

Development of Fruits Adventure Circuit Game to Stimulate Gross Motor Skills of Early Childhood Children

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Abstract

The purpose of this research is to create the educational game 'Circuit Fruits Adventure,' which is intended to help children in the age range of five to six years improve their gross motor skills. The game is an adaptation of Circuit Mini Jungle, which emphasises on improving motor skills, such as balance, coordination, strength, and agility. The research and development (R&D) methodology used in this study includes the following stages: needs analysis, product design, model development, expert validation, and small group and large group trials. The development process began with the identification of the needs of teachers and students at Ta Asri Islamic Kindergarten Malang City and Al-Hidayah Gogodeso 1 Kindergarten Blitar Regency, accompanied by empirical and theoretical studies. After being collected through interviews, questionnaires, and recording, the data were then analysed qualitatively and quantitatively. The product was validated by game experts and motor experts, and tested on 8 children in a small group and 21 children in a large group to evaluate the effectiveness, efficiency, and attractiveness of the product. As a result, children aged between five and six years old can improve their gross motor skills by playing the game 'Circuit Fruits Adventure.' Validation tests by game experts and motor experts showed that the game is highly valid, effective, efficient, and attractive. As a result, it is expected that this game can significantly advance early childhood education.

Keywords: Circuit Games, Gross Motor, Early Childhood

1. Introduction

The age range 0-6 years is known as the early childhood era because during this period major developmental changes occur. According to Khaironi (2018), this age group accounts for around 40% of human development. This period is usually referred to as the "golden age". It is very important to stimulate children's development in all areas between the ages of 0 and 6 years, including language, moral and religious principles, cognitive function, physical skills, social skills, and emotional growth (Talango, 2020). Gross motor skills and fine motor skills consist of two parts of the motor aspect. Large muscles are moved during "gross motor" activities such as walking and running. In contrast, smaller muscle movements, such as those used for writing and coloring, are referred to as "fine motor skills." A comprehensive early childhood education curriculum needs to consider the entire spectrum of child development. Children need proper guidance, so teachers must provide learning facilities and resources that support children's development. In addition, physical education in kindergarten needs to be carefully designed to train movement skills effectively, including gross motor learning such as running, jumping and walking. Learning materials in PAUD must be in accordance with the existing curriculum. Teachers should not just provide material, because this can have a negative impact on learning objectives. An important part of human growth is the hands and feet. They can cause stiffness and developmental delays if not taught properly. According to Hurlock (1978: 151), motor skills involving the hands, wrists and fingers can be anticipated.

Children are always involved in activities that bring them happiness, such as playing. Andayani, S. (2021) emphasizes that playing is an activity carried out by children on their own initiative. According to Yayat (2019), playing allows children to express joy and happiness. According to KBBI, games are goods or objects used for recreational purposes, whether in the form of tangible or intangible objects. (Nurhayati et al., 2021) . According to Wiyani (2014) in Reswari (2021), almost 80% of young children in gross motor development experience body imbalances and motor coordination which can have a negative impact on them. Teaching children about the importance of gross motor skills is essential if we want to improve their ability to move and avoid their bodies becoming stiff. Gross motor skills are under control in children aged four to five years, and will get better as they get older. There are several games that can be used to help build gross motor skills, and one example of a game that can do this is circuit games. This game is designed with various variations so that children don't get bored. Based on observations at two schools, Al-Hidayah Gogodeso 1 Kindergarten and Ta Asri Islamic Kindergarten, it was found that gross motor activities still lack the use of interesting props, gross motor aspects such as accuracy and agility have not been developed, effective circuit games have not been used, and more done a lot in class. To overcome this problem, the Fruits Adventure Circuit game was developed. The aim of this game is to help children between the ages of five and six develop their gross motor skills. There are five posts that make up the circuit, and each post focuses on a different area of gross motor development, such as speed, strength, balance, coordination and agility (Nugraheni et al., 2019).

In order to strengthen this research, researchers found 3 similar reference sources, namely that this game is an adaptation of Pratiwi's (2019) original design for the Mini Jungle Circuit. The research results showed that the cognitive and gross motor skills of group A children in Malang increased by using a modified game learning approach. These results provide a strong basis for continuing research with a focus on cognitive and motor aspects of early childhood. Kurniawati (2015) published research with the same title, Development of Fun Circle Circuit Media makes physical motor learning more interesting and relevant, according to the research.

This media is designed with innovation so that it can be used by teachers and can provide stimulus to children's physical motor skills, language skills and moral religious values. Apart from that, the use of circuit games to sharpen gross motor skills in early childhood is the title of research conducted by Sucipto et al (2019) . According to research conducted by Sucipto (2019), games that can hone gross motor skills such as strength, endurance, speed, endurance, agility, balance are circuit games. The research results show that the development of gross motor skills in young children can be trained through circuit games.

Therefore, it is hoped that the Fruits Adventure Circuit game can help educators to offer an interesting and colorful experience to children. This fruit-themed circuit will significantly improve early childhood education.

2. Method

This study uses the R&D Research and Development methodology for its creation.

2.1 Type of Research

2.1.1 Qualitative data was obtained from the results of validation by game experts, motor experts, in the form of introductions or suggestions, and interviews with teachers in 2 schools.

2.1.2 Quantitative data was obtained from the analysis of data validation by game experts, motor experts, users, namely teachers who will later observe the game from small and

large group trials during the Fruits Adventure Circuit game activity in the form of an assessment instrument grid.

2.2 Time and Place of Research

Time in July 2024 and the place of research in two kindergartens, namely Ta Arsi Islamic Kindergarten, Malang City and Al-Hidayah Gogodeso 1 Kindergarten, Blitar Regency

2.3 Targets

Early childhood aged 5-6 years using 8 children for small group tests and 21 for large group tests

2.4 Research Subjects

- 2.4.1 Game validation by lecturers at PG-PAUD, State University of Malang, namely Wuri Astuti, S.Pd., M.Pd. and Nur Anisa, M.Pd who are lecturers in the field of expertise (KBK) in the field of game development who are believed to master early childhood games.
- 2.4.2 Motor validation by lecturers of the Faculty of Sports Science, State University of Malang, namely Dr. Ari Wibowo Kurniawan, S.Pd, M.Pd and Dr. Arief Darmawan, S.Pd, M.Pd.AIFO who are lecturers in sports and are believed to master gross motor skills.
- 2.4.3 User validation (teachers) by Mrs. Wiwin Krisna, S.Pd as a teacher at the Islamic Kindergarten Ta Asri Malang City and Mrs. Umi Salamah, S.Pd as a teacher at the AlHidayah Gogodeso 1 Kindergarten, Blitar Regency.
- 2.4.4 Small group trials of the game will be implemented by small group trials, namely at the Islamic Kindergarten Ta Asri with 8 children in group B. 2.4.5 Large group trials were conducted at the Al-Hidayah Gogodeso 1 Kindergarten, Blitar Regency with 21 children in group B.

2.5 Procedures

The research and development (R&D) methodology used in this study includes the following stages: needs analysis, product design, model development, expert validation, and small group and large group trials.

2.6 Instruments

The data collection instrument used in the development research on the Fruits Adventure Circuit game at TK Islam Ta Asri Malang City and TK Al Hidayah Gogodeso 1 Blitar Regency used a qualitative and quantitative approach in the form of a questionnaire. The questionnaire used in the quantitative approach is: a) expert questionnaire assessment, games, and motor skills, b) assessment from users or teachers during trials in small groups and large group tests. While in the qualitative approach, namely: a) interviews with school teachers, b) suggestions or input from experts.

2.7 Data Analysis Techniques

Data collection techniques in this study are interviews, questionnaires and documentation.

- 2.7.1 Interview The researcher conducted an interview with the class teacher of the principal of TK Islam Ta Asri and the teacher of TK Al-Hidayah Gogodeso 1. The type of interview used a personal interview with one respondent and one researcher whose questions were gradual and developed regarding the research problem. The results of this interview will then be used as data to create products that meet the gross motor skills needs of children aged 5 to 6 years.
- 2.7.2 Questionnaire The questionnaire is used to collect survey data from motor experts, game experts and users to achieve the development of the Fruits Adventure Circuit game that is suitable for children aged 5-6 years in group B.

2.7.3 Documentation Documentation was carried out on group B, which consisted of children aged 5-6 years, when they conducted trials and practice sessions using the Fruits Adventure Circuit game. This activity took place outside of school or in the school yard. Documentation is very important to strengthen research materials.

3. Results and Discussion

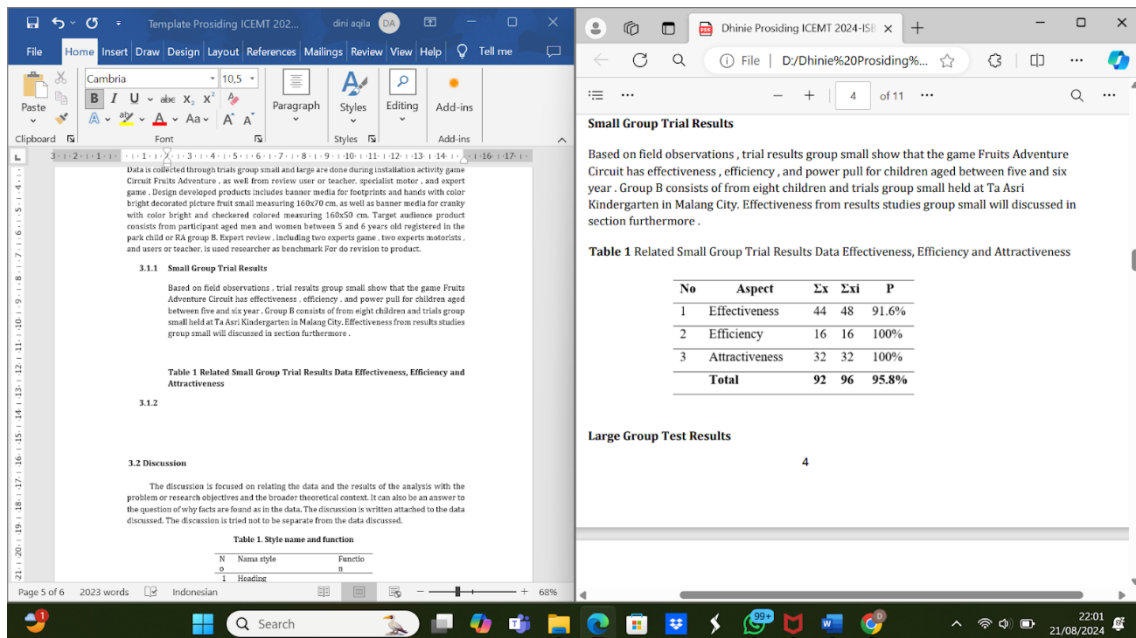
3.1 Result

Information provided will collected from various source For evaluate game Circuit Fruits Adventure , intended For increase ability motor rough children aged between 5 and 6 years . Data is collected through trials group small and large are done during installation activity game Circuit Fruits Adventure , as well from review user or teacher, specialist motor , and expert game . Design developed products includes banner media for footprints and hands with color bright decorated picture fruit small measuring 160x70 cm, as well as banner media for cranky with color bright and checkered colored measuring 160x50 cm. Target audience product consists from participant aged men and women between 5 and 6 years old registered in the park child or RA group B. Expert review , including two experts game , two experts motorists , and users or teacher, is used researcher as benchmark For do revision to product.

3.1.1 Small Group Trial Results

Based on field observations , trial results group small show that the game Fruits Adventure Circuit has effectiveness , efficiency , and power pull for children aged between five and six year . Group B consists of from eight children and trials group small held at Ta Asri Kindergarten in Malang City. Effectiveness from results studies group small will discussed in section furthermore .

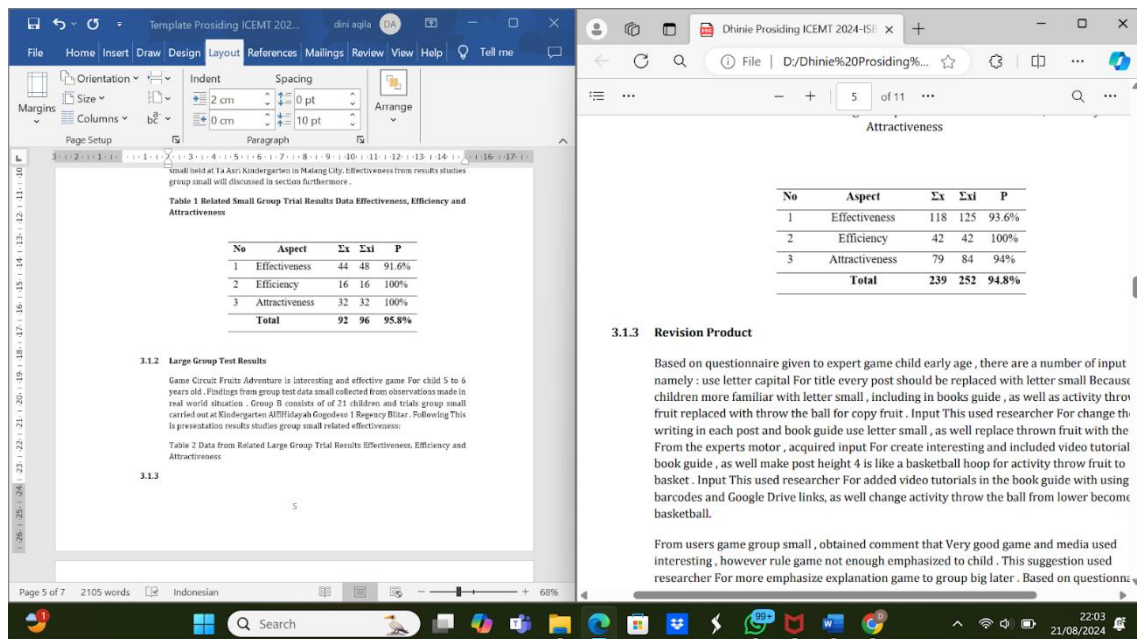
Table 1 Related Small Group Trial Results Data Effectiveness, Efficiency and Attractiveness



3.1.2 Large Group Test Results

Game Circuit Fruits Adventure is interesting and effective game For child 5 to 6 years old . Findings from group test data small collected from observations made in real world situation . Group B consists of of 21 children and trials group small carried out at Kindergarten Al-Hidayah Gogodeso 1 Regency Blitar. Following This is presentation results studies group small related effectiveness:

Table 2 Data from Related Large Group Trial Results Effectiveness, Efficiency and Attractiveness



3.1.3 Revision Product

Based on questionnaire given to expert game child early age , there are a number of input namely : use letter capital For title every post should be replaced with letter small Because children more familiar with letter small , including in books guide , as well as activity throw fruit replaced with throw the ball for copy fruit . Input This used researcher For change the writing in each post and book guide use letter small , as well replace thrown fruit with the ball. From the experts motor , acquired input For create interesting and included video tutorials to book guide , as well make post height 4 is like a basketball hoop for activity throw fruit to basket . Input this used researcher For added video tutorials in the book guide with using barcodes and Google Drive links, as well change activity throw the ball from lower become like basketball.

From users game group small , obtained comment that very good game and media used interesting , however rule game not enough emphasized to child . This suggestion used researcher For more emphasize explanation game to group big later . Based on questionnaire given to user game child early age group big , obtained comments and suggestions that child can carry out activity with good and happy.

3.2 Discussion

3.2.1 Analysis of Data from Review Results from Game Experts

The developed Circuit Game has been validated by two game experts. Validation by Game experts is done by providing assessment instruments according to the indicators. Based

on the validation data from two game experts in table 4.1 from the first game expert there are 10 indicators that get a score of 4 and 1 indicator gets a score of 3. While from the second game expert there are 8 indicators that get a score of 4 and 3 indicators get a score of 3. The first game validation result has a score of 43 out of a maximum score of 44, thus calculating the percentage using the formula $P = \frac{\sum x}{\sum xi} \times 100\% = \frac{43}{44} \times 100\% = 97.7\%$. The second game validation result has a score of 41 out of a maximum score of 44, thus calculating the percentage using the formula $P = \frac{\sum x}{\sum xi} \times 100\% = \frac{41}{44} \times 100\% = 93.1\%$. Calculating the average of both percentages is $\frac{43+41}{44+44} \times 100\% = \frac{84}{88} \times 100\% = 95.4\%$. So the average percentage of both game experts gets a result of 95.4%. The resulting percentage result produced according to Navrida; Saidah (2022), $80\% < \text{score} \leq 100\%$ are said to be very feasible and can be tested on children.

3.2.2 Analysis of Data from Motor Expert Review Results

The developed Circuit Game has been validated by two motor experts. Validation by Motor experts is done by providing assessment instruments according to the indicators. Based on the validation data from two motor experts in table 4.2 from the first motor expert there are 8 indicators that get a score of 4. While from the second motor expert there are 5 indicators that get a score of 4 and 3 indicators get a score of 3. The first motor validation result has a score of 32 out of a maximum score of 32, thus calculating the percentage using the formula $P = \frac{\sum x}{\sum xi} \times 100\% = \frac{32}{32} \times 100\% = 100\%$. The second motor validation result has a score of 29 out of a maximum score of 32, thus calculating the percentage using the formula $P = \frac{\sum x}{\sum xi} \times 100\% = \frac{29}{32} \times 100\% = 90.6\%$. Calculating the average of the two percentages is $\frac{32+29}{32+32} \times 100\% = \frac{61}{64} \times 100\% = 95.3\%$. So the average percentage of the two motor experts gets a result of 95.4%. The percentage results produced according to Navrida; Saidah (2022), $80\% < \text{score} \leq 100\%$ are said to be very feasible and can be tested on children.

3.2.3 Analysis of Small Group Trial Results Data

So based the results of the small group test related to effectiveness, efficiency, and attractiveness have a total score of 92. The results of the small group test related to effectiveness, efficiency and attractiveness have a maximum score of 96, thus calculating the percentage using the formula $P = \frac{\sum x}{\sum xi} \times 100\% = \frac{92}{96} \times 100\% = 95.8\%$. The percentage results produced according to Navrida; Saidah (2022), $80\% < \text{score} \leq 100\%$ is said to be very feasible and can be tested on children.

3.2.4 Analysis of Large Group Trial Results Data

So based the results of the large group test related to effectiveness, efficiency, and attractiveness have a total score of 239. The results of the large group test related to effectiveness, efficiency and attractiveness have a maximum score of 252, thus calculating the percentage using the formula $P = \frac{\sum x}{\sum xi} \times 100\% = \frac{239}{252} \times 100\% = 94.8\%$. The percentage results produced according to Navrida; Saidah (2022), $80\% < \text{score} \leq 100\%$ are said to be very feasible and can be tested on children.

4. Conclusion

Game Circuit Fruits Adventure beneficial in increase ability motor rude to children aged between 5 and 6 years , according to trial findings validation and user or educator child early age . Game This fulfil all specified requirements For use and effective , efficient , and attractive, according to very significant findings from validation tests , which are carried out by experts in development motor skills and games . Average results produced second expert validation motor namely 95.3% (very decent) and expert game 95.4% (very decent). For test results group small and big related effectiveness , attractiveness and efficiency that is 95.8% and 94.8%. Because reasons this , it is recommended that the game Fruits Adventure circuit used

as suitable product For children aged between five and six year . For makes it easier use game Circuit Fruits Adventure, game This equipped book a guide containing procedures play.

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