Motives for Physical Activity among Deaf Students: A Descriptive Analysis

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Abstract

Participation in physical activity offers important health and social benefits for Deaf students, including opportunities for skill development, social interaction, and enhanced self-confidence. However, limited attention has been given to the motivational factors that shape their engagement in physical activity within inclusive education contexts. This study aimed to examine the types of motivation influencing Deaf students' participation in sports and physical activities. Employing a quantitative descriptive design, the study involved 43 Deaf students aged 12–19 years who completed an adapted version of the Motives and Barriers for Physical Activity and Sport (MBAFD) questionnaire. The findings indicated that intrinsic motivation—particularly enjoyment, learning new movements, and perceived well-being—emerged as the dominant factor driving participation in physical activity. These results underscore the importance of fostering autonomy-supportive and enjoyable physical education environments to promote sustained engagement among Deaf students and inform the development of more inclusive and context-responsive physical education practices.

Partisipasi dalam aktivitas fisik memberikan manfaat kesehatan dan sosial yang penting bagi siswa Tuli, termasuk pengembangan keterampilan, peningkatan interaksi sosial, dan penguatan kepercayaan diri. Namun, kajian yang secara khusus menelaah faktor-faktor motivasional yang memengaruhi keterlibatan siswa Tuli dalam aktivitas fisik masih terbatas, khususnya dalam konteks pendidikan inklusif. Penelitian ini bertujuan untuk mengkaji jenis motivasi yang memengaruhi partisipasi siswa Tuli dalam aktivitas olahraga dan aktivitas fisik. Penelitian ini menggunakan desain kuantitatif deskriptif dengan melibatkan 43 siswa Tuli berusia 12–19 tahun yang mengisi kuesioner Motives and Barriers for Physical Activity and Sport (MBAFD) versi adaptasi. Hasil penelitian menunjukkan bahwa motivasi intrinsik, terutama yang berkaitan dengan kesenangan, pembelajaran gerak baru, dan persepsi kesejahteraan, merupakan faktor dominan yang mendorong partisipasi aktivitas fisik. Temuan ini menegaskan pentingnya pengembangan lingkungan pendidikan jasmani yang mendukung otonomi, menyenangkan, dan responsif terhadap kebutuhan siswa Tuli guna mendorong keterlibatan yang berkelanjutan serta memperkuat praktik pendidikan jasmani inklusif.

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A. Introduction

Physical inactivity has become a major global public health concern, contributing to the rising prevalence of non-communicable diseases and reduced quality of life across age groups (Katzmarzyk *et al.*, 2022). Beyond its physical health consequences, insufficient engagement in physical activity is also associated with lower emotional well-being, increased anxiety and depression, and reduced social participation (Goman *et al.*, 2025). In recent years, global attention has increasingly focused on ensuring equitable access to physical activity opportunities, including for persons with disabilities, who often face additional barriers to achieving optimal health outcomes (Fadare *et al.*, 2021). This focus aligns with the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), which affirms the right of persons with disabilities to full and meaningful participation in all aspects of life, including sports and physical education (Ayyildiz *et al.*, 2024).

Hearing loss is the most prevalent form of disability globally, affecting approximately 5% of the world's population, or an estimated 466 million people (Purnami *et al.*, 2022). Most individuals with hearing loss worldwide live in low- and middle-income countries (Newall *et al.*, 2025). In Indonesia, children and adolescents with hearing loss face heightened risks of social exclusion and limited access to inclusive physical activity opportunities. Indonesia has enacted national policies, including Regulation No. 70/2009 on Inclusive Education and Law No. 8/2016 on Persons with Disabilities, which guarantee the rights of Deaf students to equitable educational opportunities, including participation in physical education. However, policy commitments do not automatically translate into meaningful participation, particularly when social, communicative, and motivational factors are not adequately addressed.

Deaf students encounter multifaceted barriers to physical activity participation, including limited access to adapted facilities, insufficiently trained instructors, communication challenges, and social stigma (Bandhu *et al.*, 2024; Carlin, McPherson and Davison, 2024). While these structural barriers have been widely discussed, comparatively less attention has been given to the psychological factors that shape engagement, particularly motivation. Motivation plays a critical role in determining whether individuals initiate and sustain participation in physical activity, especially in contexts where participation is not intrinsically supported by the environment (Tao *et al.*, 2024). For Deaf students, motivational processes may be further shaped by prior experiences of exclusion, communication barriers, and limited opportunities for positive movement experiences.

Self-Determination Theory (SDT) provides a well-established framework for understanding motivation in physical activity contexts. SDT conceptualises motivation along a continuum ranging from amotivation to intrinsic motivation, with varying forms of extrinsic motivation positioned between these extremes (Ramos *et al.*, 2022). Central to SDT are the basic psychological needs of autonomy, competence, and relatedness, which must be satisfied to foster self-determined motivation. Within physical education settings, environments that support these needs are more likely to promote intrinsic motivation and sustained engagement, particularly among students with disabilities (Cheng, Chen and Deng, 2025). However, empirical research applying SDT to the physical activity participation of Deaf students remains limited.

Although previous studies have examined physical activity participation among individuals with disabilities, research specifically focusing on the motivational factors influencing Deaf students remains limited. Existing literature tends to prioritise structural accessibility or policy-level interventions, often overlooking the nuanced motivational dynamics that shape participation (Bukhari *et al.*, 2023; Ayyildiz *et al.*, 2024). Moreover, many studies treat disability as a homogeneous category, failing to account for the distinct communication and social interaction experiences of Deaf learners.

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To address this gap, the present study aims to examine the dominant types of motivation—intrinsic and extrinsic—that influence physical activity participation among Deaf students, with the goal of informing more inclusive and context-appropriate physical education practices.

B. Research Methods

1. Research Design

This study employed a quantitative descriptive research design using a cross-sectional survey approach. Data were collected through the administration of the Motives and Barriers for Physical Activity and Sport Questionnaire (MBAFD) to examine the dominant motivational factors influencing physical activity participation among Deaf students. The study was conducted from March to April 2024, in three inclusive schools located in Surakarta, Central Java, Indonesia. These schools were purposively selected because they implement inclusive education programmes and actively involve Deaf students in physical education activities, thereby providing an appropriate context for examining motivation in inclusive physical activity settings.

Table 1
Pretest-Posttest Nonequivalent Control Group Research Design

Group	Pretest	Treatment	Posttest
Experimental Group (A)	OA1	STEM Integrated Vocational Program (X)	OA2
Control Group (B)	OA3	Conventional Vocational Program	OB4

Note. Based on the authors' analysis, 2024.

2. Research Participants

The study involved 43 Deaf students (N = 43), comprising 25 male and 18 female students, aged between 12 and 19 years. All participants were enrolled in three special schools in Central Java, Indonesia: SLB Negeri Surakarta, SLB Negeri Karanganyar, and SLB YRTRW.

Given the limited population size, a complete population sampling strategy was employed. All eligible Deaf students in the selected schools during the data collection period were included in the study, provided they met the inclusion criteria of being enrolled as Deaf students and being able to participate in the survey with appropriate communication support. This approach ensured comprehensive coverage of the target population and minimised sampling bias within this specific educational context.

3. Research Procedures

Data collection was conducted over a four-week period allowing sufficient time for coordination with each participating school. The questionnaire was administered individually to each participant in a paper-based format. Prior to administration, the research team conducted a brief orientation session during which the purpose and procedures of the study were clearly explained. Participants were informed about the voluntary nature of participation, the confidentiality of their responses, and their right to withdraw at any stage without penalty.

To ensure comprehension among Deaf students, the questionnaire was administered in the presence of the researcher and accompanying school teachers. Each participant completed the questionnaire in a one-on-one setting, with support from trained special education teachers who assisted communication through sign language or written clarification when necessary. The

researcher was also available to provide additional explanations to ensure that all items were understood as intended, thereby minimising potential misunderstandings related to communication barriers.

Completion of the questionnaire required approximately 20–30 minutes per participant, depending on individual reading and comprehension speed. All data collection sessions were conducted in familiar school environments to ensure participant comfort and a supportive atmosphere, which helped minimise distractions and enhance the accuracy of responses.

4. Research Instruments

This study employed an adapted version of the Motives and Barriers for Physical Activity and Sport (MBAFD) questionnaire originally developed by (Ascondo *et al*., 2023). The instrument was adapted to enhance accessibility for Deaf adolescents by simplifying item wording, providing school-based examples, and incorporating communication-related considerations relevant to Deaf students. The adapted instrument consisted of 24 items, organised into three categories:

a. Intrinsic Motivation (8 items): Items assessed enjoyment, personal interest, and perceived competence.
b. Extrinsic Motivation (8 items): Items reflected social influence, encouragement from teachers or peers, and perceived external benefits.
c. Barriers to Physical Activity (8 items): Items addressed fear of injury, limited access to facilities, lack of support, and communication difficulties.

All items were presented in a dichotomous response format (agree/disagree) and scored using a Guttman scale (1 = disagree, 2 = agree). This response format was selected to enhance clarity and ease of comprehension for students with varying levels of language proficiency.

Content validity was assessed by three experts in physical education and special needs education, resulting in a content validity index (CVI) of 0.89, indicating a high level of agreement regarding item relevance. Construct validity was not examined due to the limited sample size and the exploratory nature of the study.

Although the adapted instrument comprised 24 items, only 13 items were included in the final statistical analysis. This decision was made because the study focused specifically on motivational factors, operationalised through intrinsic and extrinsic motivation items. The remaining items, including all barrier-related items and three motivation items that exhibited low variability or inconsistent response patterns during preliminary screening, were excluded from inferential analysis. The barrier items are presented descriptively in the findings but were not subjected to further statistical analysis, as they did not meet the variability criteria necessary for meaningful interpretation. This approach ensured analytical accuracy and alignment with the study's primary objective of examining motivational patterns among Deaf students.

5. Data Analysis Technique

Data were analysed using descriptive statistical techniques to identify and describe motivational factors and perceived barriers experienced by Deaf students. The analysis focused on presenting patterns within the data rather than testing causal relationships or examining differences between groups. Frequencies and percentages were calculated for each item of the MBAFD questionnaire to provide a clear overview of response distributions.

To examine the psychometric properties of the instrument, internal consistency reliability was assessed using Cronbach's Alpha, and item validity was examined through Pearson's Product-Moment

Correlation. These procedures were selected because they represent standard statistical approaches for evaluating the reliability and item-total correlations of instruments composed of dichotomous items.

All analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 26.0. Given the descriptive nature of the study, statistical findings—including Cronbach's Alpha coefficients, item–total correlation values, and descriptive statistics—are reported objectively in the Results section without inferential comparisons.

C. Results and Discussion

1. Instrument Reliability and Item Validity

The internal consistency reliability of the motivational items in the Motives and Barriers for Physical Activity and Sport (MBAFD) questionnaire was assessed using Cronbach's Alpha. The analysis revealed a reliability coefficient of 0.772 across all 13 motivation-related items, indicating a satisfactory level of internal consistency. This result suggests that the instrument was reliable for measuring motivational constructs among Deaf students. A summary of the instrument reliability is presented in Table 1.

Table 2
Instrument Reliability

Cronbach's Alpha	N of Items	Category
0.772	13	Reliable

Note. Based on the authors' analysis, 2024.

A Cronbach's Alpha value of 0.70 or higher is widely regarded as an acceptable threshold for internal consistency in descriptive and exploratory studies in educational and social research (Taber, 2020). Accordingly, the reliability coefficient obtained in this study indicates that the adapted MBAFD questionnaire was suitable for examining motivational patterns among Deaf students, supporting its application in inclusive and special education research contexts.

Item validity was further examined using item–total correlation coefficients. Table 2 presents the results of the item validity analysis, showing the correlation values (r-values) and the classification of each item as valid or invalid. Items demonstrating adequate correlation with the total score were retained, while items with low or negative correlation coefficients were excluded. Based on this analysis, 13 motivation items were identified as valid and subsequently included in the descriptive analysis.

Table 3
Descriptive and Correlation Motivaton Items

No.	Statement	r-value	Category
1	To make my body healthier and avoid disease	0.120	Invalid
2	To prevent my body from getting fat	0.536	Valid
3	To make my body healthy	0.300	Valid
4	Because I feel healthier when I exercise	0.326	Valid
5	Because I have time to engage in physical activity	0.269	Invalid
6	To meet my friends	0.612	Valid
7	Because it makes me happy	0.370	Valid
8	Because I enjoy learning new movements I have never tried before	0.276	Invalid
9	To improve my physical health	0.323	Valid
10	To improve my mental health	0.542	Valid

No.	Statement	r-value	Category
11	Because I enjoy doing sports	0.591	Valid
12	To relieve stress	0.489	Valid
13	To entertain myself	0.408	Valid
14	To meet other people	0.770	Valid
15	To spend more time with my friends	-0.022	Invalid
16	Because I feel guilty if I don't exercise	0.412	Valid
17	Because I like challenges	0.470	Valid
18	Because I want to exercise every day	0.496	Valid
19	Because exercising makes me think better	0.692	Valid
20	Because doing sports takes me to pleasant places	0.444	Valid
21	Because I am required to do so	0.155	Invalid
22	Because my doctor advised me to do so	0.564	Valid
23	To improve my appearance	0.497	Valid
24	To enhance my movement activity	0.581	Valid

Note. Based on the authors' analysis, 2024.

2. Descriptive Overview of Motivation Data

Descriptive statistics were used to examine participants' responses to each motivational item, focusing on the distribution of agreement and disagreement responses related to engagement in physical activity and sport. The findings indicate the presence of both intrinsic and extrinsic motivational factors influencing participation among Deaf students.

Data were collected using the Motives and Barriers for Physical Activity and Sport (MBAFD) questionnaire, which comprised 13 motivation items with dichotomous response options ("Agree" and "Disagree"). These descriptive results provide an overview of the most frequently endorsed motivational tendencies within the study sample.

As presented in Table 3, the highest levels of agreement were observed for items related to enjoyment, learning new movements, physical health, and emotional well-being, including *"Because I enjoy doing sports," "Because I enjoy learning movements that I have never done before," "To improve my physical health,"* and *"Because it makes me happy."* In contrast, the item *"Because my doctor advised me to do sports"* received the lowest level of agreement among participants.

Table 4

Percentage of Motivation Factors for Physical Activity Deaf students

No.	Statement	Category	Disagree (%)	Agree (%)
1	Because I have time to engage in physical activity	Extrinsic	40	60
2	Because it makes me happy	Intrinsic	19	81
3	Because I enjoy learning new movements I have never tried before	Intrinsic	14	86
4	To improve my physical health	Extrinsic	14	86
5	Because I enjoy doing sports	Intrinsic	12	88
6	To relieve stress	Extrinsic	40	60
7	To entertain myself	Intrinsic	28	72
8	To meet other people	Extrinsic	44	56
9	Because doing sports takes me to pleasant places	Extrinsic	37	63
10	Because I am required to do so	Extrinsic	23	77
11	Because my doctor advised me to do so	Extrinsic	58	42
12	To improve my appearance	Intrinsic	47	53
13	To enhance my movement activity	Intrinsic	23	77

Note. Based on the authors' analysis, 2024.

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3. Dominance of Intrinsic Motivation

A substantial proportion of participants (88%) agreed with the statement "Because I enjoy doing sports," making it the highest-rated motivational item. This finding indicates a strong presence of intrinsic motivation among Deaf students in their participation in physical activity. Enjoyment, as a core component of intrinsic motivation, has been consistently identified as a key factor supporting sustained engagement in physical activity, particularly among children and adolescents with disabilities (Ayyildiz *et al*., 2024).

The second-highest level of agreement (86%) was observed for the statement "Because I enjoy learning new movements that I have never performed before." This pattern reflects a curiosity-driven and self-determined motivational orientation associated with exploration and skill development. Deaf students may experience an enhanced sense of competence and personal achievement when mastering new motor skills, which in turn reinforces intrinsic motivation. An equally high level of agreement (86%) was reported for "To improve my physical health," suggesting that enjoyment-based motivation is complemented by health-related goals. Together, these findings indicate that Deaf students' engagement in physical activity is shaped by both immediate experiential rewards and longer-term perceptions of physical well-being.

As shown in Table 3, the most highly endorsed motivational statements were those related to enjoyment, learning, emotional well-being, and health. These patterns demonstrate that intrinsic motives, particularly enjoyment, curiosity, and personal well-being are the primary drivers of physical activity participation among Deaf students. This finding is consistent with previous research showing that children with disabilities tend to rely more heavily on intrinsic interest and personal enjoyment when engaging in physical activity, especially in contexts where external reinforcers or verbal social cues are limited (Bukhari *et al*., 2023; Fu *et al*., 2025).

From a disability studies perspective, the predominance of intrinsic motivation among Deaf students indicates that physical activity serves as an important context for autonomy and self-directed engagement. Because participation relies primarily on visual and kinesthetic interaction, physical activity may provide Deaf students with learning experiences that feel more accessible and meaningful than verbally mediated classroom instruction (Lieberman, Houston-Wilson and Grenier, 2024). Interpreted through Self-Determination Theory, the high endorsement of enjoyment and learning-oriented items suggests that physical activity satisfies students' needs for autonomy and competence, thereby supporting sustained participation (Ryan and Deci, 2020). These findings indicate that Deaf students are more likely to engage in physical activity when it is experienced as enjoyable, self-chosen, and competence-enhancing rather than externally imposed, highlighting the importance of autonomy-supportive physical education environments (Ayyildiz *et al*., 2024).

These findings reinforce the central role of intrinsic motivation in physical activity participation among Deaf students. Consistent with prior research on students and athletes with disabilities, intrinsic motives related to enjoyment, personal challenge, and perceived health benefits have been shown to be more influential than externally driven incentives (Mendia *et al*., 2020; Avalos Solitario *et al*., 2021; Juanbeltz *et al*., 2021). In the present study, motivation derived from personal interest and internal drive similarly emerged as more salient than motivation originating from external demands or authority-based recommendations. This pattern suggests that physical activity engagement among Deaf students was primarily shaped by self-determined motivational processes rather than externally imposed expectations.

4. Emotional and Psychosocial Motivations

Emotional well-being emerged as an important motivational factor for Deaf students' participation in physical activity. A substantial proportion of participants (81%) agreed that they engaged in physical activity "to feel happy," indicating that positive emotional outcomes play a significant role in motivating participation. This finding aligns with previous studies showing that physical activity contributes to emotional regulation and mood enhancement among adolescents, including those with disabilities (Pueyo Gutiérrez-Rivas *et al.*, 2025).

In addition to emotional satisfaction, psychosocial factors were also evident. Sixty percent of participants reported engaging in physical activity to relieve stress, while 56% indicated a desire to meet other people. These results highlight the role of physical activity as a social and emotional space, where Deaf students can experience interaction and connection beyond verbally mediated communication. Inclusive physical activity settings may therefore offer opportunities for social engagement through non-verbal or semi-verbal interaction, helping to reduce feelings of isolation.

Consistent with these findings, prior research has demonstrated that participation in recreational and community-based physical activities can enhance self-confidence, social belonging, and positive identity development among individuals with disabilities (Stepanova and Lashenkov, 2022; Rush Thompson, 2024; Main *et al.*, 2025). In the context of this study, emotional and psychosocial motivations suggest that physical activity serves not only as a means of physical health promotion but also as an important context for social inclusion and psychological well-being for Deaf students. These findings underscore the importance of designing inclusive physical education programs that prioritise enjoyment, emotional safety, and meaningful social interaction rather than purely prescriptive or therapeutic goals.

From a psychosocial perspective, the emotional and social benefits reported by participants further illustrate how physical activity provides meaningful experiences beyond physical outcomes. Motivation linked to enjoyment, happiness, and social interaction reflects opportunities for Deaf students to develop confidence, positive self-perception, and social connectedness. Previous studies have indicated that perceived competence and social support play a critical role in shaping motivation among adolescents with disabilities, although empirical evidence focusing specifically on Deaf students remains limited (Hansen, Nordén and Ohlsson, 2023). The present findings therefore contribute to a growing body of research by highlighting the emotional and relational dimensions of motivation within Deaf students' physical activity experiences.

5. Extrinsic Motivation and Contextual Factors

Items reflecting extrinsically controlled motivation received lower levels of agreement compared to intrinsic motivational factors. The lowest endorsement was observed for "Because my doctor told me I must exercise," with only 42% of participants agreeing. This finding indicates that medical or authority-driven recommendations may be less effective in motivating physical activity participation among Deaf students when they are not personally meaningful or aligned with students' own interests. Similar patterns have been reported in studies showing that externally imposed health directives often fail to sustain physical activity engagement among individuals with disabilities, particularly when autonomy is limited (Ryan & Deci, 2020; Ayyildiz et al., 2024).

Likewise, the statement "To improve my appearance" received relatively low agreement (53%), suggesting that appearance-based or body image–oriented motives are less salient for Deaf students than enjoyment, emotional well-being, or perceived functional benefits. Previous research indicates

that adolescents with disabilities may place less emphasis on normative body ideals and instead prioritise activities that provide enjoyment, competence, and social acceptance (Brady *et al.*, 2024).

Moderate agreement was observed for contextual items such as “Because I have the time to exercise” (60%) and “Because doing sports takes me to pleasant places” (63%). These responses suggest that time availability and environmental factors function as facilitating conditions rather than primary motivational drivers. In school-based contexts, such factors are often shaped by institutional structures, including scheduling flexibility, teacher support, and access to inclusive facilities. Studies on inclusive physical education have shown that supportive environments and accessible settings can enable participation but do not necessarily generate sustained motivation in the absence of intrinsic interest (Wilhelmsen, Sørensen and Seippel, 2019; Liu *et al.*, 2025; Russo *et al.*, 2025).

The comparatively weaker influence of extrinsic motivation observed in this study aligns with research suggesting that obligation-based or externally controlled motives are less effective in sustaining physical activity participation among individuals with disabilities (Teixeira *et al.*, 2020). While structural and contextual supports such as scheduling, facilities, and institutional encouragement remain important, they appear insufficient when not accompanied by intrinsic interest and personal relevance. Previous studies focusing on disability populations have similarly emphasized that autonomy-supportive environments are essential for meaningful engagement, yet research explicitly addressing Deaf students within educational contexts remains scarce (Haegele and Sutherland, 2015; Arık and Erturan, 2023). This gap underscores the contribution of the present study in advancing disability-informed understanding of motivation in inclusive physical education settings.

6. Implication for Inclusive Physical Education

The relatively low endorsement of motivation based on professional or medical advice suggests that physical activity recommendations for Deaf students should be framed in ways that align with students’ personal interests and lived experiences. Rather than emphasising obligation or compliance with health directives, educators are encouraged to promote physical activity as an enjoyable and meaningful experience that supports happiness, confidence, and social participation.

The findings indicate that inclusive physical education programmes should prioritise enjoyment, skill development, and psychological well-being over directive or prescriptive approaches. Designing structured yet flexible programmes that incorporate varied movement experiences, opportunities for mastery, and learner choice may help sustain motivation among Deaf students. Creating inclusive social environments within physical education settings can also enhance peer interaction and foster a sense of belonging, which further supports engagement.

These results also highlight the need to recognise motivational diversity among students. While some individuals may be motivated primarily by health-related goals, others may engage more readily through play, recreation, and social interaction. Inclusive physical education programmes should therefore be responsive to these differing motivational orientations by balancing health promotion with opportunities for enjoyment and social connection. In line with previous research, programmes that tap into intrinsic motivations such as fun, learning, and personal growth are more likely to encourage sustained participation among students with disabilities (Al Harthy, Hammad and Awed, 2024; Ayyildiz *et al.*, 2024). Stakeholders in the education and health sectors should consider these motivational dimensions when developing inclusive and sustainable physical activity initiatives.

D. Conclusion

This study examined the key motivational factors influencing Deaf students' participation in physical activity. The findings indicate that intrinsic motivations—particularly enjoyment, leisure, and social interaction— constitute the primary drivers of engagement. These motives support sustained participation by fostering positive emotional experiences, a sense of competence, and opportunities for meaningful social connection. Empirically, this study contributes evidence on the motivational profiles of Deaf adolescents in school-based physical activity contexts, an area that remains underrepresented in the existing literature. From a theoretical perspective, the findings reinforce Self-Determination Theory by demonstrating that the satisfaction of autonomy, competence, and relatedness plays a central role in motivating Deaf students within physical activity settings.

The results underscore the importance for educators and programme designers to prioritise enjoyable, socially engaging, and student-centred approaches when developing inclusive physical education programmes. Creating communication-accessible environments and offering varied activity options may help align instructional practices with students' motivational tendencies and promote sustained participation. Future research is encouraged to examine motivational differences across age groups, explore the role of communication accessibility in greater depth, and investigate how specific instructional strategies can further enhance intrinsic motivation among Deaf students.

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