisfy their skills in learning rhythm. Apart from that, this research can stimulate students' creativity in making music with the Fruity Loops application which is of course adapted to the quality of music for early childhood.

2 Research Method

Pre-experimental design type one group pretest-posttest (initial test, single group final test) is used in this research procedure. An example of a group pretest-posttest design is a research project that administers a pretest first, followed by a posttest after therapy has been completed administered [1].

The design used to determine the effectiveness of digital board game media is in the form of a one group pre test – post test design. One group pre-test – post test is a pre-experimental design where there is a pre-test (test before treatment) and post-test (test after treatment) in one group. Sugiono explained that the effect of treatment on this design is (O_2 - O_1). The thing tested is the difference O_2 - O_1. If there is a difference where O_2 is greater than O_1 then the use of media in the form of the Fruity Loops application has a positive effect in improving students' ability to understand and play notation, and if O_2 is smaller than O_1 then it has a negative effect. Variable X (Use of the Fruity Loops application) applies as treatment [10].

The stages of this research are divided into 3, namely as follows: 1. Preparation stage, experimental design (what design will be used, etc.), literature study, making research instruments. 2. Implementation of the research, this stage of the experiment will be divided into at least two, namely: a) Pretest carrying out rhythm learning before using the Fruity Loops application; b) Post-test, namely carrying out rhythm learning after using the Fruity Loops application according to the experimental design. 3. Data processing and analysis, this stage interprets the results of the experiments that have been carried out. Data can be presented first through tables or charts, then apply the data processing techniques that will be used, such as using statistical formulas to determine influence, and so on.

The Music for Early Childhood course has designated one class to be the subject of the one group pretest-posttest design. This design includes conducting the test twice: the pretest is given prior to the beginning of the treatment, and and the posttest is offered following the completion of the treatment. This design involves doing the test twice: once prior to and once after the administration of an experimental treatment.

The PG-PAUD Study Program, Faculty of Education, Medan State University, and the city of Medan are the research locations for this study. Students enrolled in the Music for Early Childhood course in the third semester made up the study's population. A total of 153 students enrolled in the Music for Early Childhood course overall for Semester 3, spread over 5 the classroom. The researcher used a sample of one class, with 35 students, and other samples with a 5% likelihood of error based on the population.

In this study, interviews, observation, and library research methods were all used as data collection methods. Various beliefs about Fruity Loops-based instructional materials, the capacity to perform musical rhythms, and the outcomes of learning musical rhythms will be examined with document study approaches. Sample behavior is seen through observation. An assessment rubric is the tool used in this study to gauge students' proficiency in playing musical rhythms.

3 Results And Discussion

Three phases comprise the usage of True Experimental in this research: planning, implementation, processing, and data analysis. The researcher created a manual for incorporating the Fruity Loops application into teaching materials for the Music for Early Childhood course during the preparatory phase. In addition to creating handbooks, researchers created evaluation tools to gauge students' proficiency in comprehending and performing the provided musical rhythms, as well as learning resources for musical rhythms that are acceptable for early infancy.

Undertaking the research is the second phase of this study. Currently, the experiment will be broken down into at least two phases: a) a pretest in which participants will learn musical

rhythms without using the Fruity Loops application media, or in other words, a control study; b) a post-test in which participants will learn musical rhythms using the Fruity Loops application media in line with the designed experiment.

The interpretation of the experiment results is done in the third stage, which is data processing and analysis. Data processing techniques, such as utilizing statistical formulas to ascertain the efficacy of using the Fruity Loops application in learning musical rhythms, can be applied after data has been presented through tables or charts.

Testing the effectiveness of the musical rhythm learning method using the Fruity Loops application media in the Music for Early Childhood course was carried out using a comparison test. Comparative test analysis was carried out using the paired sample t test. Students were measured pretest and posttest using instruments to measure students' ability to understand the duration of the notation and be able to play the notation according to the duration. Posttest data was obtained after testing the use of the Fruity Loops media application on musical rhythm material. Paired sample t test comparative test analysis requires prerequisite tests to be carried out before the comparative test is carried out. The pretest and posttest data were tested for normality.

Table 1. Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	.148	35	.050	.944	35	.073
Postest	.160	35	.023	.944	35	.074

A Shapiro Wilk sig value of 0.073 was derived from the pretest and posttest data normality test findings. If the sig value is greater than 0.05, the data required can be considered normal. If the data analysis yields a sig 0.073 > 0.05, the pretest and posttest data can be considered normally distributed.

The mean difference is 4.65, as determined by the significance results. Thus, a mean difference between the pretest and posttest can be determined. The following table displays the average difference between each pretest and posttest set of data:

Table 2. Paired Samples Test Results

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest - Postest	-4.657	4.537	.767	-6.216	-3.099	-6.073	34	.000

It is clear from the paired sample t test analysis table that there is a significant difference between the pretest and posttest scores because the p value is 0.000 <0.05. These results show that students are becoming more adept at interpreting notation, recognizing its importance and duration, and playing the provided notation.

Table 3. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	67.00	35	7.215	1.220
	Postest	71.66	35	7.388	1.249

It is known that the pretest mean is 67 and the posttest mean is 71 based on the descriptive table. It is evident that the mean of the posttest is higher than that of the pretest. Thus, it can be concluded that using the Fruity Loops media software helps pupils grow in their ability to play musical rhythms. By using a guide in the form of teaching materials that convert notations into the Fruity Loops application display, it makes it easier for students to get a complete picture of the value or pulse of a notation. Students are able to understand and play half beat notation well using the help of the Fruity Loops application.

4 Conclusion

It can be concluded that the Fruity Loops application, when used in the Medan State University PG-PAUD Study Program's Music for Early Childhood course, has a positive impact on students' comprehension and proficiency in playing musical rhythms. The pretest average of 67 and the posttest average of 71.6 demonstrate its efficacy. It is evident that the mean of the posttest is higher than that of the pretest.

Using the Fruity Loops application media to help students learn musical rhythms can improve their knowledge and proficiency, helping them to meet the course achievement standards for Music for Early Childhood courses. The Fruity Loops application, when used in conjunction with digital learning, has a favorable effect on students' comprehension, performance, and creation of rhythms that are appropriate for young children's listening comprehension.

The necessity of music in students' lives will be instilled through their understanding of musical aspects such as rhythm, melody, harmony, form, and style of music, as well as expression as a part of the musical experience. Integrated classroom materials with Fruity Loops application media can help pupils meet the requirements for learning the arts, particularly music, when they get to elementary school.

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References

[1] Nurkholis, "PENDIDIKAN DALAM UPAYA MEMAJUKAN TEKNOLOGI Oleh: Nurkholis Doktor Ilmu Pendidikan, Alumnus Universitas Negeri Jakarta Dosen Luar Biasa Jurusan Tarbiyah STAIN Purwokerto," vol. 1, no. 1, pp. 24–44, 2013.

[2] Y. T. Laksono, "Penerapan Aplikasi Fruity Loops sebagai Media Pembelajaran Penciptaan Komposisi dan Aransemen Tata Suara," *J. Stud. Komun. (Indonesian J. Commun. Stud.*, vol. 1, no. 3, pp. 253–261, 2017, doi: 10.25139/jsk.v1i3.337.

[3] DA Santosa, "Urgensi Pembelajaran Musik Bagi Anak Usia Dini Didik Ardi Santosa Progdi PG-PAUD Fakultas Keguruan Ilmu Pendidikan Universitas IVET E-mail:," *J. Chem. Inf. Model.*, vol. 26, no. Vol 26 No 01 (2019): PAWIYATAN, pp. 78–88, 2019, [Online]. Available: http://e-journal.ivet.ac.id/index.php/pawiyatan/article/view/877

[4] J. Alimuddin, "Lagu Anak Sebagai Salah Satu Sarana Mendidik Anak," *J. Ilm. Pendidik. Dasar*, vol. 2, no. 2, p. 108, 2015, doi: 10.30659/pendas.2.2.108-116.

[5] A. Aisyah, "Permainan Warna Berpengaruh Terhadap Kreativitas Anak Usia Dini," *J. Obs. J. Pendidik. Anak Usia Dini*, vol. 1, no. 2, p. 118, 2017, doi: 10.31004/obsesi.v1i2.23.

[6] N. Kwidura, U. Utomo, and W. Wadiyo, "Catharsis: Journal of Arts Education The Use of Musical Elements in Music Learning as an Effort to Foster Creativity of Children," *Cathar. J. Arts Educ.*, vol. 10, no. 1, pp. 96–105, 2021, [Online]. Available: http://journal.unnes.ac.id/sju/index.php/chatarsis

[7] S. Siswanto and I. Kurniawan, "Membaca Notasi Balok Pada Lagu Apuse Dalam Perspektif Pembelajaran," *J. Sitakara*, vol. 7, no. 1, pp. 54–63, 2022, doi: 10.31851/sitakara.v7i1.7467.

[8] Maryani, I. Fretisari, and A. Munir, "Peningkatan Kemampuan Membaca Notasi Balok melalui Metode Drill di SMP N 3 Sungai Raya Kepulauan," *J. Pendidik. dan Pembelajaran Khatulistiwa*, vol. 6, no. 2, pp. 1–12, 2017.

[9] P. Rahman and Y. Sukmayadi, "Penggunaan Fruity Loops Studio dalam Pembelajaran Konsep Musik Tonal dengan Berkarya Musik Populer untuk Peserta Didik SMA," *Resital J. Seni Pertunjuk. (Journal Perform. Arts)*, vol. 21, no. 1, pp. 1–10, 2020.

[10] A. G. Prawiyogi, T. L. Sa'idah, A. Safarandes, and Q. Nurjanah, "Pengaruh Metode Suku Kata terhadap Keterampilan Membaca Permulaan," *J. Basicedu*, vol. 6, no. 5, pp. 9223–9229, 2022, [Online]. Available: https://doi.org/10.31004/basicedu.v6i5.1437