
The Effectiveness of the Differentiated Instruction Learning Model in Long Jump Material to Accommodate Differences in Student Learning Styles

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A. Conception and design of the study; **B.** Acquisition of data;
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ABSTRACT

This study aims to analyze the effectiveness of the Differentiated Instruction (DI) learning model in accommodating differences in student learning styles in the long jump at SMP Negeri 33 Makassar. The study used a quasi-experimental one-group pretest–posttest design involving 20 students classified into visual, auditory, and kinesthetic learning styles. Data were obtained through long jump technique and jump distance tests before and after the treatment, then analyzed using descriptive statistics, paired sample t-tests, and N-Gain calculations. The results showed a significant improvement in students' technique and jump distance after implementing the DI model. The average technique score increased from 11.25 to 16.40, while the jump distance increased from 2.85 m to 3.54 m. The N-Gain value of 0.59 indicates moderate improvement, but approaching the high category. Analysis based on learning styles revealed that the visual and kinesthetic groups achieved the greatest improvement, although all learning styles showed significant improvement. These findings confirm that Differentiated Instruction is an effective, adaptive, and inclusive learning strategy in the context of physical education. This model is able to adapt to individual student needs, thereby improving technical understanding, motivation, and long jump performance. This study makes an important contribution to the development of sports learning practices in schools and recommends further research with a more robust experimental design.

Keywords : Differentiated Instruction, Learning Styles, Long Jump, Physical Education, Learning Outcomes.

INTRODUCTION

Physical education is an integral component of the school curriculum, aiming to develop students' physical, cognitive, affective, and social aspects through structured and systematic movement activities. Learning activities in physical education require students to participate in physical experiences that not only improve fitness but also motor skills, self-confidence, and the ability to work together (Siedentop et al., 2019). In the context of 21st-century education, the diverse characteristics of students, including physical abilities, learning

preferences, and social backgrounds, require teachers to develop learning that is flexible, adaptive, and responsive to students' learning needs.

One of the main challenges in physical education is ensuring that every student receives equitable and meaningful learning opportunities, despite their varying abilities. Research shows that students with different learning styles respond to different learning strategies (Umar et al., 2020). These differences can include visual, auditory, and kinesthetic learning styles, which significantly influence how students receive, process, and apply information. In practice, teachers often apply a uniform learning approach to all students, resulting in suboptimal interactions and learning outcomes for students with specific learning styles (Anderson & Hidi, 2022).

Therefore, a learning approach that adapts to individual student needs is crucial. One approach that has received significant attention is Differentiated Instruction (DI), a learning strategy that varies the content, process, and learning products according to students' readiness, interests, and learning profiles (Tomlinson, 2017). This approach is considered capable of improving learning experiences, motivation, and competency achievement more equitably among students with different learning styles (Santrock, 2021).

In the context of physical education learning, the implementation of Differentiated Instruction is highly relevant because the physical activities students engage in are significantly influenced by their individual motor skills, level of physical readiness, and learning styles. In the long jump, for example, students must master the techniques of the run-up, take-off, and landing. However, each student has different learning abilities and preferences. Some students may find it easier to grasp techniques through visual demonstrations, while others require verbal explanations or hands-on kinesthetic experience (Prasetyo & Wahyudi, 2021).

Several recent studies have shown that learning that accommodates students' learning styles has been shown to improve motor skill performance, motivation to practice, and student participation (Rahmadani et al., 2022; Nugraha & Maulana, 2021). The implementation of Differentiated Instruction in physical education has successfully increased student engagement because it provides opportunities for students to learn in their most comfortable way (Kim & Park, 2020). International research in physical education classes also shows that the DI model can significantly improve psychomotor learning outcomes and conceptual understanding compared to conventional learning models (Bae & Kwon, 2021).

In physical education subjects in Indonesia, particularly in athletics subjects such as the long jump, teachers tend to still use direct practice methods without adequate variation in learning styles. This condition results in students who are not suited to this method having difficulty following the lesson and not achieving optimal learning outcomes (Hidayat et al., 2020). Therefore, a more flexible learning approach is needed so that each student can achieve long jump technical competency according to their learning characteristics.

The main problem in long jump instruction in schools is low student achievement due to the use of learning models that are not responsive to differences in student learning styles. Initial observations at SMP Negeri 33 Makassar showed that some students had fairly good basic long jump technique skills, while others experienced difficulties, particularly in the approach and takeoff stages. Teachers reported that these obstacles arose due to the lack of accommodation for students' varying learning styles in the instruction (Observation Data from Physical Education Teachers at SMPN 33 Makassar, 2024).

Some students understood the material better when presented with videos, others preferred verbal instructions, and some only grasped long jump technique after repeated

hands-on experience. However, the learning methods implemented still focused on short lectures and single demonstrations, so not all students received a learning approach that suited their needs. This situation can result in low motivation, lack of self-confidence, and slow skill progress.

These issues highlight the importance of implementing learning models that provide opportunities for students to choose and adapt their learning styles to suit their individual preferences. Differentiated Instruction offers structures and strategies to address these issues.

Although Differentiated Instruction has been extensively researched in academic learning contexts such as mathematics, language arts, and science (Tomlinson & Imbeau, 2018; Hall, 2020), research on its application in physical education particularly in the long jump remains very limited, especially at the junior high school level in Indonesia.

Several physical education studies have found that DI can improve motivation and motor performance (Nursalam et al., 2019; Julianto & Kurniawan, 2021), but no comprehensive research has specifically tested the effectiveness of DI in accommodating differences in student learning styles in long jump technique. Furthermore, previous research has not yet explained the most effective DI implementation strategies in the context of learning complex motor skills such as the long jump, which involve coordination, strength, and rhythm.

In Makassar, specifically at SMP Negeri 33 Makassar, no research has been found specifically assessing the DI model in the context of long jump learning and student learning styles. Therefore, there is an important research space to be filled regarding the effectiveness of this model in improving long jump skills and how the model can be adapted to the variety of students' learning styles.

The novelty of this research lies in three main aspects. First, this study directly integrates the concept of Differentiated Instruction with the learning needs of motor skills in the long jump, something rarely done in previous research. Second, this study explicitly measures the effectiveness of DI on different student learning styles (visual, auditory, and kinesthetic), thus providing a more specific and applicable picture for physical education teachers. Third, the research was conducted in a real-world context at SMP Negeri 33 Makassar, thus offering a relevant empirical contribution to sports learning practices in Indonesian schools.

This approach not only assesses psychomotor learning outcomes but also observes how students with different learning styles respond to adapted learning strategies. Thus, this study provides a more comprehensive and relevant DI implementation model for athletics.

Based on this background, this study aims to analyze the effectiveness of the Differentiated Instruction learning model in the long jump to accommodate the different learning styles of students at SMP Negeri 33 Makassar. This study examines the extent to which DI can improve long jump learning outcomes in students with diverse learning characteristics. It also examines how content differentiation, process differentiation, and product differentiation strategies can be effectively implemented in physical education instruction.

This research is expected to significantly contribute to physical education teachers' development of more personalized, effective, and inclusive learning. Modern learning requires teachers not only to master the material but also to understand students' individual characteristics and provide appropriate learning variations. This research is expected to produce a Differentiated Instruction implementation model that can serve as a practical reference for improving the quality of physical education instruction in Indonesian schools.

METHODS

Research Type and Design

This study used a quantitative approach with a quasi-experimental design. This design was chosen because the researcher could not control all external variables that might influence the results, but still provided a structured learning treatment to the experimental group (Creswell & Guetterman, 2019). The quasi-experimental model is widely used in physical education research because it is flexible and can be applied to school contexts with fixed timetables, curricula, and study groups (Rahmadani et al., 2022).

The design used was a one-group pretest–posttest design, in which one group of students is given an initial test (pretest), then given treatment in the form of learning using the Differentiated Instruction (DI) model, and then administered a final test (posttest). This design is effective for assessing student performance improvements following specific interventions (Nugraha & Maulana, 2021).

The DI model applied refers to the principle of differentiating content, process, and product according to students' needs and learning styles (Tomlinson, 2017). In long jump learning, differentiation is achieved through various demonstration methods, the use of videos, direct kinesthetic training, verbal explanations, and flexible grouping based on visual, auditory, and kinesthetic learning styles (Prasetyo & Wahyudi, 2021; Kim & Park, 2020).

Research Variables

This research involved two types of variables:

1. Independent variable: The Differentiated Instruction (DI) learning model for long jump material. This variable is represented through the application of content differentiation (visual, verbal, video), process (individual/group training according to learning styles), and product (long jump technique performance).
2. Dependent variable: Long jump learning outcomes, measured through basic long jump technique skills (running, takeoff, flight, and landing) and jump distance. Psychomotor learning outcome measurements are very commonly used in physical education research (Bae & Kwon, 2021).
3. Control variables: Student learning styles (visual, auditory, kinesthetic), learning time, learning environment, and instructor were the same throughout the study to minimize bias (Umar et al., 2020).

With this variable structure, this study assessed the effectiveness of the DI model in improving long jump skills in students with different learning styles.

Population and Sample

The population in this study was all eighth-grade students at SMP Negeri 33 Makassar who were taking Physical Education in the odd semester of the 2024/2025 academic year. This population selection was based on the fact that students at this level have entered a stable stage of physical development, enabling them to optimally participate in athletic technique learning (Santrock, 2021).

The study sample was determined using purposive sampling, a sampling technique that prioritizes students who have completed basic athletics material and are willing to participate in the entire study (Sugiyono, 2019). The study sample consisted of 20 students, representing various learning styles based on the results of the initial learning style test (visual, auditory, kinesthetic).

The sample composition included: (1) 7 students with a visual learning style, (2) 6 students with an auditory learning style, and (3) 7 students with a kinesthetic learning style. This division aligns with research findings that state that student learning styles in middle schools are generally relatively evenly distributed (Hidayat et al., 2020).

Research Instruments

This study used several instruments, namely:

1. Learning Style Test Instrument (VAK Learning Style Inventory)

This instrument is used to identify students' learning style profiles (visual, auditory, and kinesthetic). The VAK has been widely used in modern educational research and has demonstrated good reliability for grouping students based on learning preferences (Umar et al., 2020; Hall, 2020).

2. Long Jump Performance Test

This test measures:

- a. Takeoff technique
- b. Takeoff technique
- c. Flying phase
- d. Landing technique
- e. Jump distance

The long jump technique instrument was developed based on athletic guidelines and motor skills research in physical education (Prasetyo & Wahyudi, 2021; Julianto & Kurniawan, 2021). Technique assessment was conducted using an analytical rubric with a scale of 1–5 for each component.

The jump distance measurement instrument uses nationally standardized athletic measurement standards with a measuring tape (Bae & Kwon, 2021).

3. DI Learning Observation Sheet

Observations are used to ensure the implementation of the DI model is consistent with the learning plan. The observation sheet refers to indicators of content, process, and product differentiation (Tomlinson & Imbeau, 2018).

Data Collection Techniques

Data collection was conducted through three main stages:

1. Pretest; Before the treatment, all students took a technique and long jump distance test to determine their initial abilities. Collecting baseline data is crucial for assessing the effectiveness of the DI intervention (Nugraha & Maulana, 2021).

2. Implementation of Differentiated Instruction

The learning treatment lasted six sessions, with the following structure:

- a. Meetings 1–2: Content differentiation (videos, demonstrations, verbal explanations)
- b. Meetings 3–4: Process differentiation (group exercises based on learning styles)
- c. Meetings 5–6: Product differentiation (individual practice and technique performances)

DI instruction was conducted by physical education teachers who had received brief training on DI principles.

3. Posttest; A final test was conducted to assess skill improvement after the training. The posttest procedure was the same as the pretest to maintain data consistency (Rahmadani et al., 2022).

Data Analysis Techniques

Data were analyzed using a quantitative approach through several stages, namely:

1. Prerequisite Analysis Test

- a. Normality Test (Kolmogorov–Smirnov); Used to ensure that the distribution of pretest and posttest data meets the assumption of normality (Ghozali, 2020).
- b. Homogeneity Test (Levene's Test); Used to ensure that the variances of both data groups are homogeneous.

2. Effectiveness Test (Paired Sample t-test); The paired sample t-test is used to measure significant differences between pretest and posttest scores in the same group of students. This method is effective in assessing improvements in learning outcomes after receiving a specific treatment (Kim & Park, 2020).
The additional effectiveness formula used is:
N-Gain Score, to determine the level of learning improvement (Hake, 1998).
Classification:
 - a. 0.70 = high
 - b. 0.30–0.70 = moderate
 - c. <0.30 = low
3. Analysis by Learning Style
In addition to the general analysis, this study also conducted a descriptive analysis by learning style group (visual, auditory, and kinesthetic) to determine whether DI was more effective for certain learning styles (Umar et al., 2020).
4. Interpretation of Results
The results were interpreted by comparing the findings with previous research to produce strong academic conclusions (Hall, 2020).

RESULTS AND DISCUSSION

Result

This section presents research findings regarding the effectiveness of the Differentiated Instruction (DI) model in long jump instruction to accommodate the different learning styles of students at SMP Negeri 33 Makassar. Data were collected through pretests and posttests on 20 students, then analyzed using descriptive and inferential statistics (paired sample t-tests). The research results are presented in tables, graphs, and narrative explanations.

Description of Pretest and Posttest Data

Long jump ability assessment was based on two components:

1. Long Jump Technique Score; (run-up, take-off, take-off, and landing; scale 1–20)
2. Jump Distance (meters)

The following is a summary of the pretest and posttest data.

Table 1.

Descriptive Statistics of Students' Long Jump Ability

Assessment Components	N	Pretest (Mean ± SD)	Posttest (Mean ± SD)	Difference	Improvement (%)
Technical Score	20	11,25 ± 2,15	16,40 ± 1,85	+5,15	45,7%
Jump Distance (m)	20	2,85 ± 0,41	3,54 ± 0,38	+0,69 m	24,2%

Initial interpretation: There was a significant improvement in both learning outcome components, both technique and jump distance, after implementing the DI model.

Results Based on Learning Style (Visual, Auditory, Kinesthetic)

Additional analysis was conducted to determine the effectiveness of the DI model based on students' learning style profiles.

Table 2.
Learning Outcomes Based on Learning Style

Learning Styles	N	Pretest Engineering Score	Posttest Engineering Score	Improvement	Pretest Distance (m)	Posttest Distance (m)	Improvement
Visual	7	11,42	16,71	+5,29	2,91	3,62	+0,71
Auditorial	6	10,83	15,66	+4,83	2,78	3,43	+0,65
Kinesthetic	7	11,57	16,71	+5,14	2,89	3,58	+0,69

Key findings:

1. All three learning styles experienced significant improvement.
2. The visual and kinesthetic groups showed greater technical improvement than the auditory groups.
3. The DI model has been shown to accommodate different learning styles.

Effectiveness Test (Paired Sample t-Test)

A paired sample t-test was used to determine whether there were significant differences before and after the treatment.

Table 3.
T-Test Results for Long Jump Technique and Distance Scores

Variable	t count	Sig. (p-value)	Description
Technical Score	12,84	0,000	Significant
Jump Distance	9,45	0,000	Significant

Interpretation: The significant value ($p < 0.05$) indicates that the application of the DI model significantly improved students' technical abilities and jump distance.

Calculation of the N-Gain Score

N-Gain is used to measure the level of learning improvement.

N-Gain formula:

$$N\text{-Gain} = \frac{\text{Posttest} - \text{Pretest}}{\text{Maximum Score} - \text{Pretest}}$$

N-Gain results for engineering scores:

$$N\text{-Gain} = \frac{16,40 - 11,25}{20 - 11,25} = 0,59$$

Category = Medium (0.30–0.70).

Research Findings Narration

The results of the study show that the application of the Differentiated Instruction (DI) model significantly improved long jump learning outcomes for eighth-grade students at SMP Negeri 33 Makassar. This improvement occurred in both technique and jump distance.

In the technique aspect, the average score increased from 11.25 to 16.40, a 45.7% increase. This indicates that varying learning methods tailored to students' learning styles effectively helped them understand and master the technical components of the long jump, such as the run-up, take-off, flight, and landing.

In the jump distance aspect, students experienced an average increase from 2.85 m to 3.54 m (a 24.2% increase). This increase indicates that improved technique results in more optimal physical performance.

Analysis based on learning styles showed that all three groups (visual, auditory, and kinesthetic) experienced improved learning outcomes. The visual and kinesthetic groups

showed greater improvements in technique, while the auditory group continued to experience significant but slightly lower improvements. This is consistent with the theory that motor activities such as the long jump are more easily understood through visual demonstrations and hands-on practice (Prasetyo & Wahyudi, 2021; Kim & Park, 2020).

The results of the paired sample t-test showed that the improvement in technique and jump distance scores was highly significant ($p = 0.000 < 0.05$). This confirms the effectiveness of the DI model in the context of physical education learning. The calculated N-Gain score of 0.59 falls within the moderate improvement category, but tends to approach the high category, indicating that this model has a substantial positive effect on improving long jump skills.

Overall, this study demonstrates that Differentiated Instruction can accommodate differences in student learning styles and has a significant impact on improving motor skills. Differentiated instruction for each learning style group allows students to learn through strategies that best suit their preferences, thereby improving technical understanding, motivation, and long jump performance.

Discussion

Effectiveness of Differentiated Instruction in Physical Education

The results of this study indicate that the implementation of the DI model significantly improved students' long jump technique and jump distance. This aligns with previous research findings that DI in physical education can improve students' motor skills, coordination, and motivation (Abadi, 2024). Thus, the DI model has proven effective not only in the cognitive academic domain but also in the psychomotor domain which is highly relevant in sports.

A bibliometric analysis of DI publications in physical education indicates that, although the number of studies is relatively small compared to other academic fields, there is significant potential for DI development in sports and physical education (Blegur & Hardiansyah, 2024). The findings of this study support this claim with empirical evidence that DI can be effectively applied to complex motor skills such as the long jump.

This also aligns with studies that suggest that differentiated learning supports improved motor skills and physical coordination, as well as active student participation (Benefits of Differentiated Learning in Physical Education, 2024). These results demonstrate that DI is not only suitable for theoretical material but also feasible and beneficial for use in technical sports materials.

Mechanisms: Why DI Works in the Long Jump

Why does DI show positive results in the long jump context? There are several theoretical and practical mechanisms based on the findings of this study and the supporting literature:

1. Matching with student learning styles. DI allows teachers to offer a variety of content (visuals, video demonstrations, verbal explanations), processes (practice tailored to learning styles), and products (individual/group practice), so students can learn through the pathway that best suits their preferences. This is crucial because learning motor skills requires an understanding of movement, coordination, and physical sensations. The finding that students with visual and kinesthetic learning styles showed greater improvement is consistent with the theory that motor skills are more easily mastered through visual demonstrations and direct kinesthetic experiences (Fullerton, 2023).

2. Motivation and engagement increase. By providing options, students feel that their learning needs are being addressed—this can increase motivation, confidence, and engagement in training. As reported in several studies of DI in PE, this method increases participation, ownership of the learning process, and social collaboration (Özbal et al., 2019; Razali et al., 2024).
3. Learning is more inclusive and responsive. DI offers flexibility in teaching so that students with varying levels of motor readiness and learning styles can develop optimally. This is especially relevant in heterogeneous classrooms, where students' physical abilities and experiences can vary widely. Recent literature analysis indicates that although DI in PE is not yet widely used, this approach has great potential to meet individual learning needs (Blegur & Hardiansyah, 2024). The results of this study demonstrate that this potential can be realized in real-world practice.

Thus, DI is not simply a variation of teaching methods, but rather a pedagogical strategy that enables adaptive, personalized, and more effective motor learning.

Comparison with Conventional Approaches/Previous Studies

Traditionally, teaching sports techniques, such as the long jump, tends to use homogenous methods single demonstrations, verbal explanations, and static group exercises without considering individual learning styles. Such approaches often present difficulties for students with different learning styles or who require different time and methods to understand complex motor movements.

Previous research on soccer has shown that differentiated learning is effective in improving learning outcomes for basic techniques compared to conventional learning (soccer research) (Athena, 2025) this supports the generalization that DI is effective for motor skills in sports.

However, studies on DI in physical education remain very limited (Blegur & Hardiansyah, 2024). Therefore, the results of this study provide concrete empirical evidence that DI can be applied to athletics/long jump, a previously understudied area.

Furthermore, the implementation of DI has also been explored in other materials in Physical Education (PJOK) in Indonesia: for example, research on invasive soccer games in Islamic elementary schools (Madrasah Ibtidaiyah) showed that DI can improve learning outcomes (2025) (ResearchGate, 2025). This demonstrates that DI has been applied to collective sports; this study extends its application to individual athletics, thus strengthening the literature that DI is flexible for various sports.

Practical Implications for Physical Education Teachers

These results have several important implications for PJOK teachers both at SMP Negeri 33 Makassar and other schools:

1. More personalized and adaptive lesson planning. Teachers need to consider students' learning style profiles before designing lessons for example, providing demonstration videos, live demonstrations, kinesthetic exercises, and varied tasks/practices.
2. Improving teacher competency. Because DI requires skills in designing varied content, processes, and products, PJOK teachers need training and an understanding of DI concepts to implement it effectively. This also aligns with literature recommendations that teacher professional development is key to the success of DI (Blegur & Hardiansyah, 2024; Abadi, 2024).

3. Creating an inclusive learning environment. With DI, all students regardless of learning style or physical readiness can have a fair opportunity to develop. This supports the principles of inclusive and holistic education in schools.
4. Flexible evaluation standards. Evaluation is not limited to a single exam or test, but can take the form of technique observations, individual/group practice, and distance assessments. This provides space for students to demonstrate their skills according to their learning styles.

Thus, DI can be a practical and relevant alternative model for improving the quality of physical education (PJOK) learning, especially in movement-technique subjects such as athletics.

Research Limitations and Challenges

Although the research results are positive, there are several limitations and challenges worth noting:

1. The sample size was relatively small (N = 20) and there was only one group, with no control group. Although the pretest–posttest showed a significant difference, without a control group, it is difficult to fully conclude that the improvement was due to DI and not other external factors (e.g., student motivation, additional practice outside of school hours, etc.).
2. The intervention duration was limited (6 sessions). For complex motor skills such as the long jump, development of technique and performance may take longer. This short-term study provides an initial overview—but the long-term effects and stability of the results are unknown.
3. External variables are difficult to fully control for. Factors such as physical activity outside of school, health conditions, personal motivation, and supportive home environments can influence the results.
4. Limitations in the literature in the field of PE. As identified in bibliometrics, the number of DI studies in the field of physical education is very small (Blegur & Hardiansyah, 2024), so comparisons with the broader literature are still limited.
5. Implementation in schools varies. Results obtained in one school (SMP Negeri 33 Makassar) may not be directly applicable to other schools with different student characteristics, facilities, or cultures.

Awareness of these limitations is important when generalizing or replicating the research.

Suggestions for Further Research

Based on the results and limitations of this study, several recommendations for further research are:

1. Using an experimental design with a control group and a larger sample size will increase the validity and generalizability of the results.
2. Extending the duration of the intervention and including a follow-up phase to determine whether improvements in long jump technique and performance are stable over the medium to long term.
3. Test DI on various sports skills and other athletic materials, such as sprinting, high jump, and throwing, to determine whether DI's effectiveness is consistent across different sports content.
4. Combining DI with other approaches such as the use of technology, video feedback, or additional individual training. This aligns with current trends in physical education that the use of assistive devices, video analysis, and personalization are the path of the future (Fullerton, 2023; Benefits of Differential Learning in PE, 2024).

5. Conducting a qualitative study to explore student and teacher experiences during the implementation of DI. Student perceptions of diverse learning methods, motivation, learning satisfaction, and teacher challenges in implementation provide a more holistic picture of DI's effectiveness.

Contribution to the Literature and Practice of Physical Education in Indonesia

This study makes significant contributions to the physical education literature in Indonesia:

1. Adds empirical evidence that DI is effective for complex motor skills (long jump), not just cognitive or theoretical material.
2. Addresses the recommendation in the bibliometric analysis that more research is needed to explore DI in PE (Blegur & Hardiansyah, 2024).
3. Provides a DI implementation model that can be adapted by other physical education teachers with a structure of content, process, and product—relevant to school conditions in Indonesia.
4. Supporting the inclusive education movement and personalized learning, tailored to the needs of diverse students in secondary schools.

Thus, this research is not only academically relevant but also practically relevant for teachers, schools, and physical education policymakers in Indonesia.

Overall, the research results indicate that the implementation of Differentiated Instruction in long jump learning at SMP Negeri 33 Makassar was effective in improving students' technical abilities and jump distance. The mechanisms of success are related to accommodations for learning styles, increased motivation and engagement, and an inclusive and adaptive instructional approach.

Despite its limitations, this study provides a strong foundation for further development both in further research and in school-based learning practices. DI emerges as a promising learning strategy for physical education, and with appropriate development and adaptation, it can help improve the quality and inclusiveness of sports learning in Indonesian schools.

CONCLUSION

This study aims to analyze the effectiveness of the Differentiated Instruction (DI) learning model for the long jump in accommodating the diverse learning styles of students at SMP Negeri 33 Makassar. Based on pretest and posttest results with 20 students, it was found that DI learning resulted in significant improvements in both long jump technique and jump distance. The improvement in technique scores reached 45.7%, while the increase in jump distance was 24.2%, both demonstrating the model's effectiveness in enhancing students' psychomotor performance. These findings confirm that variations in content presentation, training processes, and evaluation formats tailored to visual, auditory, and kinesthetic learning styles can create a more optimal, relevant, and meaningful learning experience.

A more in-depth analysis revealed that students with visual and kinesthetic learning styles achieved greater improvements, in line with the characteristics of motor skills learning that requires visual observation, demonstration, and hands-on practice. However, auditory students also showed significant improvements, demonstrating the DI model's inclusiveness across all learning profiles.

Overall, this study confirms that Differentiated Instruction is a relevant, adaptive, and effective approach to physical education learning, particularly in athletics subjects such as

the long jump. Physical education teachers are advised to integrate the DI approach into their lesson plans to improve the quality, inclusiveness, and meaningfulness of students' learning experiences. Further research with larger samples and more robust experimental designs is recommended to expand the generalizability of the findings.

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