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Perceptions of physical education teachers and coaches toward talent identification in volleyball and artistic gymnastics

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ABSTRACT

This study aimed to analyze the perceptions of Physical Education teachers and coaches regarding talent identification in volleyball and artistic gymnastics. A descriptive quantitative design was employed involving 45 respondents, comprising 15 Physical Education teachers, 15 volleyball coaches, and 15 artistic gymnastics coaches selected through total sampling in Tugumulyo District, Musi Rawas Regency, Indonesia. Data were collected using validated and reliable four-point Likert-scale questionnaires and analyzed descriptively using percentage statistics. The findings revealed that overall perceptions were predominantly categorized as good (43%), followed by sufficient (37%), while coaches consistently demonstrated higher perception scores than Physical Education teachers across environmental, anthropometric, physical ability, and psychological indicators. These findings indicate that professional roles and practical experience influence perceptions of talent identification, highlighting the need for stronger collaboration between schools and sports clubs to improve evidence-based talent identification systems.

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Introduction

Sport has become an essential component of human development because it contributes to physical health, character formation, social integration, and international sporting achievement (Syahputra et al., 2021). The increasing competitiveness of modern sport has shifted athlete development from experience-based approaches toward evidence-based systems that emphasize long-term athlete development. Among the sports introduced from early age, volleyball and artistic gymnastics are considered strategic disciplines because both require the early development of specific physical, motor, and psychological characteristics to achieve elite performance. Consequently, identifying talented children at an early age has become a fundamental prerequisite for establishing an effective and sustainable athlete development system.

Talent identification is widely recognized as the foundation of long-term athlete development because it aims to identify individuals who possess characteristics consistent with the physiological and performance demands of a particular sport (Syahputra et al., 2021). Contemporary talent identification has evolved into a multidimensional process involving anthropometric, physical, physiological, psychological, and environmental characteristics rather than relying solely on observable sporting performance (Xiang et al., 2022). In volleyball and artistic gymnastics, successful athlete selection requires the integration of these multidimensional indicators because each sport possesses distinct biomechanical and performance requirements (M. et al., 2017; Mkaouer

et al., 2018). This evidence demonstrates that accurate talent identification should be based on comprehensive scientific assessment to increase the probability of developing future elite athletes.

Although scientific approaches to talent identification have been widely discussed in the literature, their implementation remains inconsistent, particularly in developing sports systems. Preliminary observations in Tugumulyo District, Musi Rawas Regency indicate that athlete recruitment is still predominantly conducted through subjective observation and practical judgment rather than standardized scientific assessment. Such practices may result in inappropriate sport selection, delayed athlete specialization, and the loss of children who possess high sporting potential. These conditions indicate that the gap between theoretical concepts of evidence-based talent identification and their practical implementation remains an important issue that requires further investigation.

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Method

This study employed a descriptive quantitative design to describe and compare the perceptions of Physical Education teachers and coaches regarding sports talent identification. The study was conducted in Tugumulyo District, Musi Rawas Regency, South Sumatra, Indonesia, involving 45 respondents selected through total sampling, consisting of 15 Physical Education teachers, 15 volleyball coaches, and 15 artistic gymnastics coaches, all of whom had experience in sports coaching or physical education. Data were collected using two structured closed-ended questionnaires with a four-point Likert scale developed based on four dimensions of sports talent identification: environmental, anthropometric, physical ability, and psychological indicators. The volleyball questionnaire consisted of 65 items, of which 58 were valid with excellent reliability (Cronbach's Alpha = 0.995), while the artistic gymnastics questionnaire consisted of 56 items, of which 50 were valid with excellent reliability (Cronbach's Alpha = 0.990). Data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations, and were subsequently classified into norm-referenced categories to facilitate the interpretation and comparison of perception levels between Physical Education teachers and coaches.

Results and Discussions

Identification of Volleyball Talent Based on the Perceptions of Physical Education Teachers and Volleyball Coaches

Descriptive statistics of research data on the perceptions of PJOK teachers and volleyball coaches in Tugumulyo District, Musi Rawas Regency regarding the identification of volleyball sport talent obtained the lowest score *(minimum)* 219, the highest score *(maximum)* 231, the average *(mean)* 226, the value that often appears *(mode)* 229, and the standard deviation (SD) 3.7. The norms for assessing the perceptions of PJOK teachers and volleyball coaches regarding the identification of volleyball sport talent are presented in the following table 2:

Table 1. Perception Assessment Norms for Volleyball

Formula	Interval	Category	Frequency	Percentage
$X > M + 1.5\ SD$	> 232	Very Good	0	0%
$M + 0.5\ SD < X \leq M + 1.5\ SD$	228–231	Good	13	43%
$M - 0.5\ SD < X \leq M + 0.5\ SD$	224–227	Fair	11	37%
$M - 1.5\ SD < X \leq M - 0.5\ SD$	220–223	Poor	5	17%
$X \leq M - 1.5\ SD$	< 219	Very Poor	1	3%
Total			30	100%

Based on the Assessment Norms in table 1 above, the perceptions of PJOK teachers and volleyball coaches in Tugumulyo District, Musi Rawas Regency regarding the identification of volleyball sport talent can be seen in the following image:

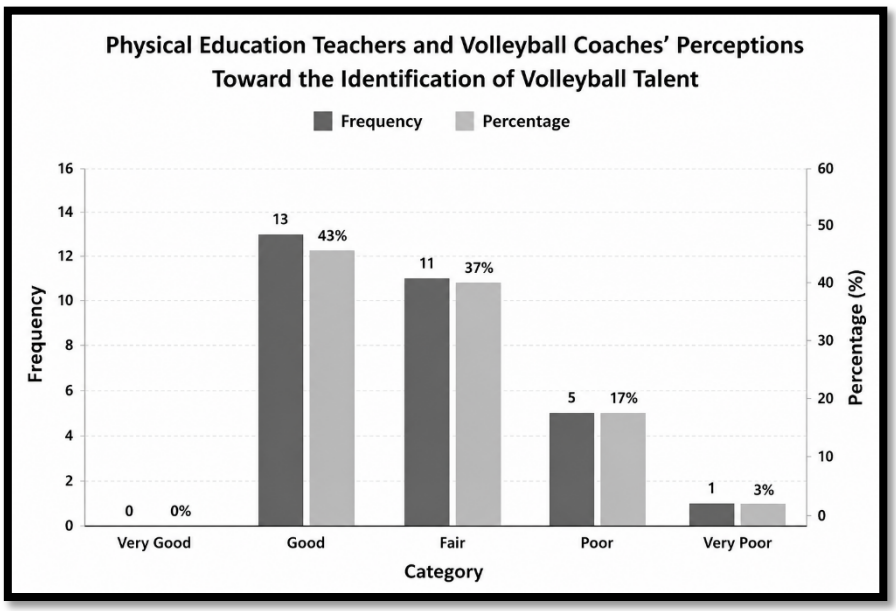

Figure 1 Perception Diagram of Volleyball Sport

Based on table 1 and figure 1 above, it shows that the perception of PJOK teachers and volleyball coaches in Tugumulyo District, Musi Rawas Regency regarding the identification of volleyball sport talent is in the category of "very poor" at 3% (1 person), "less" at 17% (5 people), "sufficient" at 37% (11 people), "good" at 43% (13 people), and "very good" at 0% (0 people). Then from the data on the perception category of PJOK teachers and volleyball coaches in Tugumulyo District, Musi Rawas Regency regarding the identification of volleyball sport talent above, differences were found which can be seen from the following table:

Table 2 Differences in Perception Categories of Volleyball Sports Branches

Respondents	Very Good	Good	Fair	Poor	Very Poor	Total
Physical Education Teachers	0% (0)	7% (1)	53% (8)	33% (5)	7% (1)	100% (15)
Volleyball Coaches	0% (0)	80% (12)	20% (3)	0% (0)	0% (0)	100% (15)

Based on table 2 above, the perception of 30 respondents regarding the identification of volleyball sport talent is divided into 2 professions, namely, PJOK teachers and volleyball coaches, each consisting of 15 people. The

data shows that of the total of 15 PJOK teachers, there are categories of "very poor" 7% (1 person), "less" by 33% (5 people), "sufficient" by 53% (8 people), "good" by 7% (1 person), and "very good" by 0% (0 people). Then, of the total of 15 volleyball coaches, the categories of "very poor" by 0% (0 people), "less" 0% (0 people), "sufficient" by 20% (3 people), "good" by 80% (12 people), and "very good" 0% (0 people). This reveals that there are differences in perception. The majority of PJOK teachers are in the "sufficient" category, while the majority of volleyball coaches are in the "good" category.

The details of the perception scores of PJOK teachers and volleyball coaches regarding the identification of volleyball sport talent show that volleyball coaches have a higher perception score for identifying volleyball sport talent than PJOK teachers, including the sub-indicators of school 294, parents 119, social 111, arm length 119, leg length 178, speed 235, agility 178, balance 180, coordination 240, flexibility 172, motivation 177, cooperation 238, mental toughness 179. Then PJOK teachers have a perception score for identifying volleyball sport talent including, school 285, parents 111, social 95, arm length 111, leg length 174, speed 214, agility 161, balance 173, coordination 235, flexibility 176, motivation 176, cooperation 236, and mental toughness 174. Then there are sub-indicators where the PJOK teacher has a higher perception score for identifying volleyball sport talent than the volleyball coach, namely in the strength sub-indicator of 175, while the volleyball coach has a score of 170. The indicators for which both have the same perception score are in the club sub-indicator 180, height 120, weight 180, explosive leg power 180, and endurance 180.

Identification of Talent in Artistic Gymnastics Based on the Perceptions of Physical Education Teachers and Artistic Gymnastics Coaches

Descriptive statistics of research data on the perceptions of PJOK teachers and artistic gymnastics coaches in Tugumulyo District, Musi Rawas Regency regarding talent identification in artistic gymnastics obtained the lowest score *(minimum)* 182, the highest score *(maximum)* 199, the average *(mean)* 192.5, the value that often appears *(mode)* 195, and the standard deviation (SD) 4.2. The assessment norms for the perceptions of PJOK teachers and artistic gymnastics coaches regarding talent identification in artistic gymnastics are presented in table 3 below

Table 3. Assessment Norms for Perception of Artistic Gymnastics

Formula	Interval	Category	Frequency	Percentage
$X > M + 1.5\ SD$	> 199	Very Good	1	3%
$M + 0.5\ SD < X \leq M + 1.5\ SD$	195–198	Good	11	37%
$M - 0.5\ SD < X \leq M + 0.5\ SD$	190–194	Fair	11	37%
$M - 1.5\ SD < X \leq M - 0.5\ SD$	186–189	Poor	5	17%
$X \leq M - 1.5\ SD$	< 185	Very Poor	2	7%
Total			30	100%

Based on table 3, it shows that the perception of PJOK teachers and artistic gymnastics coaches in Tugumulyo District, Musi Rawas Regency regarding talent identification in artistic gymnastics is in the category of "very poor" at 3% (1 person), "poor" at 17% (5 people), "sufficient" at 37% (11 people), "good" at 43% (13 people), and "very good" at 0% (0 people). Then, from the data on the perception categories of PJOK teachers and artistic gymnastics coaches in Tugumulyo District, Musi Rawas Regency regarding talent identification in artistic gymnastics above, differences were found which can be seen from the following table:

Table 4 Differences in Perception Categories of Artistic Gymnastics

Respondents	Very Good	Good	Fair	Poor	Very Poor	Total
Physical Education Teachers	0% (0)	7% (1)	53% (8)	33% (5)	7% (1)	100% (15)
Artistic Gymnastics Coaches	0% (0)	80% (12)	20% (3)	0% (0)	0% (0)	100% (15)

Based on table 4 above, the perception of 30 respondents regarding talent identification in artistic gymnastics is divided into 2 professions, namely, PJOK teachers and artistic gymnastics coaches, each consisting of 15 people. The data shows that of the total of 15 PJOK teachers, there are categories of "very poor" 7% (1 person), "less" by 33% (5 people), "sufficient" by 53% (8 people), "good" by 7% (1 person), and "very good" by 0% (0 people). Then, of the total of 15 artistic gymnastics coaches, the categories of "very poor" by 0% (0 people), "less" 0% (0 people), "sufficient" by 20% (3 people), "good" by 80% (12 people), and "very good" 0% (0 people). This reveals that there are differences in perception. The majority of PJOK teachers are in the "sufficient" category, while the majority of artistic gymnastics coaches are in the "good" category.

The details of the perception scores of PJOK teachers and volleyball coaches on talent identification for the sport of volleyball show that volleyball coaches have a higher perception score for talent identification for artistic gymnastics than PJOK teachers, including the sub-indicators of school 231, parents 169, clubs 234, social 106, height 163, strength 240, speed 168, endurance 180, muscle explosive power 180, coordination 180, agility 240, self-confidence 180, and intelligence 179. Then PJOK teachers have a perception score for talent identification for artistic gymnastics, including the sub-indicators of school 228, parents 162, clubs 225, social 98, height 153, strength 238, speed 146, endurance 174, muscle explosive power 179, coordination 178, balance 234, self-confidence 176, and intelligence 175. The indicators that both have the same perception scores , namely body weight sub-indicators 180, flexibility 120, and motivation 180.

The findings indicate that both Physical Education teachers and coaches recognize that sports talent identification should be based on environmental, anthropometric, physical, and psychological indicators rather than solely on observable performance. Although both professional groups demonstrated positive perceptions, coaches consistently assigned higher scores across most indicators, reflecting differences in professional responsibilities and practical experience. These findings support the multidimensional concept of talent identification proposed by Syahputra et al. (2021) and Xiang et al. (2022), which emphasizes integrating multiple factors when selecting prospective athletes. Similarly, athlete selection in volleyball and artistic gymnastics requires comprehensive evaluation because each sport has specific physical and performance characteristics (M et al., 2017; Mkaouer et al., 2018).

Regarding environmental and anthropometric factors, coaches generally placed greater emphasis on parental support, the social environment, and sport-specific body characteristics than Physical Education teachers. This finding reflects coaches' orientation toward long-term competitive performance, whereas teachers primarily observe students in educational settings. Nevertheless, both groups agreed that schools and sports clubs have complementary roles in identifying and developing talented children, while parental and social support provide important external influences on athlete development (Dahlan et al., 2022; Asmawi, 2022; Pradanata et al., 2024; Tresnowati & Panggraita, 2020; Triantoro & Andrijanto, 2021; Herlina et al., 2024; Jahrir & Hasyim, 2024). Likewise, both professions recognized that anthropometric characteristics remain fundamental criteria because body size and proportions directly influence performance in volleyball and artistic gymnastics (Gaziev et al., 2025; Pocek et al., 2021; Atikovic, 2020).

Physical ability emerged as the most influential dimension of talent identification in both sports. Coaches consistently assigned slightly higher scores than Physical Education teachers, reflecting their greater exposure to performance-based athlete evaluation. In volleyball, explosive leg power, speed, agility, coordination, balance, endurance, flexibility, and strength are essential for executing technical skills efficiently and maintaining performance throughout competition (Tillman et al., 2004; Syafruddin, 2019; Azzahra et al., 2024; Indarwan & Adi, 2025; Maulana et al., 2024; Widodo & Fadloli, 2025; Kurniawan et al., 2025; Supriyanto & Martiani, 2019). Despite slight differences in emphasis, both groups agreed that these physical attributes are indispensable for identifying volleyball talent.

A similar trend was observed in artistic gymnastics, where coaches consistently rated sport-specific physical abilities more highly than teachers. Both groups acknowledged that flexibility, strength, speed, endurance, explosive power, coordination, and balance are essential because they determine technical execution, movement quality, and athlete safety. These findings are consistent with previous studies highlighting the importance of flexibility (Mara & Çobaj, 2025), strength (Eshtayev et al., 2025), speed (Moeskops et al., 2019), endurance (Mkaouer et al., 2023), explosive power (Marefat et al., 2021), coordination (Ibrahim et al., 2026), and balance (Omorczyk et al., 2022) in artistic gymnastics. Overall, both professions demonstrated strong agreement that comprehensive physical assessment is fundamental to evidence-based talent identification.

Psychological factors were also considered essential by both Physical Education teachers and coaches, although coaches consistently assigned slightly higher scores. In volleyball, motivation, teamwork, and mental resilience were viewed as critical for sustaining training commitment and maintaining performance under competitive pressure (Yadi et al., 2025; Nurfitriyani et al., 2022; Shieh et al., 2023). Likewise, in artistic gymnastics, motivation, self-confidence, and intelligence were regarded as important for mastering complex skills and supporting consistent performance (Munkácsi et al., 2012; Prastyawan et al., 2023; Gavojdea, 2018; Yang, 2026). These findings confirm that psychological assessment should complement physical and anthropometric evaluation during talent identification.

The higher perception scores reported by coaches appear to reflect differences in professional roles and competitive experience rather than disagreement regarding the importance of talent identification indicators. While teachers emphasize fundamental motor development and educational values, coaches focus on sport-specific performance requirements. This study therefore extends previous research, which has primarily

examined athletes' physical characteristics (M et al., 2017; Mkaouer et al., 2018; Xiang et al., 2022), by comparing the perceptions of two professional groups across volleyball and artistic gymnastics using environmental, anthropometric, physical, and psychological dimensions. These findings highlight the importance of strengthening collaboration between schools and sports clubs to establish more objective and evidence-based talent identification systems. Nevertheless, the relatively small sample size and reliance on self-reported perceptions limit the generalizability of the findings. Future studies should employ larger samples and objective assessment methods to validate talent identification across different sports contexts.

Conclusions

This study concludes that both Physical Education teachers and coaches recognize the importance of environmental, anthropometric, physical ability, and psychological indicators in the talent identification process for volleyball and artistic gymnastics. However, coaches demonstrated consistently higher perceptions than Physical Education teachers across most indicators, reflecting differences in professional roles, practical experience, and performance-oriented responsibilities. These findings indicate that although both professions share a common understanding of evidence-based talent identification, their perspectives differ in emphasizing sport-specific characteristics required for athlete selection and development. Therefore, strengthening collaboration between schools and sports clubs through standardized, evidence-based talent identification procedures is essential to improve the accuracy of athlete selection and support the long-term development of talented young athletes in volleyball and artistic gymnastics.

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