



## DEVELOPMENT OF A WARMING-UP GAME GUIDEBOOK FOR ELEMENTARY SCHOOL PHYSICAL AND SOCIAL SCIENCES LEARNING

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### *Abstract*

*The primary problem underlying this research is the lack of learning media related to warming-up using small games, and children's lack of enthusiasm for unvaried warming-up. This research aims to develop a guidebook for small warming-up games for elementary school physical education. The research used R&D (research and development) using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model. The population in this study was 15 people. The sample selection used a saturated sampling technique involving 15 people. The data collection technique used an assessment questionnaire from the material, media, and user validators. To test the effectiveness of the product by looking at the T-Test, namely to see the difference in understanding of physical education teachers before and after using the product. The analysis technique used a likert scale as the assessment score scale and the average for the validation criteria using a percentage score. The validation result of the material expert obtained a score of 90% with a very appropriate statement. The validation result from the media expert obtained a score of 90% with a very appropriate statement. The result of the teacher's response obtained a score of 82% with a very appropriate statement. The result of the effectiveness test showed that there was a significant influence of the use of the small warming-up game guidebook on the understanding of the KKG physical education teachers in the Meral-Meral Barat sub district with the result of the t-test count of 11,1142857143 which was greater than the t-table value (1,761).*

**Keywords:** Development, Book, Warm-up

### **Abstrak**

Permasalahan utama yang melatarbelakangi penelitian ini adalah minimnya media pembelajaran terkait *warming-up* menggunakan permainan kecil, dan anak-anak kurang bersemangat dengan *warming-up* yang tidak bervariasi. Penelitian ini bertujuan untuk mengembangkan buku panduan permainan kecil *warming-up* untuk pembelajaran pjok sekolah dasar. Penelitian menggunakan R&D (research and development) yang menggunakan model pengembangan ADDIE (Analysis, Design, Development, Evaluation, Implementation). Populasi dalam penelitian ini 15 orang. Pemilihan sampel menggunakan teknik *sampling jenuh* yang melibatkan 15 orang. Teknik pengumpulan data menggunakan angket penilaian dari validator materi, media dan pengguna. Untuk uji efektivitas produk dengan melihat Uji T yaitu melihat perbedaan pemahaman guru pjok sebelum dan sesudah menggunakan produk. Teknik analisis menggunakan *skala likert* sebagai skala skor penilaian dan rata-rata untuk kriteria validasi menggunakan persentase skor. Hasil validasi ahli materi mendapatkan skor 90% dengan keterangan sangat layak. Hasil validasi dari ahli media



mendapatkan skor 90% dengan keterangan sangat layak. Hasil respon guru mendapatkan skor 82% dengan keterangan sangat layak. Hasil uji efektivitas menunjukkan terdapat pengaruh yang signifikan penggunaan buku panduan permainan kecil *warming-up* terhadap pemahaman guru PJOK Kelompok Kerja Guru Kecamatan Meral-Meral Barat dengan hasil uji t hitung 11,114 lebih besar dari pada nilai t tabel (1,761).

**Kata Kunci:** Pengembangan, Buku, *Warming-up*

## I. INTRODUCTION

Physical education in schools plays an important role for students, through physical education providing opportunities for students to directly engage in physical activities and sports activities. According to Ginanjar, (2019) physical education is a physical activity used in the educational process which is part of the curriculum. Physical Education, Sports and Health is a learning process through physical activities that aims to improve physical fitness, improve motor skills, knowledge and behavior of a healthy and active lifestyle, sportsmanship and emotional intelligence. Physical education can be defined as education carried out through physical activities. According to Fadli Surahman et al., (2020) stated that the standard in physical education learning is that students can demonstrate competence in various motor skills and basic movement patterns. According to Yayang Yulia Sari et al., (2024) physical education is an educational process that uses physical activities that are systematically designed with the aim of improving various aspects of the individual including affective, cognitive and psychomotor. Basically, all students do not want boredom in learning, because boring learning is something that is not fun. This often occurs in physical education learning due to the lack of variation in the learning process. Physical education learning is a learning that must be carried out systematically according to the learning steps that begin with warm-up, core and cool down, however nowadays there are still many teachers who carry out the learning process that is not in accordance with these steps, one of which is not starting with warm-up activities or many still use static warm-ups that are not varied so that it causes boredom for students following the learning process and as a result, learning objectives are not achieved. In order to achieve learning objectives, it is hoped that teachers begin the learning process with a warm-up that is made as interesting as possible such as providing small games in the warm-up as motivation to increase student interest and enthusiasm in following the physical education learning process. According to Rezki et al., (2022) warm-up is an activity that must be done before doing sports activities, warm-up is done to prepare the body for better activities and reduce the risk of injury. The purpose of

warm-up is to improve blood circulation, increase heart rate gradually. With good body condition, the body becomes more ready to carry out activities. Before doing sports activities, warming up is a mandatory thing to do because without doing warming up it can cause the risk of injury to the body. Warming up is one of the main factors in exercising because of the importance of warming up movements, so before doing sports activities a person must be able to do warming up movements that are appropriate to the type of sport and models of warming up movements must be able to fulfill the elements of physical fitness. The plan in this study is to overcome and solve these problems by developing a small warm-up game guidebook for elementary school PJOK learning, researchers hope that the solutions provided can make it easier for educators to make physical learning more interesting, especially in more varied warm-ups, researchers also hope that this solution will make students more enthusiastic in participating in learning and increase student interest in PJOK subjects.

## II. THEORITICAL STUDIES

A small game is a form of play that does not have standard rules, whether regarding the rules of the game, the equipment used, the size of the field, or the duration of the game. Small games can be adapted to the circumstances or situations where and when the game is held. According to Blegur & Wasak (2017), small games are games that do not have standard rules, whether regarding the rules of the game, the leader, the media used, the size of the field, or the duration of the game. According to Kurnia & Septiana in Abdul Zalil et al., (2023), games become a medium for movement activities during physical education (PJOK) learning because they can be a unique attraction for students. Small games in warm-ups that are made as interesting as possible can attract students' enthusiasm in participating in the physical education learning process. According to M. Fadlillah (2018), small games play a crucial role in the physical education learning process because they make learning more enjoyable, thus facilitating the achievement of learning objectives.

According to Rahmadani et al., (2024), warm-ups are activities that must be carried out before engaging in more strenuous activities. Warming up prepares the body for better activity with a lower risk of injury. The goal of warming up is to improve blood circulation, expand the lungs, and gradually increase the heart rate. Warming up is done from light movements to more strenuous movements. In physical education learning, a varied warm-up is very appropriate to be applied and given to students. To prepare students' bodies for sports activities, a warm-up is needed that keeps students moving so that the muscles work harder

and blood circulation to the heart is increased. An interesting warm-up can use warm-ups with small games that aim to increase enthusiasm and physical readiness for students. How to do warm-ups can be done in various ways according to the conditions of the students. Some methods that can be done are forming groups and touching bodies, can use media such as balls, jogging, and games in soccer as encouragement at the beginning of training.

### **III. RESEARCH METHODS**

This study employed a research and development (R&D) approach using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) design. The instruments used included interviews, observations, and questionnaires. The data obtained in this study were both qualitative and quantitative. Data analysis was descriptive, both qualitative and quantitative, and an effectiveness test was used to assess the impact of the product on the understanding of KKG PJOK teachers in Meral and West Meral Districts about warm-up activities using small games.

The qualitative descriptive research analysis was obtained from interviews with teachers as the target users of the developed book, as well as from criticism and suggestions from validators, material experts, media experts, and user responses. This data was then analyzed descriptively and used to improve the development of the small games book for warm-up activities.

The qualitative descriptive research analysis included data obtained from validation questionnaires from material experts, media experts, and user responses. The product quality assessment was finally translated descriptively into interval data using a Likert scale. The Likert scale is a type of scale used to collect data for measurement.

**Research Object.** The KKG PJOK (Physical and Health Education Working Group) of Meral and West Meral Districts, and elementary schools in Meral and West Meral Districts, Karimun Regency, Riau Islands.

Data collection techniques are the most strategic step in research, as the primary goal of research is to obtain data. Without understanding data collection techniques, researchers will not obtain data that meets established data standards. In this study, data collection techniques can be conducted through various sources and methods. The data collection techniques used in this study were interviews, observations, and questionnaires.

#### IV. RESEARCH RESULTS

This research was conducted at the KKG PJOK (Physical and Mental Health Working Group) in Meral and Meral Barat Districts, as well as elementary schools in Meral and Meral Barat Districts, located in Karimun Regency, Riau Islands.

The researchers involved 15 KKG PJOK teachers in elementary schools in Meral and Meral Barat Districts as subjects for the post-test and pre-test questions.

##### 4.1 Data from KKG PJOK Teachers in Meral and Meral Barat Districts

No	Nama Guru	Sekolah
1	Heru Setiawan	SDN 002 Meral Barat
2	Jahidin	SDN 002 Meral Barat
3	Zamri	SDN 002 Meral
4	Zulfikri	SDN 002 Meral
5	Yunizal	SDN 006 Meral
6	Muhammad Hanif	SDN 006 Meral
7	Rizki Fahrul	SDN 006 Meral
8	Muhammad Fadli	SDN 001 Meral
9	Arianto	SDN 001 Meral
10	Arif Fahmi	SDN 004 Meral Barat
11	Azri	SDN 004 Meral Barat
12	Rudi Harianto	SDS 005 Cahaya Meral
13	Rezki Andani	SDS 005 Cahaya Meral
14	Muhammad Ali	SDS 13 Methodist
15	Rafiz	SDS 003 Meral Barat

##### Data Collection Process

The data collection process in this study was conducted through observation, interviews, and questionnaires, conducted chronologically to obtain comprehensive and valid data. Data collection began in early 2025, after obtaining permission from the school.

**Observations:** Observations were conducted periodically during physical education (PE) lessons. Researchers directly observed the learning process, starting with the warm-up, main activities, and cool-down. The observations aimed to directly assess students' enthusiasm for participating in PE. Observations were recorded using structured observation sheets and field notes to capture qualitative details.

**Interviews:** Interviews were conducted directly with the heads of the Physical Education Working Groups (KKG PJOK) in Meral and West Meral Districts. These interviews aimed to gather information regarding the PE curriculum, teaching methods, the PE learning process, warm-up exercises used in the learning process, and references related

to books on small games for warm-up activities. Interviews were conducted semi-structured, allowing flexibility to explore new topics that emerged during the conversation. Each interview was recorded with the informant's permission and later transcribed for analysis.

**Documentation:** Documentation data was collected from various sources, such as photographs of learning activities, as well as school and student profile data. This documentation served as supporting and supplementary data to enrich the findings from observations and interviews, and to verify the information obtained.

**Questionnaire:** The questionnaire aimed to assess the feasibility of the media or product, in the form of a book, being developed. The questionnaire was directed to media experts, material experts, and user responses to determine the feasibility of the media, in the form of a book product being developed. The questionnaire results were analyzed to obtain a feasibility percentage.

**Effectiveness test:** The effectiveness test aimed to assess the increase in the sample's understanding of the product being developed. The effectiveness test consisted of 10 questions, both in the form of a post-test and a pre-test.

## **V. CONCLUSION**

This small warm-up games guidebook was developed using the ADDIE model developed by Reiser and Molen in the 1990s. The research and development of this product began with a problem identified through observations and interviews at SDS 007 Ora Et Labora and the KKGO PJOK in West Mera-Mera District. The observations and interviews revealed the ineffectiveness of warm-ups in physical education learning at SDS 007 Ora Et Labora and the limited availability of reference books on small games for warm-ups in physical education learning at KKGO PJOK in West Mera-Mera District.

The guidebook developed in this research serves as a systematic, engaging, and appropriate reference for the needs of students and educators. It provides a structured explanation of small games, warm-ups, and various types of small games for warm-ups, supported by visual media and comprehension. The use of visual media is crucial to assist students and educators in understanding the material and implementing it into the physical education learning process.

The validation results of the small warm-up games guidebook conducted by the media expert validator obtained a score of 90%, indicating "very appropriate." The validation results from the material expert validator obtained a score of 90%, indicating "very appropriate."

The results from both the material expert and media expert validators indicated that the small warm-up games guidebook was very appropriate and could be piloted in the Physical Education Working Group (KKG) in West Meral-Meral District. The validation results included revisions and input from the material expert and media expert validators.

User feedback obtained a score of 82%, indicating "very appropriate." The development of the small warm-up games guidebook was deemed very appropriate and demonstrated a positive impression in the KKG PJOK in West Meral-Meral District. Based on the data analysis obtained by the researchers, if the product developed by the researchers was deemed "feasible," it means that the small warm-up games guidebook is suitable and effective for use in physical education learning. This feasibility is supported by the findings of Lestari et al. (2021), who stated that books are an effective medium for learning because they can be used to convey messages and stimulate students' thoughts, enthusiasm, attention, and willingness, thus encouraging the learning process. This is reinforced by research by Apriliani Pawestri & Hoesin Radia (2020), who stated that learning methods and media are very prominent aspects of learning methodology, both of which play a crucial role in effectively achieving learning objectives.

These research findings align with research by Trisanti & Ade (2021), whose development of a book-based media received a validation score of 91% from media experts and 90% from material experts, indicating that the book-based learning media is highly feasible and effective for use in learning. Thus, the book-based learning media developed in this study is proven valid and suitable for use as a learning medium, capable of improving users' understanding of the material.

The effectiveness test results for the small warm-up game guidebook were conducted using a pretest and posttest on KKG PJOK teachers in West Meral-Meral District using a t-table test. The results show that there is a significant influence of the use of a small warm-up game guidebook on the understanding of KKG PJOK teachers in West Meral-Meral District regarding the implementation of warm-up using small games with the calculated t-test result of 11.1142 which is greater than the t-table value (1.761).

This improvement indicates that the use of a small warm-up game guidebook can help physical education teachers understand the warm-up material using small games more easily and enjoyably. The effectiveness of this product is also reinforced by the findings of Prastin, (2022) who stated that learning media can improve understanding because it can convey or

channel messages from a learning source in a planned manner, resulting in a supportive learning environment where recipients can carry out the learning process efficiently and effectively. Likewise, research by Ningrum & Dwijayanti, (2021) concluded that the use of learning media will be able to encourage users to engage in independent learning activities, as well as improve learning outcomes. Likewise, the opinion of Norhaliza et al., (2023) who stated that the use of learning media books in the learning process can arouse new desires and interests, arouse motivation and stimulation of learning activities and even bring psychological influences to its users. Thus, learning media books make a real contribution in helping students and teachers understand warm-ups using small games and guidebooks can serve as references for physical education teachers in the physical education learning process.

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