



## Abhinaya Circuit Video Media in Online Learning to Train Physical-Motor Ability of Early Childhood: A Developmental Studies

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 [10.33086/cej.v4i1.2824](https://doi.org/10.33086/cej.v4i1.2824)

Submission : March 30, 2022

Revision : April 13, 2022

Accepted : May 18, 2022

### Keywords

Abhinaya Sirkuit,  
Early Childhood,  
Learning Media,  
Physical- Motor

### Abstract

This study aims to develop an Abhinaya Circuit video game media suitable for training gross motor skills in early childhood. This research uses Research and Development research. The method applied in this research refers to the Borg and Gall method, which consists of 10 research steps. In this study, only eight steps were applied; (1) conducting a needs analysis, (2) planning, (3) developing a product design at the beginning, (4) validating the developed product design, (5) revising the product design, (6) conduct trials, (7) revise the product (8) Production. The collected data in this study using observation, interview, and documentation techniques. Data analysis in the form of descriptive quantitative. The results of this study were obtained: (1) the feasibility test results of the Abhinaya Circuit video media were carried out by two validators, namely media expert lecturers and early childhood physical-motoric lecturers. The media expert validator research results are 83.6% with valid criteria and can be used with a little revision. The results of the instrument validation of children's motor physicists were 94.6%, with very valid criteria so that they could be used without revision. (2) The results of product trials in terms of 3 aspects of safety, convenience, and attractiveness (zig-zag running, crawling, throwing balls, cranks, shuttle runs) obtained a total percentage of 94.6%, which was included in the feasible category. Based on the results of the research that has been done, it can be concluded that the Abhinaya circuit media is safe, easy and interesting and can be used as an alternative to stimulate gross motor skills in early childhood, especially children aged 4-6 years.

### Kata Kunci

Sirkuit abhinaya, anak  
usia dini, media  
pembelajaran, fisik-  
motorik

### Abstrak

Penelitian ini bertujuan untuk mengembangkan media permainan video Sirkuit Abhinaya yang layak melatih keterampilan motorik kasar pada anak usia dini. Penelitian ini menggunakan penelitian Research and Development. Metode yang diterapkan dalam penelitian ini mengacu pada metode Borg and Gallyang terdiri 10 langkah penelitian, dalam penelitian ini hanya diterapkan delapan langkah, yaitu: (1) melakukan analisis kebutuhan, (2) merencanakan, (3) mengembangkan desain produk pada saat awal, (4) melakukan validasi desain produk yang dikembangkan, (5) melakukan revisi desain produk, (6) melakukan uji coba, (7) revisi produk (8) Produksi. Pengumpulan data dalam penelitian ini menggunakan teknik observasi, wawancara, dan dokumentasi. Analisis data berupa deskriptif kuantitatif. Hasil

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penelitian ini diperoleh: (1) hasil uji kelayakan media video Sirkuit Abhinaya dilakukan oleh 2 validator, yaitu dosen ahli media dan dosen ahli fisik motorik anak usia dini. Hasil penelitian validator ahli media sebesar 83,6% dengan kriteria valid, dapat digunakan dengan sedikit revisi. Hasil validasi instrumen ahli fisik motorik anak sebesar 94,6% dengan kriteria sangat valid sehingga dapat digunakan tanpa revisi. (2) Hasil uji coba produk ditinjau dari 3 aspek keamanan, kemudahan, dan kemenarikan (berlari zig-zag, merangkak, melempar bola, engklek, shuttle run) memperoleh presentase total 94,6% termasuk dalam kategori layak. Berdasarkan hasil penelitian yang telah dilakukan dapat disimpulkan bahwa media sirkuit Abhinaya ini aman, mudah dan menarik dan dapat digunakan sebagai alternatif untuk menstimulasi motorik kasar anak usia dini khususnya anak usia 4-6 tahun.

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## A. Introduction

In 2020 we were faced with an outbreak of the Covid-19 virus that originated in China and then spread throughout the world, including Indonesia. This outbreak has resulted in limited community activities outside the home and must be minimized in order to prevent the spread of this epidemic. Teaching and learning activities in schools were also affected. Teaching and learning activities in schools have now turned into online learning, also known as online learning, which makes students from every level have to study at home. Learning that should be done in schools spontaneously must be changed online to stop the spread of this virus. Early childhood, whose metabolic or immune levels are not as strong as adults are still unable to protect themselves, and must be guarded and protected from contracting the Covid-19 virus.

Early childhood education is an important starting point in helping children grow and develop. Child development has been regulated in the Minister of Education Regulation Number 146 of 2014, commonly referred to as the Child Growth Achievement Standard (Firmansah, 2019). Article 28 of Law no. 20 of 2003 stipulates that PAUD education occurs before entering elementary school. Even at the level of PAUD education, those who should be able to learn while playing at school must turn to online learning. However, many schools carry out online learning with assignments in the form of too many boring worksheets. School institutions prioritize the academic development of children in the form of reading, writing, counting, and drawing. The lack of variation in learning causes the physical aspects of children's motoric development to be not optimal.

A well-known adage from the world of children says that there is nothing wrong with playing. From waking up to falling asleep again, in children's minds, it's just played. The importance of playing activities at an early age is expected to be a process that allows children to play in meaningless games and get fun experiences. Teachers and parents are recommended to be able to encourage this activity to maximize the growth and development of children. In-game activities, children's creativity will develop well. In Borden (2001), Piaget suggests that educational experts believe that play activities are beneficial activities in developing children's lives. Through play, children are asked to go out and try to develop in life.

Young children still have a lot to develop, so their future is still in the works. Early age is a period of growth and development for every child because at an early age, children are undergoing a process that has a significant impact on all aspects of their development. During

this sensitive period, children need to be surrounded by people who are important to them and who will provide them with stimulation (Fitri Mardi, 2020).

In the development of children, Suryana (2018) explains that there are six aspects of development that need to be trained and stimulated continuously. Aspects in question such as; moral-religion, Language, Art, Social-Emotional, Physical-Motor, and Cognitive aspects. Stimulus in every aspect is very important so that children develop and grow well. One of the important aspects to be honed is the physical aspect of children's motoric, which consists of fine motor and gross motor. Fine motor skills relate to the child's ability to move the body using smooth muscles. Movements that are included in fine motor skills are grasping, cutting, drawing, crouching, and other fine muscle movements. In comparison, gross motor skills refer to the child's ability to move the body with large muscles or the whole body. For example, walking, jumping, running, climbing stairs, throwing, etc. In line with Santrock's expression in Fitriani (2018), that gross motor skills children up to 3 years old enjoy simple movements such as jumping, jumping, and running from side to side, which children do only for the enjoyment of these activities.

The development of children who are not stimulated optimally affects their growth and development. Pramono (2018) explains that the characteristics of early childhood motor development are at the stage of forming motion and increasing the variety of movement patterns they have. The stages of movement formation in early childhood are the beginning of further motor development. Children with trained motor skills have greater self-confidence and perceive mental skills more positively than children whose motor skills are not stimulated. When children feel comfortable moving, they move continuously and at the appropriate age.

Children's motoric development is divided into two domains, namely gross and fine motoric, and gross motoric activity, namely large muscle activity, which includes locomotor, non-locomotor, and manipulative movements. At the same time, fine motor skills are the ability of preschoolers to move using smooth muscles (small muscles) such as writing and drawing (Widayati Sri, 2019). Gross motor development is the development of coordinated movement activities in several body parts that use a lot of energy. In comparison, fine motor development develops coordination movements that use less energy (Karela Yesi, 2020). Children with good gross motor skills become more agile and agile, their movements become more coordinated, and make trained children more confident and competent in dismantling problems or dismantling the problems they face every day.

Based on the needs analysis at Kartika IV-77 Kindergarten, it shows that the fine motor skills of children during the pandemic have been well stimulated. The activities evidence this carried out has stimulated children's fine motor activities, such as drawing, crocheting, writing, and other fine motor activities. In contrast, activities that can stimulate children's gross motor skills are still not good and seem monotonous, such as gymnastics. Therefore, researchers want to develop children's gross motor skills with fun activities, namely circuit games, because there are no circuit game activities for children in kindergarten.

Some solutions that can improve children's physical-motoric development are circuit games sourced from previous studies, including the following. Nikmah et al (2019), in their research entitled Improvement of size-sequencing skills (serial) through the Smile circuit game Ages 4-5 years. Some details of the Smile circuit game activities that were developed are (1)

The first step in children's activities is toe walking (lifting heels) on a straight stretched rope. (2) then, secondly, the child does the activity of grouping (grabbing) sizes based on long and short sizes. (3) the three children participated in a zigzag running activity. (4) the four children participating in the jumping activity. (5) In the fifth post, the children carry out activities to group (classify) sizes based on large and small sizes. (6) the sixth or final activity where the child walks towards the finish line. Smile circuit games can develop various physical-motor aspects of children, including balance, strength, speed, and accuracy.

Fajar and Ratnasari (2015), stated that smart circuit games are effective for training gross motor skills in early childhood. Some details of the circular play activities developed, namely, firstly transferring water from one container to another with a glass of mineral water with small holes at the bottom, can practice basic non-locomotor manipulation movements, namely the development of bending ability, leg and hand muscles. Second, jumping activity training the ability of leg muscle strength. Third, putting objects above your head and walking straight with your arms outstretched can train the formation of balance skills. Fourth, running sideways zig-zag following the direction of the obstacle trains the formation of the ability of leg muscle strength and agility. Fifth, throwing the ball into the basket can train the formation of hand muscle strength abilities. Sixth, bringing the ball to a predetermined limit and then kicking the ball into the goal can train the formation of agility and leg muscle speed.

Previous research conducted by Rahma (2021) shows that circuit games are very feasible and can be used without revision to improve gross motor-physical abilities in children. Monica's research (2020) resulted in an increase in children's gross motor skills through circuit games. Akbar (2013) also argues that circuit games are included in a very feasible qualification with the category of being able to be used without revision. Research conducted by Relwi (2021) shows that the results are suitable for use in online learning to improve fine motor skills in children with limited trials. Madyawati (2016) argues that playing is very helpful for children's growth and development because they can understand new things, begin to understand the world, and begin to think flexibly.

Sulyandari and Dewi (2020) research shows that 89.5% of these developments are easy to do, 100% safe for children, and 100% fun to do. The development of gross motor physical learning through this circuit also develops other aspects of language, cognitive, socio-emotional, and religious moral values. Therefore this is considered suitable for preschool institutions because the learning uses integrated thematics. Research conducted by Das (2017) revealed that free play and guided play are fun learning. Playing is learning in fun and conceptually rich way. Even recent research reveals that the biological basis of humans is playing.

The name Abhinaya is taken from the Sanskrit language which can be interpreted as the word spirit. The Abhinaya circuit game has 5 posts consisting of (1) zigzag running: aiming to train agility in footwork; (2) crawling activity: aims to train children's strength, hand and foot coordination; (3) throwing the ball in the basket: aims to train accuracy and hand and eye coordination; (4) ankle: aims to train the strength of the legs, endurance and balance of the child's body; and (5) shuttle run: aims to train children's speed and accuracy. The 5 posts in the circuit game can help children develop various elements of their physical fitness, such as agility, accuracy, endurance, strength, speed, balance and coordination.

Based on the problems and alternative solutions that have been described above, the purpose of this research is to train the gross motor skills of early childhood in online learning with circuit games that are developed to train children to be active in playing games. Children are encouraged to have the courage and confidence to go through challenges in the game so that the games designed provide optimal results for children's development. In addition, circuit games must make children happy to do it. Children who like to play on their initiative, without coercion or are voluntary, will satisfy the child.

## B. Methodology

This research is research development or Research and Development (R&D). According to (Sugiyono, 2016) research and development is a research methodology that aims to develop new products. This study refers to the Borg and Gall method which consists of 10 research steps, but only eight steps are applied, namely: (1) conducting a needs analysis, (2) planning, (3) developing product designs at the beginning, (4) conducting validation of product designs developed, (5) revising product designs, (6) conducting trials, (7) revising products (8) Production.

**Table 1. Research Subjects by Class**

Class	Total
Group A	6
Group B	6
Total	12

The subjects in the research on video media development of the Abhinaya Circuit were 12 students of Group A and Group B of Kartika IV-77 Kindergarten Malang Regency as a limited trial. The trial was carried out on a limited basis, only up to a small trial, because the trial was carried out while it was still a Covid-19 emergency. So that researchers limit not to do large group trials. The stage of review and validation carried out by experts, namely media expert lecturers and early childhood motoric physics expert lecturers was carried out first. Product trials were carried out for data collection used were observation, interview, and documentation techniques. Using the observation sheet, basic data about the success rate of children were determined. Observation sheets were used to collect quantitative data.

The types of data used in this research are qualitative and quantitative data. Qualitative data were obtained from observations at Kartika IV-77 Kindergarten, as well as the results of the reviews of motor physicists and media experts in the form of suggestions and input related to product designs to be made, while quantitative data were obtained from the results of the validation sheet assessments of media experts and children's motor physicists and the results process and result observations during the online abhinaya circuit match. Data analysis is in the form of quantitative descriptions, the formulas used in processing the data are as follows:

$$V = \frac{TSe}{TSh} \times 100\%$$

Source : Akbar (2013)

Information:

V = Validity  
 TSe = Total Empirical Score  
 TSh = Total Maximum Score  
 100% = Constant

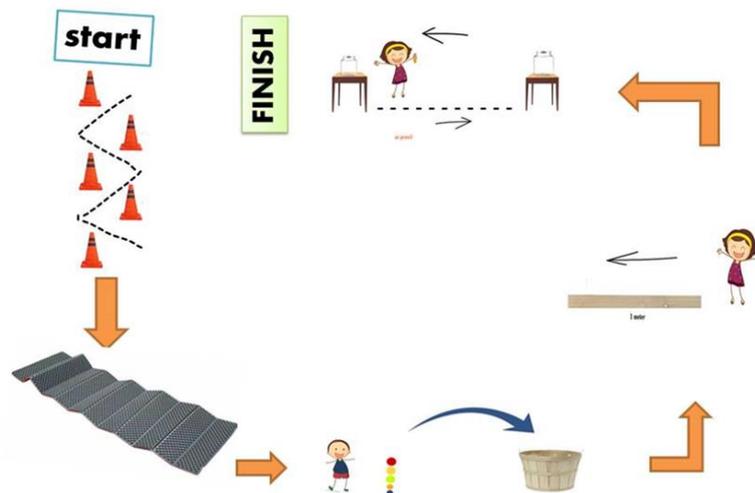


Figure1. Abhinaya Circuit Model

### C. Result and Discussion

The steps for using the Abhinaya Circuit game, namely; (1) Starting at post 1, the child gets ready at the beginning of the starting line by carrying a flag, then the child will run in a zig-zag way through each traffic cone/bottle of mineral water that has been arranged crosswise. (2) Then proceed to post 2, where many people are getting ready with their bodies already crawling on the mat. Then the child crawls through the mat with a length of 2 meters. (3) Continued in post 3, where the child first takes the ball that has been provided and then throws it into the basket until the ball in the container runs out. (4) Then in post 4, the child gets ready with both feet. If the crankcase is only 1 then the child only uses 1 leg. If the crankcase is 2 then the child uses 2 legs. 1 foot in a box of 1 and the other foot in another box. The child must jump and jump each box to proceed to the next post. (5) In post 5, the child gets ready on the side of the container containing the pencils. Then the child does the shuttle run by moving the pencil from container 1 to the empty container. After all the pencils have been moved, the child goes to the finish line with the flag he has brought from the starting line.

#### 1. Result

The research results obtained from the research and development of video circuits include expert review data, the results of small group trials, and the effects of user trials. Abhinaya circuit video development validation data were obtained through filling out questionnaires by experts, and the results of the cumulative evaluation of the data were obtained as follows.

Table 2. Cumulative Evaluation Results of Experts

No	Expert validation	Percentage
1	Media expert	83,6%
2	Physic-Motoric expert	94,6%
	Average	93,25%

Based on the results of the scores from Table 2 obtained from the achievement questionnaire from media experts, 46 out of a total score of 55 and showing the value (%) of the validation criteria of 83.6%, which means that the Abhinaya circuit video game is valid and feasible to use. from media experts on the results of developing Abhinaya circuit videos to

stimulate physical, motoric activity in early childhood as follows: (1) video duration is too long, (2) posts 3 and 5 are less attractive should be decorated, (3) game storage. The Abhinaya circuit video media, which is valid and suitable for use, aligns with Arsyad (2011), which states that the teaching and learning process can be effective and efficient when supported by supporting media. Students' potential will be more stimulated when assisted by several media or facilities and infrastructure that can support the ongoing interaction process.

The results obtained from the questionnaire on gross motor achievement in early childhood are 71 of the total score of 75 and show the value (%) of the validation criteria of 94.6%, which has a valid meaning and is feasible to use. According to Samsudin in Khadijah (2020), if the level of success in carrying out motor tasks is high, it means that the motor skills he does are effective. The suggestions given by early childhood gross motor physicists on the results of developing Abhinaya video circuits to stimulate early childhood physical motor skills are as follows: (1) adjust the movement used, crawling or crawling, (2) pay attention to the child's safety factor, (3) use crawling movements to suit the movements of children aged 4-6 years. According to motor physicists, early childhood crawling is more suitable for children aged 4-6 years than squatting.

From the overall average results obtained from experts who refer to the table of cumulative validation evaluation results, the results from the combination of media experts and material experts with a percentage of 93.25% which means that the value is very valid. The data from the small trial were obtained from the observers' observations and the evaluations of the users. The results obtained from the evaluation of teacher users are as follows.

**Table 3. Data Results from Users of Group A and Group B**

No.	Class	Tse	Tsh	Percentage (%)
1	Group A	49	60	81,6%
2	Group B	50	60	83,3%
Percentage		99	120	82,5%

Table 3 describes a description that can be concluded that the total score obtained from each user is 99 out of a total score of 120, with a total percentage of 82.5%. From the data that has been obtained, the percentage of user data is in a proper qualification. Meanwhile, based on the results of trial data conducted on early childhood, especially for children aged 4-6 years at Kartika IV-77 Kindergarten, Malang. The overall results obtained from trials on security, convenience, and attractiveness are shown in the table below.

**Table 4. Results of Small Group Trial Data Related to the Aspects**

No.	Aspects	Tse	Tsh	Percentage (%)
1	Safety	289	300	96,3%
2	Convenience	286	300	95,3%
3	Attractiveness	277	300	92,3%
Total Score		852	900	94,6%

Based on Table 4, it can be concluded that the total score obtained in the small-scale, limited trial is 852 from the ideal score of 900, with a total percentage of 94.6%. From the data that has been obtained, limited small group trials related to aspects of safety, convenience, and attractiveness are in very decent qualifications so that children feel safe, easy, and interested in playing the Abhinaya circuit game.

## 2. Discussion

There are many ways to keep learning during this pandemic, as is the case with online learning. According to Awaludin (2020), online learning is an extension of online learning with a learning pattern with the help of the internet network to interact with teaching and learning activities between students and teachers. Meidawati et al (2019) wrote that online learning can be understood as formal education organized by schools where students and teachers (teachers) meet in separate locations, requiring an interactive telecommunication system to manage the two and connect the two. Online learning can be done anywhere, anytime, depending on the availability of the supporting tools used. It can be interpreted simply, online learning is a teaching and learning process that is carried out online by teachers and students by utilizing various learning media (Ngussa et al., 2021).

According to Pohan (2020), planning for an online learning system must be related to 3 principles that must be met, namely: the learning system must be simple so that it is easy to learn, the learning system must be personalized so that the user does not depend on the system. The system must be able to find material or information quickly and easily. answer questions from the results of the developed system planning. Online learning in Indonesia is held with government-centered rules and systems.

Whether or not the Abhinaya circuit video media is feasible, which can be seen by media experts and early childhood motoric physicists, with the results of the media expert assessment by the lecturers, the validation results obtained are 83.6% in the appropriate category. Physical-motor assessment by the lecturer as a validation result obtained by 94.6% very feasible category. In line with that, it can be seen that the developed Abhinaya game product is in the 80-100% percentage criteria. This percentage shows that this game is included in a very feasible qualification with a category that can be used without revision (Akbar, 2013)

This is supported by research (Rahma, 2021) which states that the validation results of game experts are 84.09% and motor physicists are 96.43% and show that the game is very feasible and can be used without revision. Games that meet the criteria for validation by game experts and motor physicists are games that can have a positive impact on early childhood with the fulfillment of several predetermined criteria.

The research results conducted by Monicha (2020) show an increase in children's gross motor skills through circuit games. It can be proven by the average level of gross motor development achievement (TCP) of children in pre-action of 18.3, which increased in the first cycle to 26,2 and the second cycle to 30. Likewise, the research conducted by Paramita (2019) with the validation results carried out by experts and teachers found that the product developed was in the "good" category. Developing a circuit game-based learning model was effective in improving children's fine motor skills.

The results of the limited trial used to determine eligibility in terms of 3 aspects of safety, convenience, and attractiveness (zig-zag running, crawling, throwing the ball, ankle, shuttle run) obtained a total percentage of 94.6% was included in the feasible category.

In line with research (Relwi, 2021) the results of a limited trial are used to determine the feasibility of busy table media when children use it. This limited trial was carried out by 8 children around the researcher's house, aged 4-5 years. The results of the limited trial conducted

by 8 children were 93% "very good." It can be stated that the busy table media developed was declared "appropriate" to be used during the learning process in improving the fine motor skills of children aged 4-5 years.

According to Harlock (in Yuliani et al., 2017), motor development (movement) develops body movement through activities that target the coordination of nerves, muscles, and muscles. Gross motor development in early childhood varies according to the child's level of development, maturity, and stimulation. Many factors can affect a child's motor development. According to Maulidiyah (2017), the factors that influence the physical and motor development of early childhood are divided into two groups namely internal factors, namely; a) genetics, b) diet, c) hormones and external factors that can affect the physical and motor development of children in the environment. A conducive environment will support children's motor development optimally. Through the environment, children will explore motor skills through movement so that children's movements are more varied.

According to Westcott Wayne in UNY (2019), circuit training is a sports mode that involves a series of different exercises performed sequentially in one round or cycle. This means choosing specific exercises and moving quickly from station to station to maximize time efficiency. Therefore, circuit training is an exercise that combines exercises at several stations at a predetermined time to maximize time and efficiency. Circuit training can develop aspects of physical fitness consisting of endurance, muscle power, speed, flexibility, agility, coordination, balance, accuracy, strength, and reaction. Sofia (2016) adds that circuit training is a type of exercise that can produce positive changes in motor skills while increasing physical fitness, muscle strength, endurance, speed, and flexibility. According to Madyawati (2016), the purpose of the playing circuit is that playing really helps children's growth and development. Children begin to understand the world, can develop flexible and divergent thinking, and have the opportunity to find and solve practical problems.

#### **D. Conclusion and Recommendation**

Based on the research results and discussion, the conclusion that can be put forward is that the results of research and development can be concluded that the Abhinaya circuit game video media is to train gross motor physical abilities in early childhood. This research was obtained from 2 validation people, namely media expert lecturers and child motoric skills lecturers, and 12 children for a limited trial.

The research results conducted by the validator and the limited trial stated that it was valid and feasible to use. The development of this Abhinaya circuit game video media can be used as an alternative game to train early childhood gross motor skills safely, efficiently and fun so that it can help children to be more active in moving so as to maintain endurance, train control and coordination of limbs according to orders. The use of Abhinaya circuit game video media is also to help teachers in the teaching and learning process which is still fun because it is following the characteristics of children aged 4-6 years.

It is recommended for further researchers to examine the effectiveness of online learning of Abhinaya circuit video to train gross motoric physics of children aged 4-6 years and be able to conduct large-scale trials.

## E. Acknowledgement

We are grateful to all respondents involved in this research project. We are also grateful to LP2M Universitas Negeri Malang for funding and supporting this study.

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