

## Benefits of Differentiated Learning in Physical Education: Systematic Studies with PRISMA

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**Abstract:** The study evaluates the application of differential learning in physical education, advancing a student-centric approach to improving student skills, motivation, and holistic development. The research method used is PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), which includes data search, filtering, quality assessment, and results analysis in a comprehensive manner. The study collected data from Scopus, PubMed, and ScienceDirect databases with criteria for inclusion of research on differential learning, open access articles, and studies in English. The results showed that out of 298 papers identified, 16 studies met the criteria for further analysis. Key findings indicate that differential learning in physical education provides significant benefits, including improved motor skills and coordination, learning motivation, social interaction, and student emotional well-being. This approach also enriches the teaching process by improving the accuracy of judgment, enabling the use of technology for more meaningful feedback, as well as optimizing the professional development of teachers. The conclusions of this study confirm that differential learning is an effective strategy in physical education that not only improves academic performance, but also supports the overall social, emotional, and physical development of students. Implementation of this method requires curriculum adjustment and improved teacher competence to ensure the achievement of holistic and inclusive educational goals. These findings can be a benchmark for educators, researchers, and policymakers in developing adaptive and responsive learning strategies to the needs of students in the 21st century.

**Keywords:** Physical Education, Differentiated Learning, PRISMA, Literature Review

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### INTRODUCTION

Education in the 21st century prioritizes a student-centric approach (Muhali, 2019). This method allows learning to be tailored to the wishes, interests, and potential of each student. According to this paradigm, students are not just recipients of information but they are active participants in the learning process (Wulandari et al., 2023). Students acquire knowledge of communication, teamwork, creativity, and critical skills from teachers. The aim of this educational approach is to shape students into innovative and lifelong flexible learners, as well

as to equip them with relevant skills to face the challenges of the 21st century (Mashudi, 2021).

This student-centred approach is also applied in today's physical education, which is an important component of the school curriculum. Scissors not only improve physical skills, but also improve character, teamwork, and holistic health (Suprianto et al., 2024). Students are motivated to participate actively, find their interests, and take responsibility for their own education by their teachers. The activities given are tailored to the needs and abilities of each student, so that each student feels supported and motivated to their own goals and in the group. As a result, the twenty-first-century scavenger is very helpful in creating a dynamic learning environment that can adapt to the needs and difficulties of today's world (Syafruddin & Asri, 2022).

Currently, the Ministry of Education, Culture, Research and Technology is adopting a new policy related to the Free Learning Curriculum, as envisaged in Permendikbudristek No. 7 2022. This regulation emphasizes that the learning process must take precedence over the principle of differentiation. This allows teachers to consider various elements such as different learning styles, interests, and abilities levels, so that they can meet the unique needs of each student (Azizah et al., 2023).

Differential learning is a useful approach that teachers can use to meet the specific needs of each student (Sutrisno et al., 2023). This approach emphasizes empowering students to understand material according to their abilities, personal preferences, and specific needs, thus preventing frustration and failure in the learning process. Teachers should be aware that there is no one approach, method, or learning strategy that is truly suitable for each student because each student has unique ways of learning, levels of understanding, interests, and specific needs (Fauzia & Ramadan, 2023).

The aim of this research in the field of physical education is to analyze current literature thoroughly to determine whether a particular learning method produces positive results or not. Differentiated learning in the school not only improves students' physical skills, it also increases students' motivation and active participation, increases their confidence, and creates an inclusive learning environment that supports their overall development (Dewi, 2023), (Rukmi & Khosiyono, 2023), and (Prihandini et al., 2023). To this goal, the researchers will undertake a thorough literary investigation. These results can help educators, researchers, and policymakers create and implement learning strategies that help improve the physical well-being of students at all levels of education.

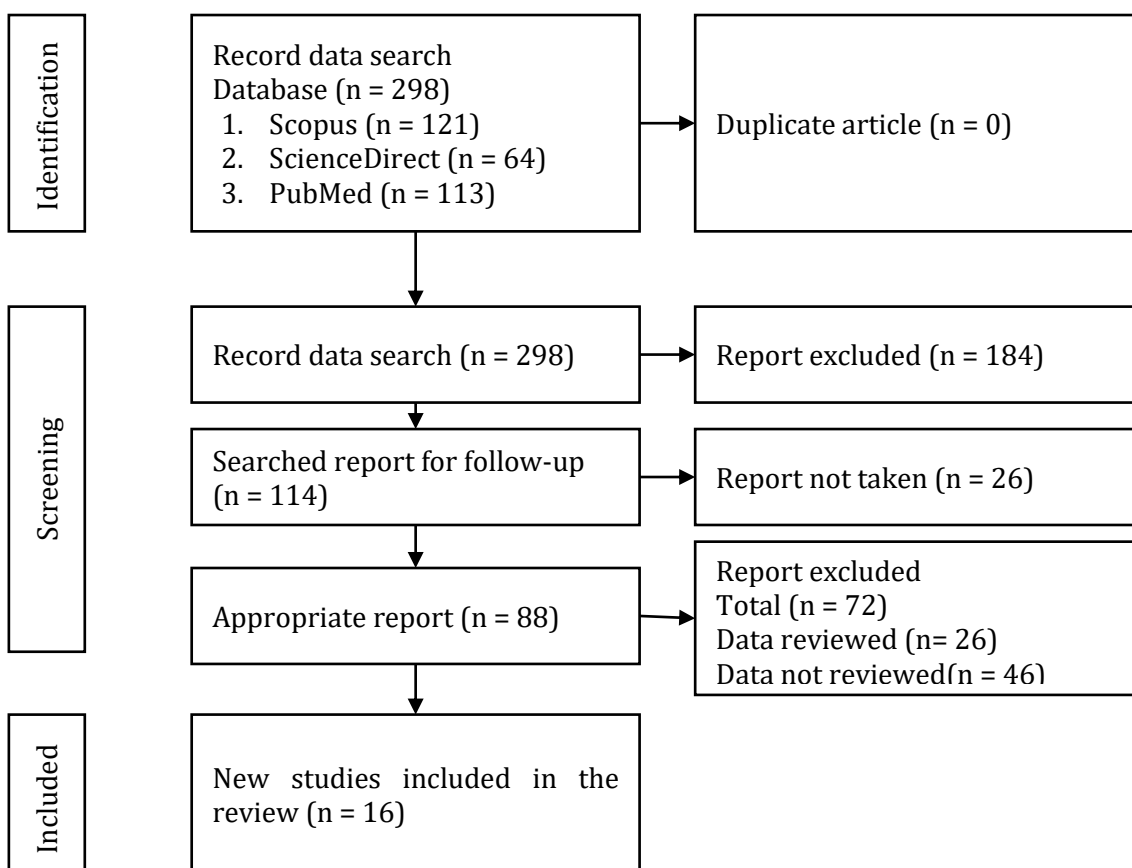
## **METHOD**

This research uses the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Haddaway et al., 2022). Method, which consists of four stages: data search using the data provider page, in which the data is reviewed using keywords and topics that have been specified; data filtering to filter the data obtained to match the topic to be discussed; data quality assessment (quality assessment) based on the full text as well as the inclusion and exclusion criteria defined; and the analysis of the results of the selected data search in a comprehensive manner to find similarities and differences based on data. Scopus, PubMed, and ScienceDirect databases were searched using relevant keywords in May 2024. The search term covers differentiated physics learning in the 2014-2024 range.

The criteria for research included are: research on differentiation, open access articles, and studies published in English. Exclusion criteria include the following studies: Studies in fields other than sports, reviews, books, book chapters, and conferences. Search results are filtered, and publications are selected depending on the selection criteria. The publication exemption is first based on the title of the paper, then the abstract, and finally, the complete text taken. Publication bibliographic references are manually checked to identify other acceptable studies that may have been ignored at previous stages. For further processing, data is extracted and collected in electronic spreadsheets. The data collected consisted of the learning impact of physical education using differentiation models reviewed from the results of the research.

## **RESULTS**

The initial search resulted in 298 papers from three databases, including Scopus, PubMed, and ScienceDirect. Furthermore, 298 of the papers were titled and abstractly filtered. A total of 184 were released because they did not meet the inclusion criteria.



Picture 1. PRISMA Circuit Chart Research Methods

Table 1. Differentiated Learning in Jasmanian Education

No.	Author	Title	Research Results
1.	Derri et al. (2014)	Early Professional Development of Physical Education Teachers: Effects on Lesson Planning	Based on research results, differential learning brings significant benefits, including improved teachers' ability to plan instruction that matches the student's level of development and integrate various teaching strategies. Nevertheless, research also highlights that practical experience alone is not sufficient to enhance the capacity of teachers in identifying the diverse needs of students through formal and informal assessments during lessons. Despite the challenges, differential learning can enrich the characteristics of effective lesson planning.
2.	Ganciu &	Arguments on the Formative	The differential learning benefits of these research results include: maximizing

No.	Author	Title	Research Results
	Ganciu (2014)	Function of Physical Education Deadlock Higher Education	individual skills by adjusting the intensity and intensity of work, improving student independence and initiative in aerobic gymnastics, encouraging the development of creativity through the creation of new exercises, and ensuring more effective learning with a deep understanding of the objectives and contents of the exercise.
3.	Tudor et al. (2014)	Optimization of Physical Education Classes by Adapting the Methods for Developing the Coordination Ability in 5th Grade Students	The benefits of differential learning in physical education, as demonstrated by the results of the study, include: reducing the constraints on student autonomy, improving student capacity for coordination, enhancing performance in coordination capacity and driving skills, as well as stimulating students' interest and positive attitude towards physical exercise and the overall physical education class.
4.	Mujea (2014)	The Improvement of Speed in Mentally Deficient Pupils through the Use of Differentiated Instruction in the Physical Education Lesson	The differential learning benefits of the research results include improved motor performance, dynamic interactions that extend student social interaction, increased child capacity, improved quality of life for children with mental disabilities, better final evaluation results, and achievement of higher homogeneity among students.
5.	Marinescu et al. (2014)	The Improvement of Strength in Mentally Disabled Pupils through the Use of Differentiated Instruction in the Physical Education Lesson	The differential learning benefits of research results include improved motor quality, stimulation of competition and motivation, adaptability to student characteristics, organization of activities based on biomotor potential, more emotional support and explanation, and the use of specific operational modules to better results in physical education.
6.	Gloria et al. (2015)	Training of Students' Practical Assessment	The benefits of differential learning, according to the research results, include improved student assessment skills, reduced differences between self-assessment and

No.	Author	Title	Research Results
		Ability in Physical Education and Sports Science	others' assessment, as well as improved overall student performance, as evidenced by involvement in the assessment process, smaller value differences, and better performance in experimental groups.
7.	Ding & Chen (2019)	Instructional and learning outcomes in China and the USA as policy implications	The differentiated learning benefits of this research include improved learning outcomes, instructional characteristics, and student learning motivation, as well as highlighting the impact of differences in education policies in China and the United States on student learning outputs. While centralized policy in China creates a strong system of accountability through high-risk tests, more flexible policies in the US allow for variations in teaching approaches and learning results.
8.	Kok et al. (2021)	Tailoring explicit and implicit instruction methods to the verbal working memory capacity of students with special needs can benefit motor learning outcomes in physical education	In this context, differentiation in the classroom allows teachers to provide verbal guidance tailored to the individual needs of students, which contributes to improved motor learning and level of perceived competence. Furthermore, the use of learning methods adapted to student verbal working memory capacity can also improve motor learning outcomes and competence levels. Varied approaches to planning and implementing differential learning allow teachers to be more responsive to the diverse learning needs of students.
9.	Goss et al. (2022)	Stakeholder perceptions of physical literacy assessment in primary school children	The benefits of differentiated learning based on research results include age-adjusted assessments and children's ability to record developments more accurately, creating a motivational climate in which children are self-motivated to improve their physical literacy, as well as providing tangible evidence that is useful to inform best practices in the education sector and influence policy.

No.	Author	Title	Research Results
10.	Zulkifli & Danis (2022)	Technology in physical education: Using movement analysis application to improve feedback on sports skills among undergraduate physical education students	Differential learning benefits of research results include increased student interest, involvement, and pleasure in learning content. Furthermore, differentiated learning also reduces student dependence on educators, encouraging them to develop a higher motivation for being physically active and competent. Moreover, this learning allows students to receive more accurate and meaningful feedback, which is important to help students learn effectively and efficiently.
11.	Yefremenko et al. (2023)	The comparison of students' long jump study programs	The benefits of differential learning in long jumping techniques are increased efficiency for participants with lower levels of physical fitness through improved individual phase structural units and gradual movement coordination.
12.	García-González et al. (2023)	Is high teacher directiveness always negative? Associations with students' motivational outcomes in physical education	Study results showed that the benefit of differential learning is that Jasmalian education teachers who apply teaching styles that support competence tend to produce more adaptive motivational outcomes in students. Students who feel the competence support of their tutor more than control, tend to have higher levels of needs satisfaction and autonomous motivation. Instead, they have lower levels of need frustration, controlled motivation, amotivation, and excitement in tutoring lessons.
13.	Gråstén et al. (2023)	Stability and transitions in school-aged children's physical education need satisfaction profiles: A latent	The benefits of differentiated learning from the research results include improved student satisfaction, improved competence and social relationships through clear instruction and open communication, a boost to the role of the family in fostering sportiness, stability of the needs satisfaction profile, as well as the importance of early

No.	Author	Title	Research Results
		transition analysis	intervention to promote positive development from an early age in the student's physical education experience.
14.	Wong & Oh (2023)	Teaching physical education abroad: Perspectives from host cooperating teachers, local students and Australian pre-service teachers using the social exchange theory	The benefits of differentiated learning from research results include improved student conceptual understanding of physical education, innovative teaching that affects teacher teaching practices, enhanced cultural competence and multicultural awareness, as well as the opening of new pedagogical insights for prospective teachers, which potentially foster sustainable improvements in the educational environment for teachers and students.
15.	Adank et al. (2024)	That's what I like! Fostering enjoyment in primary physical education	The benefit of differential learning from the results of this study is that children appreciate tasks that are tailored and can be modified according to their individual abilities. They highlighted the importance of challenges and success in physical education experiences. Teachers can help children with different levels of ability by giving them appropriate tasks, such as more challenging tasks for superior ones and simpler ones for inferior ones.
16.	Manzan o-Sánchez et al. (2024)	Responsibility as a predictor of climate and school violence through autonomous motivation in Physical Education classes: Differences based on sex and educational stage	Differential learning, based on research results, provides significant benefits that include: improved social interaction of students, strengthening the professional identity of prospective teachers, improved student understanding and learning, as well as increased intrinsic motivation for assigned tasks. These benefits show that differential Learning has a positive impact not only in the academic aspects, but also in the social and professional development of students and teachers.



## DISCUSSION

It is important to remember that the effectiveness of learning depends not only on the teaching methods used by the teacher, but also on the ability of the curriculum to facilitate the student in achieving the established learning goals (Riza & Barrulwalidin, 2023). A well-designed curriculum should provide interesting learning opportunities and actively involve students, while providing the necessary resources to support the learning process (Maskur, 2023).

Learning effectiveness can be measured through a number of indicators, including learning integrity, student activity efficiency, and learning activity efficiencies. In the context of teaching physical education, the effectiveness of the application of differential learning depends heavily on the teacher's skills in managing learning and the positive response of students to the learning process (Gusteti & Neviyarni, 2022). The role of teachers as mentors also has an important role in supporting the success of differential learning, in which they must understand each characteristic of the student. Accompanying during the learning process and teacher competence in facilitating students are also crucial factors. Programs aimed at increasing student involvement and motivation should be designed specifically by presenting relevant challenging tasks in accordance with student abilities (Ibrahim, 2023).

Studies have highlighted the benefits of differential learning that can be better understood based on its impact on student learning outcomes, social and emotional development, learning motivation and satisfaction, judgmental ability, and the overall quality of teaching and learning. Thus, the application of differential learning in physical education shows the potential to improve student learning experience in a comprehensive way as follows is a classification of the results of research from the studies listed can be divided into several major categories based on the identified benefits of different learning in the physical education:

### **Enhancing Student Skills and Competences**

Differential learning has been shown to significantly improve student skills and competences in various aspects. According to Derri et al. (2014) teachers who apply differential learning are able to plan instruction that is more appropriate to the student's level of development, so that the learning process becomes more effective. Ganciu & Ganciu (2014) adds that adjustment of intensity and work density in differential learning maximizes the individual skills of students. Furthermore, research by Tudor et al. (2014) showed that this method improves student coordination capacity, while Mujea (2014) found that differential learning significantly improves motor performance of children with mental limitations. Marinescu et al. (2014) found that differential learning significantly improves motor performance of children with mental limitations. Gloria et al. (2015) noted an improvement in student assessment skills when this method was applied, Ding

& Chen (2019) ) highlighted improved learning outcomes as well as instructional characteristics. Further, Kok et al. (2021) found that differential learning improved student motor learning outcomes and level of competence, while Yefremenko et al. (2023) showed the effectiveness of long jumping techniques through improved individual phase structural units and movement coordination. Finally, Adank et al. (2024) noted that tasks tailored to students' individual abilities can improve their skills and satisfaction.

From the various studies above, it can be concluded that differential learning provides broad and profound benefits in improving student skills and competences. This method allows teachers to plan and implement instructions more effectively and in accordance with the individual needs of students. In addition, adjustments in the intensity and intensity of work as well as specialized techniques in various sports and physical activities not only improve motor skills and coordination, but also improve student assessment and learning satisfaction. Overall, the application of differential learning in physical education not only improves academic outcomes but also supports student holistic development, including their social, emotional, and motor skills.

### **Social and Emotional Development**

Differentiated learning not only focuses on the cognitive and motor aspects of students, but also plays an important role in their social and emotional development. Mujea (2014) found that differential learning can enhance the social interaction of students with mental limitations, enabling them to participate more actively in social and academic activities. Marinescu et al. (2014) highlighted that this method also provides significant emotional support, as well as increasing student motivation through adaptation to their individual needs. Research by García-González et al. (2023) showed that competence support from teachers of physical education positively affects students' motivation, helping them feel more confident and motivated in learning. In addition, Manzano-Sánchez et al. (2024) that differential learning not only improves student social interaction but also nurtures intrinsic motivation, which is important for long-term learning and personal satisfaction.

From various studies, it is clear that differential learning has a significant positive impact on the social and emotional development of students. This method allows students, including those with mental disabilities, to enhance their social interaction and feel more connected with their peers. In addition, adjustments in differential learning provide the emotional support needed to motivate students, increase confidence, and encourage intrinsic motivation. Thus, differential learning not only enriches student learning experiences academically but also socially and emotionally, creating a holistic and supportive learning environment.

## **Teaching and Learning Optimization**

Differentiated learning offers a range of significant benefits in optimizing teaching and learning processes. Tudor et al. (2014) suggested that this approach reduces the limitations on students' autonomy and increases their interest in physical education classes. Gloria et al. (2015) found that differential learning can reduce the difference in value between self-judgment and judgment by others, which reflects increased accuracy and fairness in judgement. Ding & Chen, (2019) highlights the importance of variation in instructional approaches to achieving optimal learning outcomes across educational systems. Kok et al. (2021) stressed that an approach tailored to students' verbal working memory capacity can improve their motor learning outcomes and competence levels. Goss et al. (2022) suggested that assessments tailored to children's age and abilities provide a more accurate record of development. Zulkifli & Danis (2022) added that the use of technology in differential learning allows for more accurate and meaningful feedback. Wong & Oh (2023) revealed that innovative teaching in differential learning can enhance student cultural competence and multicultural awareness, which is vital in the context of global education.

Overall, differential learning plays a key role in optimizing teaching and learning by adapting the teaching approach to the individual needs of students. By reducing the constraints on student autonomy, improving the accuracy of assessments, and using technology for more accurate feedback, this method not only improves learning outcomes but also increases student interest and motivation. Approaches tailored to students' verbal working memory capacity and assessments tailoring to children's abilities help create a more inclusive and effective learning environment. In addition, innovative teaching that integrates cultural competence and multicultural awareness ensures that students are well prepared to participate in a global society. Thus, differential learning not only improves the quality of education but also prepares students to face future challenges.

## **Teacher Professional Development**

Differential learning has a significant impact on the professional development of teachers. Derri et al. (2014) showed that this method enriches the characteristics of effective lesson planning, helping teachers plan instructions that are better suited to student development needs. Wong & Oh (2023) added that differential learning opens up new pedagogical insights for prospective teachers, enabling them to explore and implement a variety of innovative teaching strategies. Manzano-Sánchez et al. (2024) highlighted that this method also strengthens the professional identity of prospective teachers, giving them greater confidence and competence in carrying out their teaching duties.

Overall, differential learning contributes greatly to the professional development of teachers by improving their ability to plan and implement effective

learning. This method not only enriches lesson planning but also opens up new pedagogical insights that enable teachers to continue to evolve and adapt to the diverse needs of students. In addition, differential learning strengthens the professional identity of prospective teachers, giving them a strong foundation for becoming competent and confident educators. Thus, differentiated learning plays a key role in ensuring that teachers are ready to face the challenges in an ever-changing educational environment.

## CONCLUSION

Based on the results and discussion of the review literature on differential learning in physical education, it was found that this method has a positive impact on achieving student learning outcomes. The studies highlighted that differentiated learning not only improves academic results, but also supports student holistic development, including social and emotional development, motivation, and learning satisfaction. With an approach tailored to the individual needs of students, differentiation learning creates an inclusive and effective learning environment, enabling students to feel actively involved in the learning process.

In addition, research also shows that differential learning has a positive impact on the overall quality of teaching and learning. In addition, adjustments in the intensity and intensity of work and assignment of tasks tailored to students' abilities help improve motor skills and coordination, while increasing student learning satisfaction. Thus, the application of differential learning is not only a teaching strategy, but also an effort that has a positive impact in advancing the quality of education in general.

## Conflict of Interest

All authors state there is no conflict of interest.

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