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Gender and regional differences in physical education teachers' perspectives on basketball instruction in Slovakia

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ABSTRACT

Basketball is a central component of physical education in Slovak schools, contributing to students' physical, cognitive and social development. The success of basketball instruction largely depends on the competencies, experiences and attitudes of physical education (PE) teachers. This study explores Slovak PE teachers' opinions, practices and challenges related to basketball teaching. A cross-sectional survey was conducted among 1168 PE teachers (635 men and 533 women) from 635 schools during the 2023/2024 academic year. Significant gender-based and regional differences were identified. Male teachers favored sports games, particularly football and applied technical teaching approaches more often, while female teachers preferred gymnastics, volleyball and game-oriented strategies. Urban teachers expressed more favorable attitudes toward basketball, taught it more frequently and reported better equipment availability compared to rural teachers. However, all groups cited limited time and low interest in teaching basketball as common shortcomings. Basketball instruction in Slovak schools is shaped by both teacher gender and school setting. These findings underscore the need for targeted professional development, enhanced infrastructure and curriculum reform to ensure equitable and effective basketball education. By addressing these factors, the study provides a foundation for improving teaching practices and supporting more inclusive PE across diverse school contexts.

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Introduction

Basketball is one of the most popular team sports globally, widely recognized not only for its fast-paced and exciting nature but also for the many benefits it brings to players. It helps develop physical fitness by improving strength, endurance and coordination, while also enhancing fine and gross motor skills. Beyond the physical aspect, basketball encourages teamwork, communication and discipline, as players must work together to achieve common goals. The sport also sharpens strategic thinking and decision-making, since quick judgments and tactical plays are essential for success on the court (Aksović et al., 2024; Farhat et al., 2025; Kuhtz-Buschbeck & Keller, 2019; Lam et al., 2018; Marić et al., 2013; Mihajlovic et al., 2023; Morrison et al., 2022). Basketball is a globally recognized sport with a dynamic presence across continents, marked by highly competitive leagues, extensive youth development systems and consistent international performances (Alemany-Isturriaga et al., 2024; Gottlieb et al., 2021; Kioumourtzoglou et al., 1998; Mancha-Triguero et al., 2019; Morrison et al., 2022).

However, the position of Slovak basketball within this global framework remains relatively weak. This is evident through Slovakia's limited success in major international tournaments such as the FIBA Basketball World Cup, the Olympic Games and the EuroBasket championships.

In Slovakia, basketball holds a significant position in school physical education (PE) curricula, aiming to enhance students' overall athletic abilities and foster their interest in sports. However, the effectiveness of basketball instruction in schools depends largely on the perspectives, competencies and

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attitudes of PE teachers. PE teachers play a fundamental role in the early identification, development and nurturing of basketball talent within the school environment (Maimón et al., 2020; Shao & Sun, 2022; Stolz & Pill, 2014). As the first formal gatekeepers to structured sport experiences for many children and adolescents, they are often responsible not only for teaching the basic technical and tactical elements of the game, but also for cultivating a positive relationship with sport and recognizing individual potential. In the context of basketball, which requires a complex combination of physical, cognitive and social competencies (Cao et al., 2024; Luo et al., 2023; Montgomery et al., 2010; Ziv & Lidor, 2009), the teacher's role becomes particularly significant.

Most previous studies on basketball in education have been carried out in broader international contexts, emphasizing motor development, tactical learning or general benefits of the sport. However, the specific perspectives of Slovak teachers remain underexplored, despite their crucial role as the first gatekeepers to structured basketball experiences for youth. Understanding their attitudes and practices could provide insights into how basketball is taught in schools, where barriers exist and what opportunities might strengthen basketball's position in Slovakia. Therefore, this study aims to examine Slovakian PE teachers' opinions on the teaching of basketball, focusing on their attitudes, perceived challenges and pedagogical approaches.

Materials and methods

This study employed a cross-sectional design using a structured survey to examine Slovak PE teachers' opinions on basketball instruction. Schools were purposively selected to ensure geographical diversity, representing western, central and eastern regions of Slovakia, as well as both urban and rural contexts, to capture a broad spectrum of educational environments. The questionnaire consisted of items addressing demographic and professional background (e.g. gender, age, teaching experience, school type) and basketball-related aspects, such as the frequency of teaching basketball, instructional approaches, availability of resources and preferences for specific sports activities. One item specifically inquired about the number of PE hours allocated in the curriculum. Data collection was carried out during the 2023/2024 academic year through an online survey distributed via school administrations, who then forwarded it to their PE staff. Participation in this study was entirely voluntary and anonymous. Prior to completing the online survey, all participants were provided with written information about the purpose of the research, data confidentiality and their right to withdraw at any time without penalty. By proceeding with the survey, teachers confirmed their written informed consent to participate. The study was approved by the Ethics Committee of Matej Bel University under the reference number 943/2024.

The sample

The study involved 1168 PE teachers in total, including 635 male and 533 female participants (Table 1). PE teachers in Slovakia come from various regions, with the largest share originating from the Prešov Region, representing 26.37%. This is followed by the Žilina Region with 22.26% and the Banská Bystrica Region with 20.55%, indicating a strong presence of teachers from central and eastern Slovakia. A significant proportion also comes from the Trenčín Region with 12.16% and the Košice Region with 10.53%. In contrast, there is a smaller representation from the Trnava Region, accounting for 4.45%, and the Bratislava Region, which has the lowest share at 3.68%. These figures suggest that most PE teachers in this study come from central and eastern regions, while the western regions have a lower representation. All demographics and professional characteristics are shown in Table 1.

Data collection

The data for this study were collected through a survey administered in 635 primary and secondary schools across 47 districts of Slovakia. A total of 1168 teachers participated in the study, comprising 635 men and 533 women. Of these participants, 650 were employed at urban schools, while 518 were from rural schools. The schools were selected to ensure a diverse representation of geographical regions and school types within the Slovak education system.

Table 1. Demographic and professional characteristics of PE teachers.

	Men (<i>n</i> = 635, 54.37%)	Women (<i>n</i> = 533, 45.63%)
Age	Under 31 (<i>n</i> = 91, 14.33%) 31–40 (<i>n</i> = 159, 25.04%) 41–50 (<i>n</i> = 234, 36.85%) 51–60 (<i>n</i> = 116, 18.27%) Above 60 (<i>n</i> = 35, 5.51%)	Under 31 (<i>n</i> = 59, 11.07%) 31–40 (<i>n</i> = 145, 27.20%) 41–50 (<i>n</i> = 212, 39.77%) 51–60 (<i>n</i> = 99, 18.57%) Above 60 (<i>n</i> = 18, 3.38%)
Length of pedagogical teaching	Under 5 (<i>n</i> = 94, 14.80%) 5–10 (<i>n</i> = 129, 20.31%) 11–20 (<i>n</i> = 203, 31.97%) 21–30 (<i>n</i> = 142, 22.36%) 31–40 (<i>n</i> = 67, 10.55%)	Under 5 (<i>n</i> = 77, 14.45%) 5–10 (<i>n</i> = 203, 19.32%) 11–20 (<i>n</i> = 174, 32.65%) 21–30 (<i>n</i> = 123, 23.08%) 31–40 (<i>n</i> = 56, 10.51%)
Type of school	City school (60.00%) Rural school (40.00 %)	City school (50.47%) Rural school (49.53%)
Preference of leisure activities	Individual (39.21%) Collective (60.79%)	Individual (55.16%) Collective (44.84%)
Level of previous basketball playing		
Top level of sport	(1.26%)	(1.31%)
Performance level	(7.09%)	(5.44%)
Recreational	(66.77%)	(58.73%)
I didn't play basketball	(24.88%)	(34.52%)
Presence of basketball club		
We have a school class, and I'm the one leading it.	<i>n</i> = 47 (7.40%)	<i>n</i> = 35 (6.57%)
We have a school class, and I'm not leading it.	<i>n</i> = 112 (17.64%)	<i>n</i> = 77 (14.45%)
We don't have a school class	<i>n</i> = 476 (74.96%)	<i>n</i> = 421 (78.99%)

Statistical analysis

To assess the statistical significance of relationships between men and women in the examined indicators, an asymptotic Pearson's chi-square test of independence for $r \times s$ contingency tables was conducted as part of the inferential data analysis. The sample effect size was measured using Cramér's V coefficient, which is integral to the chi-square independence test procedure. The coefficient was interpreted as follows: $V > 0.25$ = very strong effect, $V > 0.15$ = strong effect, $V > 0.10$ = moderate effect, $V > 0.05$ = weak effect and $V > 0$ = no or very weak effect. The probability of a Type I error was set at $\alpha = 0.01$ and 0.05. Statistical analyses were conducted using IBM SPSS Statistics for Windows, Version 28.0 (IBM Corp., Armonk, NY, USA).

Results

Comparison between male and female

The analysis revealed several statistically significant differences between male and female PE teachers regarding their preferences and practices in teaching physical and sports education (Table 2). In identifying the most favorably taught activities, males predominantly favored sports games (72.29%), significantly more than females (54.97%). In contrast, females reported a higher preference for sports gymnastics (19.14%) and activities realized in a natural environment (15.38%) compared to males (9.92% and 11.34%, respectively). These differences were statistically significant, $\chi^2(4) = 44.812$, $p < 0.01$, Cramér's $V = 0.20$, indicating a moderate association.

When considering the least favorably taught activities, both genders most frequently reported sports games (males: 58.59%; females: 53.66%). However, females more often identified gymnastics and other activities as less favorable, whereas males more frequently listed athletics and activities in nature. The observed differences were statistically significant, $\chi^2(4) = 21.410$, $p < 0.01$, $V = 0.14$, representing a small-to-moderate association.

Regarding collective sport games, males most favorably taught football (34.49%), followed by floorball (23.15%) and volleyball (20.63%). Females showed a strong preference for volleyball (43.90%) and basketball (21.58%). These gender differences were highly significant, $\chi^2(5) = 203.005$, $p < 0.01$, $V = 0.42$. Conversely, handball was the least favorably taught game among males (45.83%) and females (32.65%). Females also indicated football (27.58%) and floorball (18.57%) as less favored, while males showed a more even distribution among other games. These patterns were statistically significant, $\chi^2(5) = 122.947$, $p < 0.01$, $V = 0.32$, pointing to a moderate-to-strong association.

In terms of instructional approaches to basketball, males more frequently employed a technical didactic approach (42.04%) compared to females (37.15%), whereas the game-oriented didactic approach was nearly equally used (males: 54.49%; females: 55.34%). Although the effect size was small, the difference was statistically significant, $\chi^2(2) = 10.696$, $p < 0.01$, $V = 0.10$, suggesting a small association.

Analysis of basketball equipment availability showed that males reported sufficient equipment more often (89.92%) than females (85.55%), $\chi^2(1) = 5.208$, $p < 0.05$, $V = 0.07$ indicates a weak association. Lastly, when asked about the main shortcomings in teaching basketball, both groups most frequently cited low interest in teaching basketball and insufficient time allocation. These differences, however, were not statistically significant, $\chi^2(4) = 1.171$, $p > 0.05$, $V = 0.03$, confirming a negligible association. All comparisons between males and females are shown in [Table 2](#).

The comparative analysis between PE teachers from urban and rural schools revealed several significant differences in their teaching preferences, practices and the perceived conditions for basketball instruction ([Table 3](#)).

In terms of the most favorably taught activities, teachers from rural schools showed a significantly higher preference for sports games (68.34%) compared to their urban counterparts (61.23%). Conversely, urban teachers reported a slightly higher preference for athletics and gymnastics. However, these differences were not statistically significant, $\chi^2(4) = 9.382$, $p > 0.05$, $V = 0.09$, indicating a small association.

When analyzing the least favorably taught activities, sports games were the most frequently cited by both groups (urban: 54.61%; rural: 58.49%), followed by athletics and gymnastics. Differences in this category were not statistically significant either, $\chi^2(4) = 2.060$, $p > 0.05$, $V = 0.04$, reflecting a negligible association.

Significant differences emerged in the preferences for specific collective sport games. Teachers in urban schools showed a more balanced distribution across football (21.23%), basketball (21.23%) and volleyball (32.00%). In contrast, rural teachers favored football (23.55%) and volleyball (30.31%) but were less likely to choose basketball (14.67%). These differences were statistically significant, $\chi^2(5) = 12.366$, $p < 0.05$, $V = 0.10$, representing a small association.

Regarding the least favorably taught collective games, handball was most frequently cited by both groups (urban: 39.85%; rural: 39.77%), followed by football and floorball. No statistically significant differences were observed in this domain, $\chi^2(5) = 0.803$, $p > 0.05$, $V = 0.03$, confirming a negligible association.

A significant disparity was found in the self-reported attitude toward teaching basketball. Urban teachers reported a more favorable stance, with 29.69% stating they teach basketball 'very favorably' and 45.85% 'favorably', compared to 18.53% and 52.51% respectively among rural teachers. The differences were statistically significant, $\chi^2(5) = 25.649$, $p < 0.01$, $V = 0.15$, suggesting a small-to-moderate association.

Urban teachers also reported more frequent instruction of basketball within the range of 6–10 h per thematic unit (56.15%) compared to rural teachers (51.54%), whereas rural teachers were more likely to teach it for fewer than 6 h (30.70%). These differences were statistically significant, $\chi^2(5) = 34.692$, $p < 0.01$, $V = 0.17$, indicating a moderate association.

In terms of didactic approaches, both urban and rural teachers predominantly employed a game-oriented strategy (urban: 56.15%; rural: 53.28%). However, a higher percentage of rural teachers reported not teaching basketball at all (7.14% vs. 3.85%), $\chi^2(2) = 6.348$, $p < 0.05$, $V = 0.07$, which represents a weak association.

When examining the form in which basketball is played during lessons, both groups favored modified rules (urban: 57.38%; rural: 58.11%), with official rules used less frequently. A significant difference was observed in the proportion of teachers not teaching basketball, which was higher in rural schools (7.14%) than in urban ones (3.85%), $\chi^2(3) = 8.851$, $p < 0.05$, $V = 0.09$, showing a small association.

Availability of equipment was perceived more positively by urban teachers (91.54%) than by those in rural areas (83.40%), a statistically significant difference, $\chi^2(1) = 17.998$, $p < 0.01$, $V = 0.12$, suggesting a small-to-moderate association.

Finally, regarding the main shortcomings in basketball instruction, both groups most frequently cited low interest in teaching basketball and insufficient time allocation. However, urban teachers more often identified lack of spatial provision (23.38%) and time (29.69%), while rural teachers more frequently cited lack of material and technical resources (9.84%). The overall differences were statistically significant,

Table 2. The comparative analysis between PE teachers from urban and rural schools.

Which activity in PE and sports classes do you enjoy teaching the most?							
	Activities realized in natural environment	Athletics	Sports gymnastics	Sports games	Other	Statistical analysis	
Men	72 (11.34%)	63 (9.92%)	23 (3.62%)	459 (72.29%)	18 (2.83%)	$\chi^2(4) = 44.812, p < 0.01, V = 0.20, p < 0.01$	
Women	82 (15.38%)	102 (19.14%)	43 (8.07%)	293 (54.97%)	13 (2.44%)		
Which activity in PE and sports classes do you teach the least favorably?							
	Activities realized in natural environment	Athletics	Sports gymnastics	Sports games	Other	Statistical analysis	
Men	63 (9.92%)	90 (14.17%)	372 (58.59%)	23 (3.62%)	87 (13.70%)	$\chi^2(4) = 21.410, p < 0.01, V = 0.14, p < 0.01$	
Women	62 (11.63%)	80 (15.01%)	286 (53.66%)	51 (9.57%)	54 (10.13%)		
Which team sport do you most enjoy teaching?							
	Basketball	Football	Floorball	Handball	Volleyball	Other	Statistical analysis
Men	99 (15.59%)	219 (34.49%)	147 (23.15%)	18 (2.83%)	131 (20.63%)	21 (3.31%)	$\chi^2(5) = 203.005, p < 0.01, V = 0.42, p < 0.01$
Women	115 (21.58%)	41 (7.69%)	57 (10.69%)	48 (9.01%)	234 (43.90%)	38 (7.13%)	
Which collective sport game do you teach the least favorably?							
	Basketball	Football	Floorball	Handball	Volleyball	Other	Statistical analysis
Men	90 (14.17%)	52 (8.19%)	57 (8.98%)	291 (45.83%)	89 (14.01%)	56 (8.82%)	$\chi^2(5) = 122.947, p < 0.01, V = 0.32, p < 0.01$
Women	53 (9.94%)	147 (27.58%)	99 (18.57%)	174 (32.65%)	37 (6.94%)	23 (4.32%)	
You teach basketball							
	Very favorable	Favorable	Cannot judge	Unfavourably	Very unfavourably	Don't teach basketball	Statistical analysis
Men	173 (27.24%)	316 (49.76%)	68 (10.71%)	51 (8.03%)	5 (0.79%)	22 (3.47%)	$\chi^2(5) = 15.193, p > 0.05, V = 0.11, p > 0.05$
Women	116 (21.76%)	254 (47.66%)	71 (13.32%)	45 (8.44%)	7 (1.31%)	40 (7.51%)	
How much time do you most often spend teaching basketball in one grade?							
	Up to 6 h in one thematic unit	6–10 h in one thematic unit	11–15 h in one thematic unit	More than 15 h in one thematic unit	Don't teach basketball	Other	Statistical analysis
Men	133 (20.95%)	354 (55.75%)	106 (16.69%)	18 (2.83%)	22 (3.47%)	2 (0.31%)	$\chi^2(5) = 36.146, p < 0.01, V = 0.18, p < 0.01$
Women	160 (30.02%)	278 (52.16%)	47 (8.81%)	7 (1.1%)	40 (7.51%)	1 (0.19%)	
What approach do you most often use to teach basketball in one grade?							
	Game-oriented didactic approach	Technically didactic approach	Don't teach basketball	Statistical analysis			
Men	346 (54.49%)	267 (42.04%)	22 (3.47%)	$\chi^2(2) = 10.696, p < 0.01, V = 0.10, p < 0.01$			
Women	295 (55.34%)	198 (37.15%)	40 (7.51%)				
In your teaching, students most often play basketball:							
	According to official rules	With modified rules	Without rules	Don't teach basketball	Statistical analysis		
Men	224 (35.27%)	378 (59.53%)	11 (1.73%)	22 (3.47%)	$\chi^2(3) = 11.341, p > 0.05, V = 0.10, p > 0.05$		
Women	182 (34.15%)	296 (55.53%)	15 (2.81%)	40 (7.51%)			
For teaching basketball, your school has:							
	Sufficient equipment	Insufficient equipment	Statistical analysis				
Men	571 (89.92%)	64 (10.08%)	$\chi^2(1) = 5.208, p < 0.05, V = 0.07, p < 0.05$				
Women	456 (85.55%)	77 (14.45%)					
What do you consider the main shortcoming for teaching basketball in physical and sports education at your school?							
	Insufficient material and technical equipment	Insufficient spatial provision	Insufficient time allocation for the subject	Low interest in teaching basketball	Other	Statistical analysis	
Men	41 (6.46%)	141 (22.20%)	178 (28.03%)	220 (34.65%)	55 (8.66%)	$\chi^2(4) = 1.171, p > 0.5, V = 0.03, p > 0.05$	
Women	43 (8.07%)	119 (22.33%)	146 (27.39%)	180 (33.77%)	45 (8.44%)		

Table 3. Comparison between city and rural school.

Which activity in PE and sports classes do you enjoy teaching the most?					
	Activities realized in natural environment	Athletics	Sports gymnastics	Sports games	Other
City school	101 (15.54%)	97 (14.92%)	38 (5.85%)	398 (61.23%)	16 (2.46%)
Rural school	53 (10.23%)	68 (13.13%)	28 (5.40%)	354 (68.34%)	15 (2.90%)
Which activity in PE and sports classes do you teach the least favorably?					
	Activities realized in natural environment	Athletics	Sports gymnastics	Sports games	Other
City school	71 (10.92%)	101 (15.54%)	355 (54.61%)	43 (6.62%)	80 (12.31%)
Rural school	54 (10.43%)	69 (13.32%)	303 (58.49%)	31 (5.98%)	61 (11.78%)
Which team sport do you most enjoy teaching?					
	Basketball	Football	Floorball	Handball	Volleyball
City school	138 (21.23%)	138 (21.23%)	107 (16.46%)	30 (4.62%)	208 (32.00%)
Rural school	76 (14.67%)	122 (23.55%)	97 (18.73%)	36 (6.95%)	157 (30.31%)
Which collective sport game do you teach the least favorably?					
	Basketball	Football	Floorball	Handball	Volleyball
City school	76 (11.69%)	109 (16.77%)	90 (13.84%)	259 (39.85%)	72 (11.08%)
Rural school	67 (12.93%)	90 (17.37%)	66 (12.74%)	206 (39.77%)	54 (10.43%)
You teach basketball					
	Very favorable	Favorable	Cannot judge	Unfavourable	Very unfavourable
City school	193 (29.69%)	298 (45.85%)	70 (10.77%)	58 (8.92%)	6 (0.92%)
Rural school	96 (18.53%)	272 (52.51%)	69 (13.32%)	38 (7.34%)	6 (1.16%)
How much time do you most often spend teaching basketball in one grade?					
	Up to 6 h in one thematic unit	6–10 h in one thematic unit	11–15 h in one thematic unit	More than 15 h in one thematic unit	Don't teach basketball
City school	134 (20.62%)	365 (56.15%)	108 (16.62%)	17 (2.61%)	25 (3.85%)
Rural school	159 (30.70%)	267 (51.54%)	45 (8.69%)	8 (1.54%)	37 (7.14%)
What approach do you most often use to teach basketball in one grade?					
	Game-oriented didactic approach	Technically didactic approach	Don't teach basketball	Statistical analysis	
City school	365 (56.15%)	260 (40.00%)	25 (3.85%)	$\chi^2(2) = 6.348, p < 0.05,$	
Rural school	276 (53.28%)	205 (39.58%)	37 (7.14%)	$V = 0.07, p < 0.05$	
In your teaching, students most often play basketball:					
	According to official rules	With modified rules	Without rules	Don't teach basketball	Statistical analysis
City school	240 (36.92%)	373 (57.38%)	12 (1.85%)	25 (3.85%)	$\chi^2(3) = 8.851, p < 0.05,$
Rural school	166 (32.05%)	301 (58.11%)	14 (2.70%)	37 (7.14%)	$V = 0.09, p < 0.05$
For teaching basketball, your school has:					
	Sufficient equipment	Insufficient equipment		Statistical analysis	
City school	595 (91.54%)	55 (8.46%)		$\chi^2(1) = 17.998, p < 0.01,$	
Rural school	432 (83.40%)	86 (16.60%)		$V = 0.12, p < 0.01$	
What do you consider the main shortcoming for teaching basketball in physical and sports education at your school					
	Insufficient material and technical equipment	Insufficient spatial provision	Insufficient time allocation for the subject	Low interest in teaching basketball	Other
City school	33 (5.08%)	152 (23.38%)	193 (29.69%)	208 (32.00%)	64 (9.85%)
Rural school	51 (9.84%)	108 (20.85%)	131 (25.29%)	192 (37.07%)	36 (6.95%)

$\chi^2(4) = 16.946, p < 0.01, V = 0.12$, pointing to a small-to-moderate association. All comparisons between city and rural schools are shown in Table 2.

Discussion

The present study identified notable gender-based differences in the preferences and practices of PE teachers, particularly in the context of activity selection and instructional strategies. These findings align with previous research suggest that pedagogical choices in PE are influenced not only by curriculum

and institutional conditions, but also by teachers' own interests, experiences and gender-based socialization (Routledge & CRC Press, n.d., K. L. Oliver & Kirk 2015). A key finding was the significantly greater preference among male teachers for teaching sports games, especially football, while female teachers showed a stronger inclination toward gymnastics, volleyball and activities realized in a natural environment. This trend is consistent with earlier studies indicating that male teachers often gravitate toward traditionally male-dominated team sports, whereas female teachers are more likely to engage with disciplines that emphasize individual skills, esthetics or holistic movement experiences (Castejón & Giménez, 2015; Oliver & Kirk, 2016). The strong preference of female teachers for volleyball and their relatively low favorability toward football and handball may reflect both personal competence and perceived student engagement. Interestingly, while both genders identified handball as one of the least favored games, this sentiment was more pronounced among male teachers. This could be associated with infrastructural limitations or lower student interest, both of which have been highlighted in earlier qualitative studies (Peric et al., 2020). Instructional approach differences were also apparent. Males were more likely to use a technically oriented didactic approach in teaching basketball, whereas females leaned slightly more toward game-oriented instruction. This subtle divergence could stem from differing pedagogical priorities, with males perhaps emphasizing skill execution and performance outcomes, and females focusing on participation and inclusive engagement. Although these trends were statistically significant, the effect size was small, indicating that both genders utilize a range of instructional methods.

Interestingly, despite the observed differences in specific activity preferences and teaching strategies, there was broad agreement on systemic shortcomings. Both male and female teachers most cited a lack of time allocated to PE and a low interest in teaching certain activities, particularly basketball. This suggests the need for structural and curricular support to enhance engagement and provide teachers with better conditions for implementing diverse and meaningful PE programs.

The comparison between PE teachers in urban and rural schools revealed contextually grounded differences in teaching preferences, instructional strategies and perceived conditions, particularly in relation to basketball instruction. The key contribution of this study lies in its novelty, which is reflected on several levels. Firstly, it represents one of the first systematic analyses of PE teachers' opinions on basketball instruction in Slovakia, thereby complementing the existing international research with a previously absent regional perspective (Stolz & Pill, 2014). The novelty of the results is also evident in the identification of contextual differences between urban and rural schools: teachers in urban settings demonstrate a more positive attitude toward basketball, teach it more frequently and report better material and technical resources, whereas teachers in rural schools face greater limitations in available resources. In this respect, the study directly addresses the issue of educational equity, which has so far been only marginally reflected in the literature on PE.

Although no significant differences were found in the overall preferences for teaching general PE activities, teachers in rural schools reported a slightly higher inclination toward sports games. This may be attributed to the typically simpler organizational and spatial demands of team sports, which are more feasible in schools with limited equipment or facilities. Urban teachers, by contrast, demonstrated a marginally broader distribution of interest across a wider spectrum of activities, potentially reflecting more diverse infrastructure and curricular flexibility.

While this study provides valuable insights into the attitudes and practices of PE teachers in Slovakia regarding basketball instruction, this study has several limitations that should be considered when interpreting the findings. Firstly, the data were collected through an online self-reported survey, which introduces potential response bias. Teachers may have provided socially desirable answers, overstated positive practices or underreported challenges due to professional or institutional expectations. Secondly, the online format of data collection likely excluded teachers with limited digital literacy or reduced access to technology, which may have contributed to underrepresentation of certain schools, particularly from rural or resource-constrained regions. Thirdly, the study relied solely on quantitative survey data, which prevented deeper exploration of teachers' pedagogical reasoning, experiences and contextual barriers. Future research should therefore adopt mixed-method approaches, combining surveys with interviews or focus groups to capture richer insights. Finally, broader systemic factors, including differences in school funding, teacher education pathways or national curriculum priorities, were not examined, though they likely influence both teaching practices and the availability of basketball

instruction. Addressing these limitations in future research would enhance the robustness of findings and provide stronger evidence for policy and curriculum reforms.

Conclusion

This study reveals that gender and school setting significantly shape basketball instruction in Slovak schools. Male teachers favored and technical approaches, while female teachers leaned toward volleyball and game-oriented strategies. Urban schools provided better conditions for basketball, whereas rural schools faced resource shortages. Across all groups, limited time and low interest emerged as common barriers.

These findings highlight the need for curriculum reform that increases allocated hours for basketball, professional training that equips teachers with modern, student-centered methods and targeted investment in facilities, especially in rural schools. Addressing these areas can enhance both equity and effectiveness in basketball education and support broader student participation.

Disclosure statement

The authors declare no conflict of interest.

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Data availability statement

The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

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