

Development of cheerful creation gymnastics 'Jalaleota' for the improvement of early childhood motor skills

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Abstract

This study aims to describe the development of Jalaleota cheerful creative gymnastics to improve motor skills at an early age with the core movements of gymnastics, including running, throwing and catching. This type of research is research and development which consists of preliminary studies, development models and testing models. The subjects in this study were kindergarten schoolchildren evaluations, product evaluations, initial trials and product trials in early childhood. The data collection techniques were observation, questionnaires and tests of motor skills for early childhood. The data collected was then analysed qualitatively and quantitatively. Qualitative data analysis used the interactive model of Miles and Huberman and quantitative data analysis used paired sample *t*-test. The results showed that the development of the Jalaleota cheerful creative gymnastic product determined the indicators of motor skills, movement, appearance and early childhood music. The main field test obtained a value of $0.034 < 0.05$, indicating that there is a significant influence on the use of creative gymnastics on motor skills at an early age. The motor skills of early childhood using Jalaleota, created by cheerful gymnastics, are better than before they were used. Currently, we have obtained cheerful gymnastics created by Jalaleota that are worthy of use according to the views of experts and users.

Keywords: Creative gymnastics, improvement of motor skills, physical activity, early childhood.

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1. Introduction

Children play an important role in the development of future generations of the nation (Nurhasanah et al., 2022; Nurulfa et al., 2021). Therefore, special attention is paid to childhood, especially early childhood. At an early age, stimulation of all aspects of development plays an important role for further developmental tasks (Cereda & Vizzini, 2021). Early childhood should be given the opportunity to develop all their potential, such as psychological and physical aspects.

Gross motor development in early childhood is a basic skill that needs to be possessed. At this time, children are very active in moving through play activities, and so motor skills are an integral aspect of their (Bothe et al., 2020; Griffiths et al., 2018; Marrus et al., 2018; Özal et al., 2020). Komaini et al. (2022) reported that playing activities contributed to students' basic movement skills by 17.36%. Currently, about 16% of the children worldwide have basic motor skills in the low category (de Milander et al., 2016). This data shows that early childhood still has many obstacles in mastering movement. If this condition is left unchecked, it will cause several pathological threats to children such as unbalanced movements between the left and right limbs, persistence of primitive reflexes, impaired sensory function and obesity. Children who have good motor skills have positive social skills. Children who actively move will avoid obesity. Previous studies reported that obesity prevention needs to start in childhood because weight-related behaviours, such as food preferences and regular levels of physical activity, are factors that contribute to lower motor skill levels in obese children than in non-obese children or children of normal weight. Children who are overweight will have difficulty performing basic movements and have a lower perception of physical abilities than children with normal weight (Barros et al., 2021). In addition, it also affects their learning performance (Macdonald et al., 2018).

Alternative solutions need to be found to improve children's motor skills. One of the most popular physical activities in the world is gymnastics. Gymnastics is an aerobic activity that is not only beneficial for motor skills, but is also beneficial for children's cognitive skills. Gymnastics technically requires certain body movements that have rhythm and creativity to relax the brain and mind to get fit in carrying out daily activities. Various kinds of gymnastics are commonly performed such as women's exercise, pregnancy exercise, physical fitness and creative exercise (Vernetta et al., 2020). This exercise is aimed at each group with the aim of maintaining fitness and being healthy. Creative gymnastics based on gymnastic groups is included in general gymnastics. However, regional gymnastics are currently starting to fade due to the development of other types of physical activities such as zumba, yoga, pilates and several other gymnastics creations (Kannan et al., 2021; Rajalaxmi et al., 2018). Jalaleota gymnastics is one of the rhythmic gymnastics made by creating movements that contain movements, including walking, running, jumping, throwing and catching. The creation of Jalaleota gymnastics has a goal, which is to improve gross motor skills in children by implementing fun and accompanied by children's singing so that they keep moving to the music without feeling burdened with the movements they do. In other words, music will increase excitement, while the direct instruction of the music will be more attention by the children. Gradually, the child's gross motor movements will be trained repeatedly and eventually become permanent movements, followed by the maturity of the child's gross motor movements.

This exercise is called Jalaleota (walk, run, throw, jump and catch). This exercise will be made with interesting choreography of movements accompanied by cheerful music and children's songs. This study aims to produce cheerful gymnastics creations to improve motor skills in early childhood. This exercise will motivate children to move and are made with movements that are easy for them to understand and are equipped with cheerful music and songs.

2. Methods

2.1. Research design

This research is a type of research and development (R&D) which consists of preliminary studies, model development and model testing. The product in this research is the creation of the Jalaleota cheerful gymnastics in improving the motor skills of early childhood in kindergarten. The R&D steps in this study follow the model development stage which consists of design validation, preliminary field testing and model application field testing. The prototype of the cheerful Jalaleota gymnastics was then validated by experts to get input and suggestions until it got approval from the expert team. There were two experts involved, the expert on consistent gymnastics and the motorist. The main field trials in this study used a pre-experimental research method with a pre-test and post-test group design.

2.2. Participants

A total of 10 children in the preliminary field trial phase and 38 children in the field trial participated in this study. The selection of research subjects used saturated sampling, i.e., all the population was sampled in the study.

2.3. Data collection techniques and instruments

The study data collection used tests, questionnaires and observations. The test aims to measure the motor skills of early childhood, with material walking, running, throwing, jumping and catching. The validity test had an error rate of 5%, which is 0.78. The test results of the validity of the test instrument show that there are 15 valid assessment indicators and 2 invalid questions.

This research instrument aims to determine the response of users of the Jalaleota prototype gymnastics in improving motor skills in early childhood. The instruments include aspects of motion, purpose, music and appearance. The validity of the questionnaire used product–moment correlation. At a significance of 5%, $df = 8$, then a table of 0.632 is obtained. All items have a value of $r\text{-count} > r\text{-table}$, indicating that all items are valid. The reliability test using the test and retest method consisted of two trials. The first and second trials have a minimum time span of 3 days after the first trial with the same respondents. If the two data have similarities, then the tool can be said to be reliable. Based on the results obtained, the alpha value is between 0.70 and 0.90, so the reliability value is declared to be high.

2.4. Data analysis

An interactive data analysis model from Miles and Huberman was carried out. This model has three components consisting of data reduction, data display and conclusion drawing (verification). All research data collected is selected regarding what should be presented and used. The data presented becomes clearer to be used as a basis for drawing conclusions. In the main field test, data were analysed using paired sample t-test with a significance level of 5%. The analysis prerequisite test is the variable to be analysed and is normally distributed. Normality test in this study was carried out using the Kolmogorov–Smirnov test. The test was carried out with the aim of knowing whether there was a difference in motor skill scores in kindergarten students before and after using the Jalaleota cheerful creation exercise.

3. Results

3.1. Prototype development and expert validation

The coverage of early childhood motor skills in kindergarten is presented in Table 1.

Table 1 Scope of Early Childhood Motor Skills in Kindergarten

Early childhood motor	Indicator
Gross motor skills for early childhood	Creating a frame of motion that will be conceptually created (run, run, jump, throw and catch)
	Make lyrics sing children that will be used as Jalaleota gymnastics music.
	Make music according to the lyrics that will be used as Jalaleota gymnastics music.
	Make warm-up movements Jalaleota gymnastics (head, shoulders, back/flexibility and legs)
	Make core movements choreographed Jalaleota gymnastics (running, walking, jumping, throwing and catching)
	Make cooling/soothing movements Jalaleota gymnastics (shoulder head, suppleness and legs)
	Make variations of hand movements for heating, core and cooling movements in Jalaleota gymnastics
	Combines warming movement, core movement and cooling movement with musical accompaniment
Create a guidebook for Jalaleota gymnastics for teachers and students accompanied by pictures and image captions	
Create a CD containing Jalaleota gymnastics	

The resulting product is the cheerful creation of Jalaleota in the form of VCD and uploaded on YouTube which can be accessed on Android systems and laptops. The use of Jalaleota cheerful gymnastic creations containing movements of walking, running, jumping, throwing and catching is very supportive to improve early childhood skills. Jalaleota cheerful creation gymnastics to improve motoric early childhood has a logo that reads 'SKC Jalaleota', which stands for jalaleota cheerful creation gymnastics, as shown in Figure 1



Figure 1 SKC Jalaleota Logo

The cheerful creation gymnastics Jalaleota developed has three main parts consisting of heating movement, core movement and cooling movement. The warm-up movement is to raise the body temperature so that the body is ready to do the next movement, which is the core movement. This warm-up movement consists of the movement of the head, shoulders, hands and legs. This heating movement consists of 16×8 counts. Where there are 4×8 roads in place, 3×8 counts of head movements, 4×8 counts of shoulder and hand movements and 5×8 counts of leg movements.



Figure 2. Example of the Shoulder Warming Movement

Figure 2 shows an example of a warm-up motion on the shoulders and hands. In addition to the warm-up movement, there is also a core movement consisting of 18×8 counts, which contains road movements, running, jumping, throwing and catching to improve the motor skills of early childhood, for example, jumping with one leg, as shown in Figure 3.



Figure 3. Example of Core Movements

In addition to heating and core movements, there is also a cooling motion consisting of 9×8 count, ranging from the movement of the legs, hands and head, for example in Figure 4.



Figure 4. Examples of Cooling Movements

In addition to gymnastic movements, Jalaleota cheerful creations are made in the form of VCDs that have been equipped with music and video tutorials of movements. Jalaleota's cheerful creation gymnastics is also equipped with a movement guidebook as well as movement assessment, where this movement guide contains explanations or descriptions of every movement Jalaleota cheerful creation gymnastics performed. This book contains the title of the book, the name of the author and the explanation of the movement. The book also comes with an assessment of Jalaleota's cheerful creation of gymnastic movements, as shown in Figure 5.



Figure 5 Jalaleota's Cheerful Creation Gymnastic Movement

The creation of a Jalaleota gymnastics guidebook, which in a book containing Jalaleota gymnastic movements, with warming movements, core movements and cooling movements will be studied in kindergarten. The book is equipped with introductions, calculation of pulse before exercise, warm-up movements, core movements equipped with images of the steps of Jalaleota gymnastics movement implementation, cooling movements and calculation of pulse after exercise. Then, the book is typed in

Microsoft Word, with pictures of the movements inserted, entered into the table of contents and the book cover is created.

The results of the assessment of the prototype gymnastics creation of Ceria Jalaleota by gymnastics experts obtained a score of 3.25. Based on the implementation of gymnastics, it is known that Jalaleota cheerful creation gymnastics, related to road movements, running, throwing, jumping and catching, can improve early childhood motor skills, namely improving road, jumping, throwing and catching skills in kindergarten children. The movement needs to be added by switching movements to make it easier for children to remember movements and set distance when making movements.

While the results of the assessment for the prototype gymnastics creation of Ceria Jalaleota by motor experts, it is known that the presentation of road movements, running, throwing, jumping and catching to improve early childhood motor is considered good, with an average score of 3.05. But the prototype was revised in several ways, consisting of the running aspect and the throwing aspect. Thus, Jalaleota cheerful creation of gymnastic movements will become more interesting in improving early childhood motor in terms of running and throwing.

While the results of the assessment for the prototype gymnastics creations of cheerful Jalaleota by linguists, the presentation of Jalaleota cheerful creation gymnastics already has a good language and is easily shared by early childhood, because the language lyrics in Jalaleota story creation gymnastics music in accordance with the movements carried out, so that early childhood can be followed well. Prototype repairs have been made in accordance with the input of motor experts and gymnastics experts.

3.2. Early field testing

The Jalaleota cheerful gymnastics prototype that has been revised based on expert input is then tested on a small scale called the preliminary field trial. The preliminary field trials were conducted through activities involving 10 kindergarten students. The limited trial implementation was carried out collaboratively with kindergarten teachers. The results of the motor skills test for early childhood and the application of the Jalaleota cheerful creation exercise at the preliminary field trial stage are shown in Figure 6.

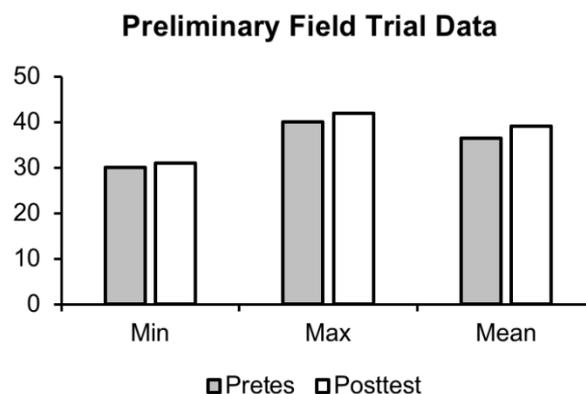


Figure 6. Preliminary Field Trial Data

The results in Figure 6 show that early childhood motor skills after learning using Jalaleota cheerful creation gymnastics are better than before using Jalaleota cheerful creation gymnastics. This data confirms that the media prototypes used within these limitations can be continued at a wider stage of trials. While the results of user responses to the use of Jalaleota cheerful creation gymnastics in improving motoric early childhood in the kindergarten education programme can be seen in Table 2.

Table 2. The Results of User Responses to the Use of Jalaleota Cheerful Gymnastics

Aspects	Value	Category
Gymnastics movements	3, 15	Good
Language	3, 34	Excellent
Display	3, 54	Excellent

Based on Table 2, the users' responses to Jalaleota's cheerful gymnastic creations, in general, are great. In terms of appearance, it scored highest with excellent categories.

Users viewed Jalaleota's cheerful gymnastics prototype creations developed as attractive and easy to use. Input from users at this limited trial stage was that road movements should be added in place of the core movement to regulate the breath so as to facilitate the next movement.

3.3. Main field testing

The main field test stage was conducted through morning gymnastics in kindergarten using a revised Jalaleota cheerful creation gymnastics prototype based on preliminary field test results. The main field trial involved 38 students conducted collaboratively with teachers who teach gymnastics every Wednesday morning. The development of early childhood motor skills in doing Jalaleota cheerful creation gymnastics at the main field trial stage is shown in Figure 7.

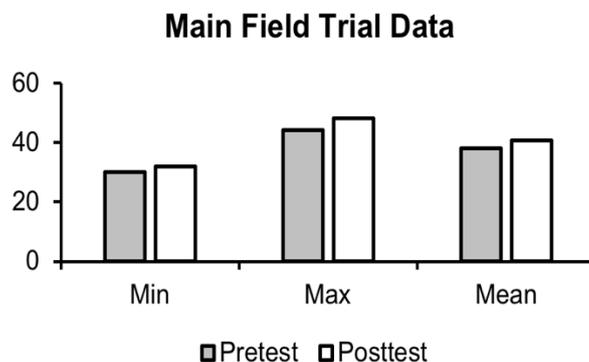


Figure 7. The Main Field Testing Data

Data in Figure 7 show that early childhood motor skills after using Jalaleota's cheerful creation gymnastics were better than before using Jalaleota cheerful creation gymnastics. Prior to the paired sample *t*-test, data from the main field test had been tested for normality using the Kolmogorov–Smirnov test. The results of test at the significance level of 5%, obtained a value of 0.472 in the pre-test data and 0.056 in the post-test data. The acquisition of values on the normality test indicates that it is greater than 0.05, so it can be concluded that the test data is a normal distribution.

The *t*-test sample is performed to determine the significance of the difference in the mean pre-test with the average post-test in the sample group. The results of the paired *t*-test samples are presented in Table 3.

Table 3. Paired Sample t-Test Results

	Paired differences			<i>t</i>	df	<i>p</i>
	$\bar{x} \pm SD$	95% confidence interval of the difference				
		Lower	Upper			
Paired <i>t</i> -test	-12.98 ± 8.50	-15.96	-10.02	8.90	33	0.002

Paired sample *t*-test obtained a value of 0.002 < 0.05, and then it was decided that H_0 is rejected. Thus, it was proven that at an average confidence level of 95%, the post-test score of kindergarten children's motor skills by using Jalaleota's cheerful gymnastic creations with the walking, running, jumping, throwing and catch materials was not the same as the pre-test scores. These results showed that the motor skills of kindergarten children after gymnastics using Jalaleota cheerful creation gymnastics were better than before gymnastics using Jalaleota's cheerful creation gymnastics.

The test results and user responses to the use of Jalaleota's cheerful creation exercise in the field trial of the kindergarten education stage are presented in Table 4.

Table 4. User Responses to Product Prototypes in Key Areas

Aspects	Value	Category
Gymnastics movements	3, 46	Excellent
Language	3, 54	Excellent
Display	3, 65	Excellent

The data in Table 4 show that the users' responses to Jalaleota's cheerful creation gymnastics, in general, reached an excellent category. Users argue that the Jalaleota cheerful gymnastics prototype developed could help to improve motor more easily. In addition to easier motoring, users see that the presentation of Jalaleota cheerful gymnastics is interesting and makes gymnastics not boring. These findings differ from early conditions that suggest that users have not been interested in learning motor-related gymnastics. Users assess that the implementation of gymnastics with the help of Jalaleota cheerful creation gymnastics makes children involved in gymnastics and easy to use. Although good results were obtained, improvements were still made with the simplification of gymnastic movements as a refinement of Jalaleota cheerful creation gymnastics products in improving early childhood movement skills in kindergarten

4. Discussion

Creative gymnastics is gymnastics that is made by itself with foot and hand movements that are created according to the creativity that makes it. The development stage of the Jalaleota cheerful creative exercise in improving motor skills at an early age begins with the preparation of gymnastic products. Motor movement analysis is carried out to prepare the movements that will be carried out in the creation of gymnastics. Jalaleota creation gymnastics is one of the rhythmic gymnastics made by creating its movements to improve gross motor skills in children with the implementation of happy and accompanied by singing children. Zeng et al. (2017) report that children with more developed motor skills may find it easier to be active and engage more in physical activity than those with less developed

motor skills. Jalaleota cheerful creation gymnastics can be used as an alternative for kindergarten teachers to improve children's motor skills, because it can foster children's motivation in doing movements. Thus, Jalaleota gymnastics creations were successfully created.

Jalaleota's gymnastics consists of three parts, namely the core movement, warm-up movement and the cool-down movement. The warm-up movement consists of head, shoulders, hands, legs and feet movements. The core movement consists of walking, one leg jumping, two leg jumping, tiptoe walking, throwing and catching (Park et al., 2018). While the cooling movement only contains movements to lower body temperature, including hand swing movements, shoulder movements and head swings. Jalaleota gymnastics movements are carried out by paying attention to the movements on the gross motor test tool for early childhood. Warm-up is defined as the basis for the safety and joint mobility of the gymnast (Şekir et al., 2019). Warming up is done to change their state from resting to preparation (González-Devesa et al., 2021).

The prototype of Jalaleota's cheerful gymnastics was assessed by experts and at the same time received input as a prototype improvement. The revised prototype was then implemented in a limited trial phase. The results of the limited trial showed the prototype of the Jalaleota cheerful gymnastics was in the good category, but improvements were made according to input from users in the limited trial. The results of the improvement of the prototype of the Jalaleota cheerful gymnastics were then tested on a wider scale. The use of Jalaleota cheerful creations makes it easier to improve motor skills in early childhood compared to before.

Through testing the prototype of the cheerful Jalaleota creative exercise at a wider trial stage, the use of the Jalaleota cheerful creative exercise has a positive impact on the process of improving early childhood motor skills in walking, running, jumping, throwing and catching movements. The use of the prototype of Jalaleota's cheerful gymnastics creation provides new experiences for children and kindergarten teachers in improving motor skills in early childhood. Students are actively involved in gymnastics, such as children doing one-legged jumping, two-legged jumping and tiptoe walking by following the creations of the Jalaleota cheerful gymnastics. Skopal et al. (2020) reported that rhythmic gymnastics can improve basic movement skills, including walking, running, jumping, twisting and bending, and cognitive skills by solving simple problems in everyday life, recognising number concepts, patterns, space concepts and sizes step by step with each cycle.

The results of this study are relevant to the results of previous R&D oriented towards improving early childhood motoric skills. Shi et al. (2020) reported that cheerful gymnastics can improve children's gross motor skills that overall will be better results if done through activities and exercise regular gymnastics and with more frequency of exercise and repetitive exercises to improve gross motor skills in learners. Thus, a teacher knows what actions to take in improving the child's gross motor. The development of gymnastics creation by Ulfah et al. (2021) obtained the results of facts and data on the application of rhythm gymnastics in improving the gross motor skills of early childhood. The more varied and innovative activities, the opportunity to improve gross motor skills in children so that they can develop optimally. The implications of the findings of this paper provide an overview of the application of rhythmic gymnastics in improving gross motor skills in early childhood. In this study, the presenter of Jalaleota cheerful gymnastics can help kindergarten children improve motor skills. In addition, the

cheerful Jalaleota creative exercise can give children a sense of joy moving around, because the Jalaleota cheerful creative exercise is accompanied by fun music and is easy for children to follow.

5. Conclusion

The development of Jalaleota's cheerful creative gymnastics in improving early childhood motor skills in kindergarten education programmes can improve children's motor skills in terms of walking, jumping, softening and catching. Product improvement at the development stage of Jalaleota cheerful creations is appropriate to use to improve motor skills in early childhood. This media is consistent with the views of experts and users.

Conflicts of interest

No conflicts of interest to declare.

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