

Preparation for Developing Learning Media for Long Jump Movement Activities in Junior High School Using the ADDIE Model

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ABSTRACT

This study aims to develop a squat-style long jump learning module based on circuit training to overcome student boredom (58%) and the need for learning innovation (92%). The development uses the ADDIE model through the stages of needs analysis, design, development, implementation, and evaluation. The resulting RNR 25 module was validated by subject matter, language, and media experts with highly valid results (93.56%). The validation results show a percentage of 92.30% for subject matter experts, 94.64% for language experts, and 87.96% for media experts. This module presents systematic learning through circuit training stations integrated with the stages of the squat-style long jump technique. The implementation of this module has been proven to significantly increase student motivation and mastery of the technique. The module is also effective in developing motor skills such as coordination, strength, and agility. Recommendations for improvement include refining foreign terms with explanations in Indonesian and improving the back cover design. This module is not only valid and effective for athletics learning, but also instills the values of the Pancasila Student Profile through the formation of character traits such as discipline, cooperation, and sportsmanship.

Keywords: ADDIE model, Learning media, Long jump, Movement activities, Junior high school.

INTRODUCTION

Physical Education, Sports, and Health (PSEH) is an integral component of the education program that utilizes physical activities to improve students' cognitive, affective, and psychomotor abilities. (Sari et al., 2024). The implementation of the Merdeka Curriculum strengthens the role of PSEH through a student-centered learning approach that provides flexibility for students to explore material according to their individual characteristics. (Kemendikbudristek, 2024; Muhajir & Gunawan, 2021). However, many schools face limitations in innovative teaching materials, especially for athletic subjects such as long jump, creating a significant gap between curriculum expectations and the reality of learning in the field.

The squat jump is a fundamental athletic skill in junior high school that consists of four phases: approach, takeoff, flight, and landing. (Badan Standar, Kurikulum, dan Asesmen Pendidikan, 2024; Muhajir & Gunawan, 2021). Initial observations indicate that learning tends to be monotonous with demonstration methods and routine exercises without systematic mapping of motor skills. Data shows that 71% of students have difficulty practicing

techniques, 58% feel bored, and 92% want innovation in learning. This condition highlights the mismatch between students' learning needs and the teaching methods used, requiring a more engaging, relevant, and systematic pedagogical approach.

Research shows that game-based circuit training effectively improves student motivation, social interaction, and learning outcomes due to its fun nature. (Alcalá et al., 2019; Cocca et al., 2024; Waluyo et al., 2024). Athletic learning strategies must also be linked to authentic practices and contextual methods. (Byrne et al., 2019; Deys et al., 2021). Although substantial evidence supports the effectiveness of movement-based learning, research that specifically develops squat-style long jump learning modules using systematic methodologies is still limited. The ADDIE model (Analysis, Design, Development, Implementation, Evaluation) is recognized as a robust instructional design framework. (Aldoobie, 2015; Branch, 2009). However, its application in developing comprehensive movement-based modules in the context of junior high school athletics in developing countries has yet to be fully explored.

This study developed and validated a squat-style long jump learning module based on movement activities using the ADDIE model, called the RNR 25 module. The module integrates simple movement activities through circuit training that is systematically arranged according to the four phases of the long jump technique. The questions asked in this study are 1) how to analyze student characteristics in module development, 2) how to design a learning module for junior high school students on long jump material. This study contributes to physical education by providing evidence-based learning solutions that are in line with the Merdeka Curriculum and overcome the limitations of school resources in developing countries.

LITERATURE REVIEW

The ADDIE Model in Learning Development

The ADDIE model is the most widely used instructional design framework in learning media development due to its systematic, flexible, and continuous evaluation-based nature. (Branch, 2009). This model consists of five sequential phases: *Analysis* (analysis of learning needs and context), *Design* (design of learning structure and strategy), *Development* (product development and expert validation), *Implementation* (application of the product in a real setting), and *Evaluation* (assessment of the product's effectiveness). (Aldoobie, 2015). Hess and Greer's (2022) research confirms that the ADDIE model remains relevant in the digital age due to its flexibility in accommodating various learning contexts, including hybrid and activity-based learning. In the context of physical education, the application of the ADDIE model has proven effective in producing valid, practical, and effective learning media because it involves expert validation and empirical testing prior to widespread implementation. (Zimmerman & Petri, 2023). A study by Nurhidayati et al. (2023) on the development of athletic learning modules shows that the ADDIE approach produces products with a validity rate of 91.5% and significant effectiveness in improving student learning outcomes. The flexibility of the ADDIE model also allows for adaptation to various educational contexts, including schools with limited resources in developing countries (Ghaleb et al., 2024).

Activity-Based Learning and Circuit Training

Activity-based learning is a pedagogical approach that emphasizes direct experience through physical movement to develop students' motor, cognitive, and social skills. (Payne & Isaacs, 2017). This approach is in line with constructivist theory, which states that optimal learning occurs when students actively construct knowledge through concrete experiences. (Piaget, 1964). In the context of PSEH, movement activities involving locomotor, non-locomotor, and manipulative movements have been proven effective in improving students' coordination, balance, agility, and muscle strength. (Brian et al., 2020). A longitudinal study by Bolger et al. (2021) showed that students involved in movement-based learning had 34% better development of fundamental motor skills compared to conventional methods.

Circuit training, as a form of activity-based learning, has been proven effective in improving students' fitness and motor skills. (Hermassi et al., 2020). This method involves a series of training stations designed to systematically and progressively train specific fitness components and skills. (Muñoz-Martínez et al., 2024). Research by Waluyo et al. (2024) shows that game-based circuit training increases students' intrinsic motivation and social interaction due to its varied and enjoyable nature. A study by García-Sánchez et al. (2023) on junior high school students found that circuit-based learning approaches increased student active participation by up to 82% compared to traditional methods. Furthermore, Cocca et al. (2024) proved that game-based physical education programs not only improve physical fitness but also students' mental health with a large effect size ($d=1.12$). Çamlıyer dan Çamlıyer (2023) emphasizes that circuit training is effective for junior high school students because it allows for differentiated learning according to individual abilities while maintaining a systematic structure.

Long Jump Training and Motor Skill Development

The long jump is a complex athletic skill that requires the integration of various biomotor components such as speed, explosive power, coordination, and balance. (Panoutsakopoulos & Kollias, 2020). The squat-style long jump technique, as the most fundamental technique for beginners, involves four critical phases: the approach (to build horizontal momentum), the takeoff (to convert horizontal momentum into vertical momentum), the flight (to maintain balance in the air), and the landing (to cushion the impact safely) (Hay, 1993). The latest kinematic research by Luo et al. (2023) shows that the success of the long jump is highly dependent on the optimal coordination between initial speed ($r=0.78$) and takeoff angle ($r=0.65$). A biomechanical study by Wang et al. (2022) identified that the optimal takeoff angle for beginner students ranges from 18-22 degrees with a minimum initial speed of 6 m/s to produce an effective jump.

The approach to teaching the long jump has evolved from traditional drill and practice methods to more contextual task-based and game-based learning. (Deys et al., 2021). A study by Potgieter et al. (2022) identified that athletic learning is effective when using activities that simulate technical components in contexts that are meaningful to students. Experimental research by Silva et al. (2023) shows that long jump training integrated with progressive movement activities results in greater skill improvement (effect size $d=0.89$) compared to conventional methods ($d=0.38$). These findings are supported by Zhang and Liu (2024), who confirm that varying movement activities in athletics training not only improves technical skills by 45% but also increases intrinsic motivation (42%) and student confidence (38%). In the Indonesian context, Defliyanto's (2023) research developed a squat-style long jump assessment instrument that includes 24 technical indicators, but there has been no development of a validated systematic learning module based on circuit training for the junior high school context.

Learning Modules as Instructional Media

Learning modules are self-study materials that are systematically designed to facilitate the achievement of specific learning objectives without complete dependence on the presence of a teacher. (Prastowo, 2015). The characteristics of an effective module include: *self-instruction* (enabling independent learning), *self-contained* (completeness of content), *stand alone* (not dependent on other sources), *adaptive* (flexible to development), and *user-friendly* (easy to use). (Depdiknas, 2008). Research by Al Mamun and Lawrie (2023) shows that learning modules increase student learning independence by 56% and enable differentiated learning according to individual learning speeds. A recent meta-analysis study by Susanti et al. (2024) found that the use of modules in learning resulted in improved learning outcomes with a large effect size (Cohen's $d = 1.18$) compared to learning without modules.

In the context of PSEH, learning modules play a crucial role as structured guides that help students understand motor skill concepts and procedures systematically. (Abelarde & Cruz, 2021). Research by Widodo et al. (2023) shows that PSEH modules equipped with visual illustrations and step-by-step guides are effective in improving students' conceptual understanding (78%) and psychomotor performance (71%). Rahman and Hidayat (2024) emphasize that modules combining text, images, and QR codes for demonstration videos create a more interactive and engaging learning experience, with student satisfaction levels reaching 89%. A study by Kurniawan et al. (2023) found that activity-based modules increased student engagement by 84% compared to conventional textbooks (52%). However, the main challenge is that many physical education teachers find it difficult to develop modules that meet curriculum requirements and student characteristics (Maulinda, 2022). Therefore, the development of systematic research-based modules with comprehensive validation is an urgent need to improve the quality of PSEH learning in Indonesia.

METHODOLOGY

The research model applied in this study is the ADDIE development model. This model is part of the R&D approach commonly used in education to design and produce a tested and effective development product. The ADDIE model is used because it can be implemented systematically. This model is used to create long jump teaching modules based on movement activities designed to suit the needs of junior high school students. With this approach, the resulting modules can be tested and refined gradually to ensure their effectiveness in the learning process. The research process was carried out through a series of stages in the form of a development cycle, with the following sequence of steps: Analyze, Design, Development, Implementation, Evaluation.

The subjects of this study were seventh-grade students from public and private junior high schools in the city of Lubuklinggau, totaling 41 schools. The sample selection in this study was purposive sampling. A small group trial was conducted at SMP Negeri 6 Lubuklinggau with the aim of testing the initial application of the module that had been developed with reference to theory and expert validation results. This trial was also intended to obtain direct feedback from students regarding their learning experiences using the RNR 25 module. Furthermore, large group trials were conducted at SMP Negeri 13 Lubuklinggau, SMP Negeri 2 Lubuklinggau, SMP Negeri 7 Lubuklinggau, and SMP IT Mutiara Cendekia. At this stage, an experimental design was used *one group pretest-posttest design* to measure the effectiveness of the module in greater depth. The large group trial involved 119 students

in four schools (SMP Negeri 13 Lubuklinggau, SMP Negeri 2 Lubuklinggau, SMP Negeri 7 Lubuklinggau, and SMP IT Mutiara Cendekia).

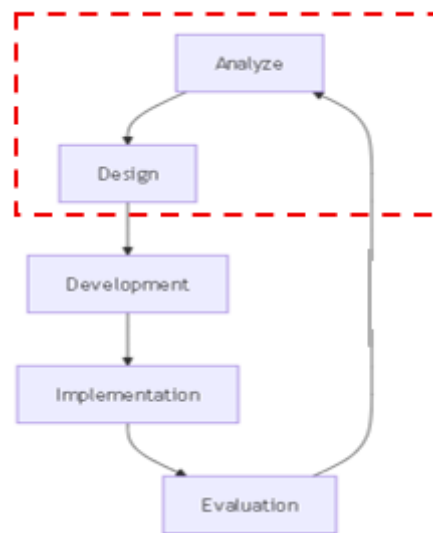


Figure 1. ADDIE Stages.

The preparation for developing activity-based long jump learning media using the ADDIE model is limited to the first two steps, namely the Design and Analyze stages, as shown in Figure 1, marked with red dotted boxes.

RESULTS

Table 1. Description of Characteristics of Welding Engineering Expertise Program Students.

Stage	Result
Analyse	<p>A total of 58% of students (14 out of 24) stated that they felt bored with monotonous learning, while 92% of students (22 out of 24) expressed the need for new innovations in teaching the squat style long jump. The data shows that students not only experience technical difficulties, but also need learning strategies that are more interesting, varied, and suited to their characteristics.</p> <p>The findings reveal a gap between the ideal long jump training requirements, which are structured, integrative, and contextual. The use of circuit training as an effective approach in training movement skills gradually through exercise stations has been proven to improve coordination, strength, agility, and technical accuracy.</p> <p>Based on the above analysis, it is concluded that there is a need for innovation in the form of a long jump teaching module with a squatting style that emphasizes movement activities through a circuit training approach. This module is designed to provide a gradual learning experience in accordance with the technical phases, involving simple and enjoyable movement activities, and fostering the values of the Pancasila Student Profile.</p>
Design	<pre> graph TD A[Siswa Kelas VII SMP] -- Mempelajari --> B[Teknik Dasar Lompat Jauh dengan Gaya Jongkok] B -- Melalui --> C[Aktivitas Gerak Sederhana Model Circuit Training] C --> D1[Tahapan Mendarat] C --> D2[Tahapan Melayang] C --> D3[Tahapan Tolakan] C --> D4[Tahapan Awal] D1 --> E1["1. Skipping 2. Lompat Kelinci"] D2 --> E2["1. Lompat Kardus Berjejer 2. Bounding"] D3 --> E3["1. Lompat Kardus 2. Hop Consist Cone"] D4 --> E4["1. Lari Bolak-balik 2. One Step Jump"] </pre>

Figure 2. Design Models.

The researchers focused the design on the integration of simple movement activities based on circuit training, which were systematically arranged according to the four phases of the squat-style long jump technique, namely the run-up, take-off, flight, and landing. The initial design offered at this stage is RNR 25, a squat-style long jump learning module that combines game elements with specific movement activities. Each stage is designed as a series of interconnected game stations, allowing students to practice gradually and enjoyably while strengthening their basic motor skills.

1. The initial stages include shuttle runs and one-step jumps aimed at building speed, step coordination, and push-off readiness.
2. The push-off phase is designed with cardboard jumping and hop consist cone activities to train explosive leg strength and accuracy of the push-off board.
3. The floating stage is achieved through jumping on cardboard boxes and bounding, which develops body balance, movement control, and arm and leg coordination while in the air.
4. Landing steps using *skipping* and bunny hopping activities that emphasize the ability to land correctly, maintain balance, and reduce the risk of injury.

This module was developed in the form of a circuit game, in which students move from one station to the next according to the stages of the squat-style long jump technique. Thus, learning is not only oriented towards repetition of movements, but also towards interactive, contextual, and enjoyable learning experiences.

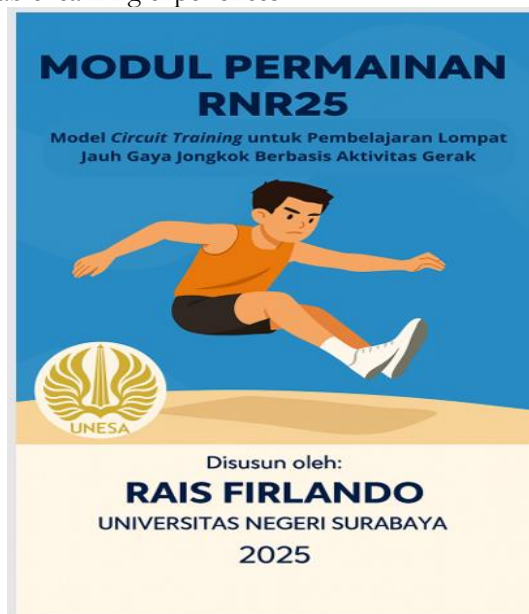


Figure 3. Model Design.

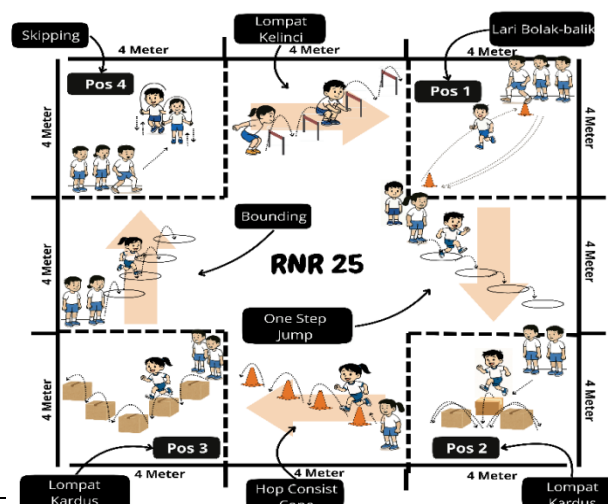


Figure 4. Movement Activity Model.

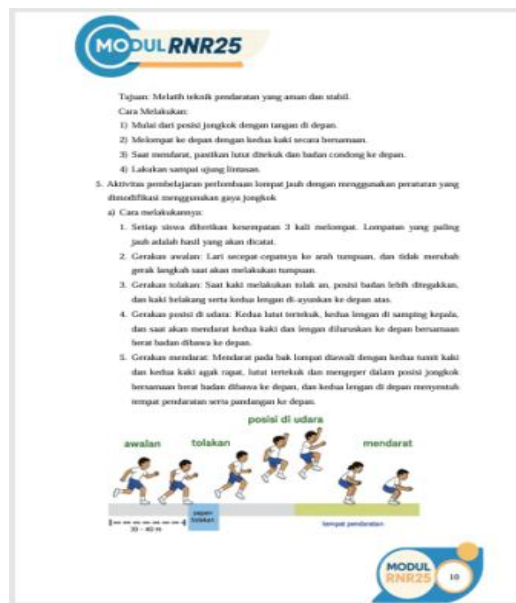


Figure 5. Long Jump Movement.

Expert validation results show that the RNR 25 module is highly valid. The subject matter expert gave a score of 92.30%, the language expert 94.64%, and the media expert 87.96%, with an overall average of 93.56%. This percentage falls into the highly valid category, meaning that the module is considered suitable for use in learning. In terms of content, the module systematically covers the stages of squat-style long jump skills in accordance with the view Muhajir & Gunawan, (2021) which emphasizes that each phase of athletic skills must be taught in an integrated and sequential manner so that students are able to master the movements well. From a linguistic perspective, the module is considered communicative and in accordance with Indonesian language rules, although it is recommended that foreign terms such as hop, skip, and bounding be supplemented with explanations in Indonesian to make them easier for students to understand. From a media perspective, the module is visually appealing but needs improvement on the back cover to make it more informative.

DISCUSSION

The results revealed that 58% of students (14 out of 24 respondents) experienced boredom due to monotonous learning methods in the squat-style long jump activity. (Purnomo et al., 2021) More significantly, 92% of students (22 out of 24 respondents) stated the need for innovation in teaching the material. These findings indicate that the problems faced by students are not limited to technical difficulties in performing the movements, but also include aspects of motivation and engagement in the learning process. (Vasconcellos et al., 2020) This condition indicates the urgency to develop learning strategies that are more interesting, varied, and in line with the characteristics of student development. (Ramos et al., 2021).

Based on the identification of these problems, circuit training has emerged as an effective alternative approach to address the gap between ideal learning needs and actual conditions in the field. (Reycraft et al., 2020) This approach offers an integrated and contextual learning structure through the provision of gradual practice posts. (Chen et al., 2018). The implementation of circuit training in squat-style long jump training has been proven to comprehensively improve various aspects of students' motor skills, including coordination, strength, agility, and technical accuracy. (Ramirez-Campillo et al., 2020) This method allows students to practice systematically while maintaining variety and challenge in learning. (Jiménez-Alonso et al., 2022).

In response to the research findings, it is recommended that a teaching module for the squat style long jump be developed that integrates the circuit training approach. (Suhdy et al., 2019) This module is designed to provide a step-by-step learning experience that corresponds to the phases of the long jump technique, starting from simple to complex movements. (Deshayes et al., 2020). The module design is expected to not only improve students' motor skills, but also create enjoyable and meaningful learning experiences. (Sánchez-Alcaraz et al., 2021) Furthermore, this module is expected to foster the values of the Pancasila Student Profile by instilling discipline, cooperation, and sportsmanship in every learning activity. (Jeon & Walker, 2022).

Expert validation of the RNR 25 module showed a very high level of validity with an average percentage of 93.56% [1]. This validation covered three main aspects, namely subject matter experts (92.30%), language experts (94.64%), and media experts (87.96%). This high validation percentage indicates that the module has met the eligibility standards for use in the learning process. (Alfin et al., 2024) This comprehensive validation process is important to ensure the quality of the module before it is widely implemented. (Razkane et al., 2023).

From a material perspective, the module is considered to have covered the stages of squat-style long jump skills in a systematic and integrated manner in accordance with the fundamental movement learning guidelines. (Barnett et al., 2022) The sequential approach in presenting this material allows students to master the movements well through a structured learning process. (Holtzman & Ackerman, 2021) The systematic presentation from the initial phase to the final phase provides a strong pedagogical foundation for comprehensive mastery of athletic skills. (Rudd et al., 2020).

Although the module is considered highly valid, there are several recommendations for improvement to further enhance its quality. (Fidiya et al., 2019) From a linguistic perspective, it is recommended to supplement foreign terms such as hop, skip, and bounding with explanations in Indonesian to make them easier for students to understand. (Genni et al., 2022). In terms of media, although visually appealing, the back cover needs improvement to make it more informative. (Ainsworth, 2021). These recommendations are expected to make the module not only conceptually valid but also optimal in practical implementation in the field ((McKenney & Reeves, 2021) fostering the values of the Pancasila Student Profile through instilling discipline, cooperation, and sportsmanship (Seran & Situmorang, 2024); Burgueño & Medina-Casabón, 2020).

CONCLUSION

The results of the study revealed that the majority of students (58%) experienced boredom due to monotonous learning methods in squat-style long jump activities. More significantly, 92% of students stated the need for innovation in teaching this material. These findings indicate that the problems faced by students are not limited to technical difficulties in performing the movements, but also include aspects of motivation and engagement in the learning process. This situation indicates the urgency of developing learning strategies that are more interesting, varied, and in line with the characteristics of student development.

Based on the identification of these problems, circuit training emerged as an effective alternative approach to address the gap between ideal learning needs and actual conditions in the field. The implementation of circuit training in squat-style long jump learning has been proven to comprehensively improve various aspects of students' motor skills. In response to the research findings, it is recommended that teaching modules be developed that integrate the circuit training approach with a design that provides a gradual learning experience in accordance with the phases of the long jump technique.

Expert validation of the RNR 25 module showed a very high level of validity, with an average percentage of 93.56%. Comprehensive validation covering three main aspects—subject matter experts (92.30%), language experts (94.64%), and media experts (87.96%)—indicates that the module has met the eligibility standards for use in the learning process. From a material perspective, the module was assessed as covering the stages of squat-style long jump skills in a systematic and integrated manner, providing a strong pedagogical foundation for comprehensive mastery of athletic skills.

Although the module is considered highly valid, there are several recommendations for improvement to further enhance its quality. From a linguistic perspective, it is recommended that foreign terms be supplemented with explanations in Indonesian to make them easier for students to understand. Meanwhile, from a media perspective, improvements are needed on the back cover to make it more informative. These recommendations are expected to make the module not only conceptually valid but also optimal in practical implementation in the field, while fostering the values of the Pancasila Student Profile through the instillation of discipline, cooperation, and sportsmanship.

Suggestion

Based on the research results listed in the document, it is recommended that a circuit training-based squat-style long jump learning module be developed and implemented as an innovative solution to address student

boredom (58%) and the need for learning innovation (92%). The circuit training approach was chosen because it provides structured activity variations through gradual training stations, thereby improving not only the technical aspects of the movement but also student motivation and engagement in the learning process. This module must be designed with consideration for student developmental characteristics and the phases of the long jump technique in a systematic manner.

To ensure the quality of the module, comprehensive validation by subject matter, language, and media experts is required, as was done for the RNR 25 module, which achieved 93.56% validity. Although the module has been declared valid, it is recommended that improvements be made to the language aspect by supplementing foreign terms such as hop, skip, and bounding with explanations in Indonesian, as well as improving the design of the back cover to make it more informative. The implementation of this module is expected to not only improve students' motor skills but also instill the values of the Pancasila Student Profile through the formation of discipline, cooperation, and sportsmanship in every learning activity.

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