

# Developing Preschool Students' Creativity In Song Arrangements Through The Use Of The Musescore Application As A Learning Outcome

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**Abstract.** This research aims to develop student creativity in arranging songs through the Musescore application as a learning outcome. Culture-based early childhood music learning is a practical course that develops students' musical abilities. In practice, teaching the concept of song arrangement as a learning outcome from this course requires creativity. Music is a form of human artistic expression. Where, artistic expression is born from a combination of a person's taste and creativity. Creativity is the ability to see or think about extraordinary, unusual things, combining seemingly unrelated information and generating new solutions or new ideas, which shows fluency, flexibility and originality in thinking [13]. Therefore, researchers compiled worksheets in tests to develop student creativity and see the effectiveness of developing student creativity in arranging songs through the Musescore application as a learning outcome. The research method used is the Borg and Gall development method. The conclusion of this research is that developing student creativity in song arrangements through the Musescore application is a viable learning outcome.

**Keywords:** Creativity development of preschool students, song arrangement, musescore application.

## 1 Introduction

Improving the quality of human resources is one form of success over time. One way is through education. Education should be able to develop according to the times. Renewed skills or abilities are needed, meaning that knowledge is not born from conventional styles alone but also by following technological developments in the 21st century. There are changes in the implementation of education which will become more modern [18]. At the tertiary level, students must be able to keep up with developments in the digital era in terms of improving their scientific abilities. The role of students must change in order to improve the quality of education, namely in the learning process which will have an impact on students' abilities in the field. One form of change in education for students is to give birth to creativity. Creativity basically belongs to someone who is born with creativity, apart from that, creativity can also be born from the concept of learning, through learning a person has creativity. We know that creativity is born from the word creative, where creative means having the ability to create, change or create something new or existing. Therefore, creativity can be said to be the skilled

style of someone who has a high concept of thinking in creating or changing or designing something new or existing. In relation to students, student creativity can and can be born in the form of ideas, new products or combinations with existing ones. Students' readiness to improve their abilities in creativity must be supported not only by teaching materials and so on but by the concept of creative learning using technology.

In line with the explanation above, PG PAUD FIP Unimed students are students who must be able to improve the quality of their learning in this digital era so that they will produce broad abilities that can be applied when they become educators so that PG PAUD FIP Unimed graduates have appropriate outcomes that are needed in society. . One of them is ability in early childhood music courses. Early childhood music courses are practical courses that develop artistic aspects in the learning process. Apart from that, in general all the assignments in this course produce a final product. Creativity in early childhood music courses is very necessary, one of which is in the material which is the learning outcomes of this course. Song arrangement is one of the learning outcomes of this course. The ability to arrange songs based on field data still uses conventional student styles, both children's songs and regional songs, namely still using number notation only. In fact, if you look at the 21st century era, there must be the latest upgrade in students' abilities in creativity. One form of creativity in song arrangements as learning outcomes is using applications. The Musescore application is the right software to use to write music quickly and easily. This application can be a simple notation software that can be used to develop preschool students' creativity in arranging songs. This application is a music application with a simple appearance and is easier to understand than other music software. Based on previous research conducted by researchers, researchers will take material from teaching materials about early childhood music and song arrangement material. Apart from referring to previous research, the researcher will create a worksheet to measure student creativity in developing arrangements using the musescore application as a learning outcome in early childhood music courses with the final target of producing a product according to the achievements of the RPS and also producing the work of the children's musical creativity group. early. Because learning outcomes are also team-based projects, projects produced in early childhood music courses can make a big contribution both as a group and to their outcomes after graduating as a teacher. Based on the background above, researchers are interested in developing the creativity of preschool students in song arrangement through the use of the Musescore application as a learning outcome.

#### A. Creativity Development

Creativity is very important to develop in academic improvement. Creativity is the ability to see or think about extraordinary, unusual things, combining seemingly unrelated information and generating new solutions or new ideas, which shows fluency, flexibility and originality in thinking [13]. These abilities include: cognitive abilities, divergence of thinking such as fluency, flexibility, originality and elaboration, creative attitudes such as curiosity, imaginative feelings, feeling challenged to create new ideas, courage to take risks and the nature of appreciation, creative products such as novelty, practicality, sophistication and expediency. Creativity can be interpreted as: 1) the ability to respond, respond and provide solutions to all existing solutions; 2) the ability to involve oneself in the problem discovery process; 3) intelligence ability, cognitive style, and personality/motivation; 4) the ability to produce or create something new. Therefore, creativity is based on: flexibility, fluency, skill and intelligence [4]. Creativity in arts education is characterized by the ability to master materials, concepts and work techniques so as to find works that are different from others [23]. Creativity itself is the basis for someone to

always cultivate themselves in a dynamic position. Therefore, touches to foster new ideas and ideas are always used as the first step by motivating and stimulating.

In line with the explanation above, the creativity of preschool students who take early childhood music courses must be able to master materials, concepts and be able to cultivate themselves. Student creativity must also be supported by student skills and abilities. Therefore, the development of preschool students' creativity in music courses is related to students' skills in the field of early childhood music. In accordance with the material, namely related to song arrangements using the Musescore application.

#### B. Song Arrangement in the MuseScore Application

Song arrangement is changing a song to make it more varied, so that it is easier to listen to without changing the main melody of the song. There are several steps that must be taken into account when arranging a song, namely song notation, scale, time signature, tempo signature, harmony and dynamic signature. Arrangement is a creative effort to arrange and enrich a melody or composition into a new format and style. The medium can be anything from a solo instrument to an orchestra.

In general, the formulation of the five-step method for musical arrangement is explained as follows. The first step, namely the arrangement concept which includes the goal, determining the instruments used, detecting the musician's skill level, understanding the ambitus (range) of the instrument/vocal and the character of the instrument/vocal, understanding the song lyrics, and describing the things you want to achieve. The second step, namely the initial arrangement, includes the process of writing song notation, determining nuances (song expressions), searching for alternative chords, determining accompaniment patterns, creating intros, interludes and codas) and determining the form of the song. The third step is modifying and creating new ideas, this stage includes: searching for alternative chords, developing/creating variations (rhythm, motif, melody, harmony, nuance/expression, rhythm pattern, etc.), creating fillers (melody fillings), and creating new motifs/themes/melodies. The fourth step is to carry out further arrangements by arranging the materials that have been worked on, completing the arrangements in detail and responding to ideas spontaneously. The fifth step is to evaluate and revise the results of the [2013] arrangements.

Furthermore, the song arrangement process can be done manually using a 5 line book, and using feeling and relying on high musical abilities. However, the arranging process using the Musescore application software will be easier for preschool students, because this application is very helpful in the learning process not only in arranging but also learning in deepening and mastering the original sound in the solmization notes. Therefore, this Musescore application really helps students in the process of learning song arrangements.

Music notater software is software that can be used to write block notation, create compositions, or arrange a song [1]. One of them is the Musescore application. The Musescore application is a practical block notation application with a display that is easy to understand. This application can be an alternative for students to develop creativity in song arrangements. It is said that the Musescore application is the right software to use to write sheet music quickly and easily [11]. Through the explanation above, students can develop creativity in song arrangements through the Musescore application which can simplify and develop the abilities of early childhood students in early childhood music courses.

#### C. Implementation of lectures on early childhood music courses

Early childhood music is one of the courses in the PG PAUD study program. Which consists of 3 credits in semester 3. The implementation of music lectures for early childhood in

the early childhood education teacher education study program is basically a lecture where 70% of the learning activities are carried out in a practical way. This is because this course is a compulsory subject for the study program which develops abilities in the field of art, especially music for early childhood. The development of early childhood music learning refers to products. It is said that music is a form of sound artistic work in the form of a song or musical composition that expresses the thoughts and feelings of the creator through musical elements, namely melodic rhythm, harmony, song form and structure and expression as a single unit [18]. Therefore, creativity is needed in the learning process in this lecture. Lectures were held in 16 meetings. The lecture process is generally carried out with practical learning. Arrangement material will be provided with reinforcement of previous material, including early childhood music concepts, introduction to block notation, basic elements of music, vocals, singing and introduction to musical instruments. This material is also part of the current assignment, namely a project and a form of team base project assignment for semester 3 students. It is hoped that strengthening this material will become scientific capital as a preschool teacher in the future.

## **2 Research Method**

The type of research carried out is development research or often called research and development (RnD), this type of research aims to develop a new product or improve a product that has been created previously. The product developed in this research is a digital module book based on a team base project in music courses for early childhood. To develop teaching materials, one of the development methods was determined, namely the development method by Borg & Gall. The data analysis technique in this research is to use qualitative descriptive analysis on qualitative data on quantitative data.

## **3 Results and Discussion**

### **3.1 Preliminary research and information gathering**

This research began by conducting an analysis regarding the needs for culture-based early childhood music learning in preschool. Seeing the situation, so far, the student learning process is still conventional in the material arrangements, even though the learning outcome of this course is the work of themed children's song arrangements. Meanwhile, students still use arrangements by writing notations in notebooks. This activity was carried out over several years of learning in culture-based early childhood music courses. Therefore, referring to the reasons above, this means that progress is needed in student learning in the use of technology, namely by using the music application, namely Musescore. This application will be a guide for students in their abilities in music courses in themed children's song arrangements. Students will be more practical in creating works and arranging children's songs through the Musescore application and this has become the result of discussions from the team of early childhood music lecturers and students.

### **3.2 Planning**

Implementation at this planning stage is formulated based on research objectives, product users so that it will be developed by the research team in carrying out tasks in accordance with the classification of research members. The development of student creativity in arranging children's songs through the Musescore application will make it easier for students to develop their creative abilities in culture-based early childhood music courses, thereby producing works from the Musescore application that are more beautiful and pleasant to listen to.

### **3.3 Initial Product Development**

This initial product development started with a team of researchers and experts formulating a guidebook for using the Musescore application and worksheets to measure creative abilities in composing using the Musescore application. The composition of the guidebook for using the Musescore application follows the rules for using the Musescore application. After that, prepare a worksheet in the form of questions related to sub-CPMK material in children's song arrangements, namely a worksheet consisting of making arrangements for the children's song "*cicak cicak didinding*".

### **3.4 Initial product testing**

The initial product testing began with the aim of seeing the results of expert validation regarding material experts on worksheets and student creativity through media and material expert validation in composing using the Musescore application. Furthermore, before validation was carried out, a questionnaire was given in this research, with the aim of obtaining data related to student creativity in arranging children's songs using the Musescore application. Next, validation was carried out by Matari experts for worksheets and validation by media and materials experts to measure students' creativity in arranging children's songs using the Musescore application. Before the three questionnaires were tested, the questionnaires were first validated by instrument validation.

### **3.5 Media Expert Validation Results**

The questionnaire was addressed to media experts with the aim of assessing students' creativity in arranging children's songs using the Musescore application. The instrument grid for media experts can be seen in the following table.

The process of assessing themed children's song arrangements using the Musescore application was carried out by two experts. Both validators are experts in learning media. The assessment of the two media experts aims to measure the level of appropriateness in the themed children's song arrangement which consists of 9 statement items.

**Table 1.** Validation Results of Two Media Experts

No.	Question Items	Members of the Media		Average (M)		Category
		I	II			
1	Clarity of titles and covers for themed children's songs created by preschool students	2	3	2.5		Worth it
2	Readability of the layout (layout of the text and images used) in themed children's songs created by preschool students	3	3	3		Worth it
3	The attractiveness of the colors resulting from the display of themed children's songs created	3	4	3.5		Very Worth It
4	The accuracy of the size of the letters on the created song	4	2	3		Worth it
5	The accuracy of the typeface on the created song	3	3	3		Worth it
6	Consistency of spacing, titles, and typing of the lyrics of the songs created	3	3	3		Worth it
7	The use of clear language in the song created	2	4	3		Worth it
8	The sentences used do not give rise to negative interpretations	2	3	2.5		Worth it
9	Harmonization of musical instruments in the arranged song	3	4	3.5		Very Worth It
<b>Average Score</b>			<b>3</b>			<b>Worth it</b>

Based on data from research conducted by two media experts, it shows that the average score is valuable 3.00 which is in the decent category.

### 3.6 Material Expert Validation Results

The purpose of validating the material is to measure the level of accuracy and quality of the questionnaire for the assessment instrument for themed children's song arrangements using the Musescore application. Material validation was carried out by two material experts who were lecturers from PGSD Medan State University. The material assessment questionnaire consists of 5 statement items and the assessment results can be seen in the following table.

**Table 2.** Questionnaire for Material Experts for Arrangements

No.	Question Items	Materials Expert		Average (M)	Category
		I	II		
1	Arrangement of themed children's songs according to learning objectives	3	4	3.5	Very Worth It
2	Themed arrangements of children's songs have meaning for children	3	3	3	Worth it
3	Arrangements of children's songs with short, clear and simple themes	2	4	3	Worth it
4	Arrangements of children's songs with themes appropriate to children	3	3	3	Worth it
5	Themed children's song arrangements have musical harmonies that are easy to remember	3	3	3	Worth it
Average Score				3.10	Worth it

Based on data from research conducted by two material experts for the arrangement assessment, it shows that the average score is valuable 3.00 which is in the decent category.

### 3.7 Material Expert Validation Results

This second material expert validation was carried out to see the accuracy of the worksheet used by students as a test in using the Muscore application in children's song arrangements. The following are the results of questionnaire research from worksheet material experts.

**Table 3.** Questionnaire for Subject Matter Experts

No.	Question Items	Materials Expert		Average (M)	Category
		I	II		
1	There is an intro in the song arrangement	2	4	3	Worth it
2	Determining nuances in song arrangements	3	3	3	Worth it
3	There are alternative chords in the song arrangement	2	4	3	Worth it

4	There are new variations such as rhythm, motif, melody, harmony in song arrangements	3	3	3	Worth it
5	There are fillers or melodic entries in the song arrangement	3	3	3	Worth it
<b>Average Score</b>				<b>3</b>	<b>Worth it</b>

Based on data from research conducted by two material experts to assess the questions, it shows that the average score is valuable 3.00 which is in the decent category.

### 3.8 Validation and Reliability Results of the Creativity Questionnaire

The assessment process of the creativity questionnaire instrument consisting of 23 items was distributed to 70 PAUD students outside the research sample, then the assessment results were processed using the Winstep program. The results of measuring output item fit for the musical creativity scale instrument can be seen in the following table.

**Table 4.** Output scale of Musical Creativity

Item	Outfit		Pt-Measures Correlation	Conclusion
	MNSQ	STD		
Q1	1.19	0.97	0.55	In accordance
K2	0.99	0.03	0.56	In accordance
K3	0.72	-1.66	0.62	In accordance
K4	1.34	1.58	0.36	In accordance
K5	0.82	0.94	0.57	In accordance
K6	0.96	-0.12	0.51	In accordance
K7	0.66	-1.90	0.61	In accordance
K8	0.91	-0.49	0.62	In accordance
K9	0.48	-3.82*	0.70	In accordance
K10	1.22	1.15	0.47	In accordance
K11	1.58*	2.65*	0.25	It is not in accordance with
K12	1.28	1.37	0.41	In accordance
K13	1.03	0.21	0.44	In accordance
K14	1.08	0.48	0.53	In accordance
K15	0.89	-0.53	0.42	In accordance
K16	0.92	-0.42	0.53	In accordance
K17	0.95	-0.16	0.55	In accordance
K18	0.96	-0.18	0.61	In accordance
K19	0.80	-1.09	0.66	In accordance
K20	0.89	-0.66	0.67	In accordance
K21	0.92	-0.40	0.66	In accordance
K22	1.16	0.96	0.60	In accordance
K23	1.08	0.50	0.60	In accordance



Based on Table 4, there is 1 item that is not appropriate, namely item 11 which does not meet the required criteria. The results show that 22 items can be used to analyze musical creativity in PAUD students. The reality of the results can be determined by paying attention to the Cronbach' Alpha value with the Winstep program. The results show that the reliability of the musical creativity instrument is 0.90 in the very reliable category.

### 3.9 Test Results on Small Groups/Initial Products

The purpose of testing on small groups is to determine the assessment of the results of children's themed song arrangements using the Musescore application before being tested on large groups.

Small group testing was carried out by 10 students from 30 students and selected directly by the lecturer who teaches culture-based early childhood music courses. The aim of selecting 3rd semester early childhood students in the small group trial were students who were currently taking culture-based early childhood music courses.

Then, the ten students were asked to assess the results of children's themed song arrangements produced through the use of the Musescore application and fill in the response questionnaire that had been provided. Following are the results of the trial assessment on a small group of ten students which can be seen in the following table.

**Table 5.** Media Questionnaire Small Group Test Assessment Results

No.	Question Items	Average Score	Category
1	Clarity of titles and covers for themed children's songs created by preschool students	3	Worth it
2	Readability of the layout (layout of the text and images used) in themed children's songs created by preschool students	3	Worth it
3	The attractiveness of the colors resulting from the display of themed children's songs created	3	Worth it
4	The accuracy of the size of the letters on the created song	3	Worth it
5	The accuracy of the typeface on the created song	3	Worth it
6	Consistency of spacing, titles, and typing of the lyrics of the songs created	3	Worth it
7	The use of clear language in the song created	2.9	Worth it
8	The sentences used do not give rise to negative interpretations	3	Worth it
9	Harmonization of musical instruments in the arranged song	3	Worth it
<b>Average Score</b>		<b>2.94</b>	<b>Worth it</b>

**Table 6.** Results of Small Group Test Assessment Material Questionnaire for Arrangement

No.	Question Items	Average (M)	Category
1	Arrangement of themed children's songs according to learning objectives	3	Worth it
2	Themed arrangements of children's songs have meaning for children	3	Worth it
3	Arrangements of children's songs with short, clear and simple themes	2.6	Worth it
4	Arrangements of children's songs with themes appropriate to children	3	Worth it
5	Themed children's song arrangements have musical harmonies that are easy to remember	3	Worth it
<b>Average Score</b>		<b>2.82</b>	<b>Worth it</b>

**Table 7.** Small Group Test Assessment Results Material Questionnaires for Questions

No.	Question Items	Average (M)	Category
1	There is an intro in the song arrangement	3	Worth it
2	Determining nuances in song arrangements	3	Worth it
3	There are alternative chords in the song arrangement	2.6	Worth it
4	There are new variations such as rhythm, motif, melody, harmony in song arrangements	3	Worth it
5	There are fillers or melodic entries in the song arrangement	3	Worth it
<b>Average Score</b>		<b>2.75</b>	<b>Worth it</b>

Based on data from small group tests conducted for media assessment (average score 2.94) and material assessment for song arrangements with an average score of 2.82 and for questions 2.75, it can be concluded that it can be category suitable for use.

### 3.10 Revision Small Group Test

The research team revised the results of small group tests on the initial product, which related to alternative chords, so that the researchers added simple alternative chords to make it easier for students.

### 3.11 Results of Large Group Trials

Large group test results were carried out with control and experimental classes. Giving pretests and posttests in this research aims to determine the effectiveness of developing PAUD students' creativity in song arrangements through the use of the Musescore application as a learning outcome by looking at the difference in scores before and after using student worksheets.

The test instrument (pretest and posttest) on PAUD student worksheets is by providing a worksheet with 1 question description. The worksheets used have been validated by material experts. The following is the data on the pretest and posttest results.

**Table 8.** Comparison of Pretest and Posttest Results

No	Class	Pretest	Posttest
		Score	Score
1	A	33	80.25
2	B	27.75	68.5
Average Score		<b>30.375</b>	<b>74.375</b>

Based on the table above, it can be seen that the average pretest score is 30.375 and the average posttest score is 74.23. This shows an increase in scores. Apart from that, looking at the average pretest and posttest scores, the N-gain score can be obtained as follows.

$$g = \frac{(Average\ Post\ test\ Score) - (Average\ Pretest\ Score)}{(Max\ Score) - (Average\ Pretest\ Score)}$$

$$g = \frac{74.375 - 30.375}{90 - 30.375}$$

$$= 0,73$$

Based on the calculation above, the N-gain score is 0.73 in the "high" category. Thus, it can be concluded that PAUD students' creativity worksheets in song arrangements through the use of the Muscore application provide good results for learning outcomes.

The dependent sample t-test hypothesis test was carried out to test the differences in musical creativity in themed children's song arrangements before and after using the Muscore application, so a prerequisite test was carried out by fulfilling the following assumptions.

- The variables in the research are ratio or interval data
- Data is normally distributed

The normality test for musical creativity can be seen in the Kolmogorov-Sminov test value. Normality test results can be seen in Table 9.

**Table 9.** Tests of Normality

Class		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Mark	Pre test	.134	40	.068	.905	40	.003
	Post test	.156	40	.016	.924	40	.010

a. Lilliefors Significance Correction

Based on Table 9, the results of the normality test for musical creativity of PAUD students in the experimental class (0.068) and control class (0.016) have a significance value greater than 0.05, so it can be concluded that musical creativity is normally distributed.

The large group trial in this study involved 38 3rd semester PG-PAUD students in block 1.

**Table 10.** Results of Large Group Test Assessment on Media Questionnaire

No.	Question Items	Average Score	Category
1	Clarity of titles and covers for themed children's songs created by preschool students	3.1	Very Worth It
2	Readability of the layout (layout of the text and images used) in themed children's songs created by preschool students	2.9	Worth it
3	The attractiveness of the colors resulting from the display of themed children's songs created	3	Worth it
4	The accuracy of the size of the letters on the created song	3.1	Very Worth It
5	The accuracy of the typeface on the created song	3	Worth it
6	Consistency of spacing, titles, and typing of the lyrics of the songs created	3.1	Very Worth It
7	The use of clear language in the song created	3	Worth it
8	The sentences used do not give rise to negative interpretations	3.2	Very Worth It
9	Harmonization of musical instruments in the arranged song	3.4	Very Worth It
<b>Average Score</b>		<b>3.1</b>	<b>Very Worth It</b>

**Table 11.** Large Group Test Assessment Results on Arrangement Material Questionnaire

No.	Question Items	Average (M)	Category
1	Arrangement of themed children's songs according to learning objectives	2.9	Worth it
2	Themed arrangements of children's songs have meaning for children	3.2	Very Worth It
3	Arrangements of children's songs with short, clear and simple themes	3.3	Very Worth It
4	Arrangements of children's songs with themes appropriate to children	3.3	Very Worth It
5	Themed children's song arrangements have musical harmonies that are easy to remember	3.1	Very Worth It
<b>Average Score</b>		<b>3.2</b>	<b>Very Worth It</b>

Based on data from large group tests conducted for media assessment (average score 3.1) and material assessment (average score 3.2) on children's themed song arrangements using the Musescore application, it can be concluded that it can be **category is very suitable to use**.

### 3.12 Product Revision in Large Group Tests

Based on the product results in the large group test, it shows an overall score of 3.2 with the category very suitable for use. This means that students' creativity in arranging children's songs using the Musescore application is going well and is worth continuing.

### 3.13 Dissemination and Implementation

Dissemination and socialization is carried out among lecturers and students who have already fully participated in learning culture-based early childhood music courses in the Early Childhood Education Teacher Education Study Program, while for students it can already be applied in culture-based early childhood music learning.

## 4 Conclusion

Based on the results of this research, it can be concluded that developing student creativity in song arranging through the Musescore application as a learning outcome is feasible and can be used for 3rd semester early childhood students.

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