

Development of a “Running Speed” Game Model for Short-Distance Sprint Learning in Athletics

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ABSTRACT

This study aims to develop and evaluate the feasibility of the “Running Speed” game model as an alternative approach to athletics instruction, particularly for short-distance sprint material for junior high school students. The method employed is Research and Development (R&D) using the ADDIE model, which consists of five stages: analysis, design, development, implementation, and evaluation. Validation was conducted by two experts, a Physical Education lecturer and a Physical Education teacher, with evaluation results of % and %, respectively, both categorized as “Highly Feasible.” The trial was conducted with Grade IX students at State Junior High School Bulango Timur, and the results indicated that students responded positively to this learning model, with evaluation percentages ranging from % to %, categorized as “Feasible” to “Highly Feasible.” Based on the validation and implementation results, it can be concluded that the “Running Speed” game model is appropriate for use as a learning medium in short-distance sprint athletics and is capable of improving the quality of Physical Education learning processes in junior high schools.

Keywords: Game Model, Running Speed, Short-Distance Sprint, Physical Education

INTRODUCTION

In physical education learning in schools, educators can employ various approaches to deliver learning materials. However, current practices still tend to rely on a technical approach to teaching sports, primarily focusing on mastery of fundamental techniques while placing less emphasis on students’ understanding of the nature of the sport. Learning that is easily understood by students and is facilitated by the teacher’s role in applying appropriate and effective methods can significantly support the realization of high-quality learning in schools.

Teachers essentially design the teaching and learning process to expand students’ knowledge, shape their ways of thinking, and foster creativity in understanding a particular field of study. Within this process, several interconnected components play a role, including the teacher, learning model methods, students, learning materials, learning objectives, learning model media, and evaluation. The success of a learning process is largely determined by the appropriateness of the teaching methods used, as well as the level of students’ active participation during the learning activities.

Athletics is a branch of sport that encompasses walking, running, jumping, and throwing events. It is recognized as one of the oldest forms of sport in the world and is often referred to as the “Mother of Sports,” as it forms the foundation for many other

sporting disciplines (Prayogi & Suyoko, 2026).

The term athletics, as it is known today, derives from various sources, including the Greek word *athlon*, meaning contest or competition. Related terms such as pentathlon and decathlon are also derived from this root and refer to multi-event competitions. Across different languages, athletics is referred to as athletics (English), *atletiek* (Dutch), *athlétisme* (French), and *Leichtathletik* (German). While the Indonesian term *atletik* differs slightly in form, it shares the same linguistic origin. In general, athletics is a sport in which individuals compete based on measurable performance outcomes, such as distance, height, time, or the number of attempts (Bahagia, cited in Munawar et al., 2024). Furthermore, athletics is a discipline that requires a combination of physical attributes, including strength, endurance, speed, coordination, and agility, in order to be performed effectively (Cania & Alnedral, cited in Lutfhi & Rahayu, 2022).

Athletics is a widely popular sport among the public, as it is closely related to fundamental human movements and continues to be actively contested to this day. Among its various disciplines, running is one of the most frequently competed events. In athletics, running events are generally categorized into short-distance, middle-distance, and long-distance races. Short-distance running, commonly referred to as sprinting, typically involves distances of 100, 200, and 400 meters. According to Putra et al. (2020), athletics is one of the oldest sports and is often regarded as the foundation of all sports, as its movements rely heavily on physical activity involving the coordinated use of the entire body, including the legs, arms, and other body parts. Broadly, athletics consists of four main disciplines: race walking, running, throwing, and jumping.

According to Purnomo as cited in Putri (2024), the term athletics is derived from the Greek words *athlon* or *athlum*, meaning contest or competition. Athletics refers to physical activities composed of fundamental

movements performed harmoniously and dynamically, including walking, running, jumping, and throwing.

According to Syarifudin and Muhadi as cited in Sandika et al. (2024), "short-distance running or sprinting is a running technique in which athletes are required to cover the entire distance at maximum speed. Achieving excellence in sports performance requires a well-planned and systematic process, including proper training and early talent development".

Sprinting, or short-distance running, is a category within athletics that requires athletes to achieve maximum speed over a short duration (Wardhani & Lestari, 2025). Sprinting, or short-distance running, is an event in athletics that requires athletes to reach maximum speed over a short distance. Short-distance running involves covering the entire distance at full speed and maximum effort. It must be performed with both strength and speed from the start line to the finish line. Appropriate technique enables sprinters to attain better results and, in an educational context, supports the achievement of learning objectives within the learning process.

In short-distance running, speed is a key requirement. According to Harsono (as cited in Fauziah et al., 2022), speed is defined as the ability to perform similar movements consecutively in the shortest possible time or the ability to cover a certain distance rapidly. Furthermore, speed is not only related to executing repeated movements in a short time, but also involves rapid and limited body movements. This is supported by Prasetyo and Rudiana (2020), who state that speed does not merely refer to moving the entire body quickly, but may also involve the rapid movement of specific body parts within a very short time.

In achieving the objectives of short-distance running in athletics, specific techniques are required in its execution. The techniques to consider include starting, running, and finishing. In order to ensure these objectives are achieved, appropriate learning model methods are needed to help students

understand the techniques involved in short-distance running.

Game-based learning models can significantly support the teaching and learning process. This is reinforced by Soedarno as cited in Yahya (2020) who suggests that game-based approaches can enhance the effectiveness of learning. Games themselves are human activities that are enjoyable, engaging, and often competitive, while still adhering to the established rules of the game. This aligns with Rosyada and Solehsi (2022) who state that games are among the dominant forms of social activity during early childhood. Through games, children are able to develop the competencies and skills they need in an enjoyable way. Furthermore, Siregar et al. (2025) define games as situations in which individuals seek enjoyment or happiness through playful activities.

To achieve optimal skill development in the 100-meter sprint, physical education teachers must carefully select appropriate teaching methods or styles. According to previous experts, teaching style is very important for successful learning, Martha in Sore et al. (2025).

One example of a "running speed" game model that can be applied in learning is the traditional game bentengan, which has the potential to improve sprinting speed. Traditional games refer to forms of play that originate in and are rooted in the cultural context of a particular region (Rahmola et al., 2025). According to Bete and Saidjuna (2022) *bentengan* is a game played by two groups, in which the main objective is to capture the opponent's base, typically symbolized by touching it. Similarly, Haryadi et al. (2023) describe bentengan as a traditional group game that involves both attacking and defending a base to achieve victory.

According to Lathifah as cited in Ardiansyah (2022), the procedures of the bentengan game are divided into two main stages, including the preparation stage and the implementation stage of the game.

MATERIALS & METHODS

This study employed a Research and Development (R&D) approach using the ADDIE model. Selecting an appropriate development model is a key factor in producing a product that is practical, effective, and beneficial to users. The ADDIE model consists of five stages: Analysis, Design, Development, Implementation, and Evaluation. R&D is a method used to produce a specific product and to test its effectiveness. In this study, the product developed is a guidebook for a learning model. Therefore, a needs analysis was conducted as part of the development process. In addition, to ensure the product can be effectively applied in a broader context, further testing is required. Using the R&D method, this study aims to develop a new learning model product. R&D not only focuses on designing and developing a product but also on evaluating its effectiveness. The data in this study were obtained through discussions, observations, and expert feedback, which were used to inform the revision and refinement of the "Running Speed" game model for athletics learning.

Equations and Formulas

The feasibility of the product was determined by calculating the average score of each aspect for every validator using the following formula:

$$S = \frac{SS}{Sm} \times \%$$

Description:

S: The average score expressed as a percentage

SS: The obtained average score

Sm: The maximum possible score

?: Constant

The results of this assessment were used to determine whether the product is feasible for use as a learning material in athletics, using the "Running Speed" game model.

RESULT

Based on the results of the analysis, it can be concluded that a game-based learning model is needed, one that is engaging, competitive,

and aligned with students' characteristics and needs. The "Running Speed" game model was designed to address these issues by integrating fundamental sprinting movements into a play format that is engaging, easy to understand, and feasible to implement in the school environment.

The developed game model is titled "Running Speed," emphasizing speed, agility, and students' understanding of fundamental sprinting techniques. The design of this game was systematically developed by considering the developmental characteristics of junior high school students, pedagogical principles, and the actual conditions of the school environment.

Based on the developed design, an initial draft of the "Running Speed" game model was produced and prepared for expert consultation to obtain feedback. This draft will undergo limited testing to assess students' initial responses and the ease of implementation for Physical Education teachers. Following the validation and revision stages, the model will be implemented in a small-scale trial before being applied more broadly.

Following validation and revision, the final product of the "Running Speed" game model was deemed suitable for implementation in the learning process. The final product consists of a teacher's guidebook, a visual layout of the game field, student observation and evaluation sheets, and technical implementation guidelines for Physical Education teachers. Accordingly, the development process resulted in a learning model that is valid, practical, and aligned with students' needs as well as the characteristics of learning at the junior high school level.

Further, to determine the feasibility of the "Running Speed" game-based learning model, the researcher conducted product validation involving two experts with both academic and practical backgrounds. Each validator was asked to assess items in the validation instrument using a rating scale of -. The results indicate that both validators rated the "Running Speed" game model highly, placing it in the "Highly Feasible" category. Therefore, the product is considered ready for implementation in short-distance running instruction at the junior high school level.

Table 1. Summary of Trial Results

No	Total Score	Percentage (%)	Category
1	67	89.33%	Highly Feasible
2	63	84.00%	Highly Feasible
3	65	86.67%	Highly Feasible
4	68	90.67%	Highly Feasible
5	65	86.67%	Highly Feasible
6	61	81.33%	Highly Feasible
7	49	65.33%	Feasible
8	54	72.00%	Feasible
9	64	85.33%	Highly Feasible
10	58	77.33%	Feasible
11	51	68.00%	Feasible
12	56	74.67%	Feasible
13	65	86.67%	Highly Feasible
14	67	89.33%	Highly Feasible
15	49	65.33%	Feasible

Based on the evaluation results, most students rated the "Running Speed" game model in the "Feasible" and "Highly Feasible" categories, indicating that the product is acceptable and suitable for use in

Physical Education, particularly for short-distance running. The game was perceived as enjoyable and challenging, while also helping to improve students' understanding of running techniques and fostering

teamwork.

The final product developed, the "Running Speed" game model, was therefore deemed appropriate for use as a learning medium in short-distance athletics at the junior high school level, especially for Grade IX students. This model can be utilized by Physical Education teachers as an effective, engaging, and practical variation of learning model methods that can be implemented across different school settings.

The final product developed, namely the "Running Speed" game model, is considered suitable for use as a learning medium in short-distance athletics at the junior high school level, particularly for Grade IX students. This model can be utilized by Physical Education teachers as an effective, engaging, and practical variation of learning model methods that can be implemented across diverse school settings.

DISCUSSION

This section discusses the research findings based on the stages of developing the "Running Speed" game model using the ADDIE approach (Analysis, Design, Development, Implementation, and Evaluation). The model was developed as an alternative approach to short-distance running instruction that is more engaging, participatory, and effective at the junior high school level.

Based on all stages of the ADDIE process, the "Running Speed" game model has been shown to be effective and feasible. It enhances student engagement, facilitates a better understanding of sprinting techniques, and creates a more dynamic learning environment. Therefore, this model is expected to serve as an innovative solution for athletic learning models at the junior high school level.

CONCLUSION

Based on the research and development of the "Running Speed" game model for short-distance athletics learning at State Junior High School Bulango Timur, several conclusions can be drawn. First, the

"Running Speed" game model was systematically developed using the ADDIE approach. The process began with a needs analysis that identified limitations in conventional teaching methods, followed by the design and development of a game-based learning model, limited implementation with Grade IX students, and a comprehensive evaluation stage. Second, the validation results from two experts indicated that the learning model is highly feasible for use. The Physical Education lecturer awarded a score of %, while the Physical Education teacher awarded a score of %, both of which fell within the "Highly Feasible" category. The validation covered aspects such as content feasibility, implementation, practicality, and the model's attractiveness. Third, the trial conducted with Grade IX students demonstrated that the "Running Speed" game model was well received. Most students rated the model in the "Feasible" to "Highly Feasible" categories, with assessment percentages ranging from % to %. Students reported being more motivated, active, and better able to understand the learning material through the game-based approach. As a result, the final product, the "Running Speed" game model, was compiled into a comprehensive guide that includes implementation procedures, game schemes, assessment instruments, and field designs. The model is practical, adaptable to different school conditions, and can serve as a contextual and enjoyable alternative for Physical Education learning model.

Declaration by Authors

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REFERENCES

1. Ardiansyah K. Peningkatan hasil belajar gerak dasar lokomotor melalui permainan tradisional (Bentengan dan Kejar Mangsa) dalam pembelajaran PJOK kelas III SD Negeri 1 Boyolali tahun ajaran 2022/2023. 2022.
2. Bete DT, Saidjuna MK. Implementasi permainan tradisional benteng dalam pembelajaran penjas terhadap pembentukan perilaku sosial siswa Sekolah Dasar. *Ciencias: Jurnal Penelitian dan Pengembangan Pendidikan*. 2022; 5(2):70-79.
3. Fauziah KN, Sudianto S, et al. Pengaruh kelengkapan data, ketelitian, kecepatan dan ketepatan waktu terhadap kepuasan konsumen pada PT Federal International Finance (FIF) Cabang Batam. *Postgraduate Management Journal*. 2022; 2(1):40-51.
4. Haryadi R, Tuasikal ARS, et al. Penerapan permainan tradisional bentengan untuk meningkatkan sosio-emosional. *Journal of S.P.O.R.T, Sport, Physical Education, Organization, Recreation, Training*. 2023; 7(1).
5. Lutfhi F, Rahayu ET. Upaya meningkatkan kemampuan teknik dasar atletik nomor lari sprint siswa SMP melalui penggunaan media audiovisual. *Gelombang Olahraga: Jurnal Pendidikan Jasmani dan Olahraga*. 2022; 5(2):186-193.
6. Munawar MH, Yusran Y, et al. Analisis hasil belajar penjas nomer lari 40 M murid SDI Minasaupa Kota Makassar. *Global Journal Sport*. 2024; 2(2).
7. Prasetyo AF, Rudiana RDP. Korelasi fleksibilitas, kecepatan, indeks masa tubuh dan kelincahan terhadap pemain futsal. *Biomatika: Jurnal Ilmiah Fakultas Keguruan dan Ilmu Pendidikan*. 2020; 6(2):138-144.
8. Prayogi Y, Suyoko A. Pengaruh bentuk latihan up hill run atau down hill run terhadap peningkatan kecepatan atlet sprint Aroma Atletik Club. *JPO: Jurnal Prestasi Olahraga*. 2026; 9(1).
9. Putra A, Aziz I, et al. Tinjauan kecepatan lari 100-meter siswa SMA. *Jurnal Patriot*. 2020; 2(4).
10. Putri R. Pengaruh latihan medicine ball terhadap daya ledak otot lengan pada atlit tolak peluru PASI Kota Sabang. [Doctoral Dissertation, Universitas Bina Bangsa Getsempena]. 2024.
11. Rahmola SM, Ruslan, et al. Peran olahraga tradisional benteng-bentengan terhadap minat belajar siswa. *Jambura Arena of Physical Education and Sports*. 2025; 4(2).
12. Rosyada N, Solehsi V. Peranan permainan bagi perkembangan fisik motorik bagi anak pendidikan dasar. *PIJAR: Jurnal Pendidikan dan Pengajaran*. 2022; 1(1):31-39.
13. Sandika L, Boihaqi, et al. Hubungan panjang tungkai terhadap kecepatan lari jarak pendek 100-meter pada siswa SMAKON Aceh. *Jurnal Seramoe Education*. 2024; 1(1):73-84.
14. Siregar SKB, Mutiarani, et al. Upaya meningkatkan minat belajar atletik lari jarak pendek menggunakan metode bermain pada siswa kelas VII SMP 3 Muhammadiyah Kadudampit Sukabumi. *Seminar Nasional dan Publikasi Ilmiah FIP UMJ*. 2025.
15. Sore K, Ariani LPT, et al. Pengaruh model pembelajaran game-based learning (GBL) terhadap hasil belajar atletik nomor lari sprint 100-meter pada peserta didik kelas V SD Negeri Inpres Melonguane ditinjau dari motivasi belajar. *Gelombang Olahraga: Jurnal Pendidikan Jasmani dan Olahraga*. 2025; 8(6).
16. Wardhani DR, Lestari B. Pengaruh latihan uphill running terhadap kecepatan dan

akselerasi atlet sprinter di UKM Atletik Universitas Negeri Surabaya. *JPO: Jurnal Prestasi Olahraga*. 2025; 8(3).

17. Yahya A. Meningkatkan efektivitas pembelajaran gerak dasar lari cepat melalui model permainan modifikasi SD Negeri Wajak 02 Kab. Malang. *Sport Science and Education Journal*. 2020; 1(2).

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