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RESEARCH ARTICLE

สภาพปัจจุบันของการเรียนและการมีส่วนร่วมในกิจกรรมบาสเกตบอลตามมิติด้านผู้เรียนและบริบทที่คัดเลือกของนักศึกษาสาขาพลศึกษา มหาวิทยาลัยซิงไท

CURRENT SITUATION OF BASKETBALL LEARNING AND PARTICIPATION ACROSS SELECTED LEARNER- AND CONTEXT-RELATED DIMENSIONS AMONG PHYSICAL EDUCATION STUDENTS AT XINGTAI UNIVERSITY

เพงเฟย ซง[1] เอกศักดิ์ เฮงสุโข[1*] และพงศธร สุกิจญาณ[1]
Pengfei Song[1], Ekasak Hengsuko[1*] and Pongsatorn Sukityarn[1]
[1]สาขาวิชาพลศึกษาและสุขศึกษา คณะครุศาสตร์ มหาวิทยาลัยราชภัฏอุดรธานี จังหวัดอุดรธานี
[1]Physical Education and Health Education, Faculty of Education, Udon Thani Rajabhat University, Udon Thani province
[*]Corresponding author: Ekasak Hengsuko; Email: ekasak.he@udru.ac.th

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บทคัดย่อ

การวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาสภาพปัจจุบันของการเรียนและการมีส่วนร่วมในกิจกรรมบาสเกตบอลตามมิติด้านผู้เรียนและบริบทที่คัดเลือกของนักศึกษาสาขาพลศึกษา มหาวิทยาลัยซิงไท การวิจัยนี้ใช้ระเบียบวิธีวิจัยแบบผสมเชิงอธิบายตามลำดับที่เน้นข้อมูลเชิงปริมาณเป็นหลัก โดยเก็บข้อมูลเชิงปริมาณจากแบบสอบถามและใช้การสัมภาษณ์กึ่งโครงสร้างเป็นข้อมูลเชิงคุณภาพเพื่ออธิบายและสนับสนุนผลการวิเคราะห์เชิงปริมาณ กลุ่มเป้าหมายเชิงปริมาณคือ นักศึกษาสาขาพลศึกษา มหาวิทยาลัยซิงไท จำนวน 406 คน และผู้ให้ข้อมูลเชิงคุณภาพคือ นักศึกษา 8 คน และครู 5 คน เครื่องมือวิจัยประกอบด้วยแบบสอบถามมาตรประมาณค่า 5 ระดับ และแบบสัมภาษณ์กึ่งโครงสร้าง วิเคราะห์ข้อมูลเชิงปริมาณด้วยความถี่ ร้อยละ ค่าเฉลี่ย และส่วนเบี่ยงเบนมาตรฐาน ส่วนข้อมูลเชิงคุณภาพวิเคราะห์โดยการจัดหมวดหมู่ประเด็นจากการสัมภาษณ์ ผลการวิจัยพบว่า สภาพการเรียนและการมีส่วนร่วมในกิจกรรมบาสเกตบอลของนักศึกษาโดยรวมอยู่ในระดับสูง มิติที่มีค่าเฉลี่ยสูงสุด ได้แก่ การออกแบบและการประเมินรายวิชา และความพึงพอใจโดยรวม ซึ่งมีค่าเฉลี่ยเท่ากัน (M = 4.47) รองลงมาคือ บรรยากาศบาสเกตบอลในวิทยาเขต (M = 4.45) การรับรู้และทัศนคติต่อบาสเกตบอล (M = 4.42) วิธีการสอน (M = 4.40) และความกระตือรือร้นในการมีส่วนร่วม (M = 4.38) อย่างไรก็ตาม ความชำนาญทักษะ (M = 4.32) และสนามและสิ่งอำนวยความสะดวก (M = 4.29) ยังคงอยู่ในระดับสูง แต่มีค่าเฉลี่ยอยู่ในลำดับท้ายเมื่อเปรียบเทียบกับมิติอื่น ผลเชิงคุณภาพสะท้อนว่านักศึกษาสามารถเข้าร่วมกิจกรรมในชั้นเรียนได้ แต่การฝึกซ้อมด้วยตนเองหลังชั้นเรียนยังมีจำกัด ผลการวิจัยชี้ให้เห็นว่าสภาพการเรียนและการมีส่วนร่วมในกิจกรรมบาสเกตบอลของนักศึกษาโดยรวมอยู่ในระดับสูง แต่ยังควรให้ความสำคัญกับทรัพยากรสนาม การฝึกซ้อมนอกชั้นเรียน และการพัฒนาทักษะอย่างต่อเนื่อง

คำสำคัญ: สภาพปัจจุบัน, การเรียนบาสเกตบอล, การมีส่วนร่วมในกิจกรรมบาสเกตบอล, นักศึกษาสาขาพลศึกษา, มหาวิทยาลัยซิงไท

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Abstract

This study aimed to examine the current situation of basketball learning and participation across selected learner- and context-related dimensions among physical education students at Xingtai University. This study employed a quantitative-dominant explanatory sequential mixed-methods design. Quantitative data were collected through a questionnaire survey, while semi-structured interviews were used as qualitative data to explain and support the quantitative findings. The quantitative target group consisted of 406 physical education students at Xingtai University, and the qualitative informants consisted of 8 students and 5 teachers. The research instruments included a five-point Likert scale questionnaire and a semi-structured interview guide. Quantitative data were analyzed using frequency, percentage, mean, and standard deviation, while qualitative data were analyzed through thematic categorization of interview responses. The findings showed that the overall situation of basketball learning and participation was at a high level. The highest mean scores were course design and evaluation and overall satisfaction (M = 4.47), followed by campus basketball atmosphere (M = 4.45), cognition and attitude toward basketball (M = 4.42), teaching method (M = 4.40), and participation initiative (M = 4.38). However, skill mastery (M = 4.32) and venue and facilities (M = 4.29) had relatively lower mean scores than the other dimensions. Qualitative findings indicated that students generally participated in classroom-based basketball activities, but independent after-class practice remained limited. The findings suggest that basketball learning and participation among physical education students at Xingtai University were generally at a high level, although facility support, after-class practice, and continuous skill development still require further attention.

Keywords: Current situation, Basketball learning, Basketball participation, Physical education students, Xingtai University

Introduction

Basketball is one of the most widely practiced team sports in higher education because it combines physical fitness, tactical thinking, teamwork, communication, and social interaction. In physical education programs, basketball is not only taught as a sport skill course but also functions as an important learning context for developing students' movement competence, cooperation, discipline, and long-term sport participation. For physical education students, basketball learning is particularly important because it is related to both personal sport competence and future professional preparation as teachers, coaches, or sport practitioners. Self-Determination Theory has also been widely applied in physical education research. A systematic review and meta-analysis by Vasconcellos et al. (2020) showed that autonomy support, competence support, and relatedness support are important conditions associated with students' motivation and engagement in physical education. Basketball learning and participation are directly important for physical education students because they are not merely components of a sport skill course, but are also related to practical competence, technical and tactical understanding, communication, teamwork, and preparation for future professional roles as physical education teachers, coaches, or sport practitioners. Therefore, understanding the current situation of basketball learning and participation among physical education students is important for improving physical education instruction in higher education (Yang et al., 2021; Wang et al., 2024).

Previous literature indicates that students' learning and participation in sport are related to several dimensions, including learner-related, teaching-related, and environmental conditions. Learner-related

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dimensions include motivation, perceived competence, attitude, and participation initiative. Teaching-related dimensions include teaching method, course design, evaluation, and instructional feedback. Environmental dimensions include venue, equipment, facilities, and the campus sport atmosphere. These considerations are consistent with Self-Determination Theory, which explains that students' motivation is supported by autonomy, competence, and relatedness (Ryan & Deci, 2020; Vasconcellos et al., 2020). They are also consistent with research showing that physical activity participation is associated with individual, social, and environmental factors (Bauman et al., 2012). The development of basketball in Chinese higher education is also closely connected with national health and sport policies. The Healthy China 2030 plan emphasizes health promotion, regular physical activity, and the development of supportive environments for population health, which aligns with the broader development of physical education in higher education (Jiang, 2016). In addition, China's plan to build a leading sports nation highlights the importance of sport participation, sport infrastructure, and the broader development of sport culture (State Council of the People's Republic of China, 2019). These policy directions indicate that university physical education should not focus only on technical instruction, but should also provide learning environments that encourage students to participate actively and continuously in sport. In basketball-related physical education, Hu et al. (2022) found that a "SPOC + flipped classroom" approach supported physical education students' motivation for learning basketball skills and promoted more autonomous forms of motivation.

International health guidelines also support the importance of regular physical activity among young adults. The World Health Organization (2020) states that physical activity contributes to physical and mental health and recommends that adults engage in regular moderate-to-vigorous physical activity. In this regard, university basketball can serve as a practical means of promoting students' physical activity because it provides opportunities for skill practice, peer interaction, enjoyment, and repeated participation. However, students' participation in basketball does not depend only on the availability of a formal course. It is also related to individual, social, and environmental conditions, including motivation, perceived competence, teaching support, facility access, peer interaction, and opportunities for continued practice (Bauman et al., 2012; Vasconcellos et al., 2020). In Chinese university and physical education contexts, previous studies have increasingly emphasized the improvement of physical education and basketball learning through instructional innovation, such as blended learning, flipped classroom approaches, and student-centered teaching models. Overall, these studies suggest that structured instruction, motivational support, and meaningful participation can contribute to students' learning attitudes, sport skills, physical fitness, and engagement in physical education (Hu et al., 2022; Wang et al., 2024; Zhang et al., 2024). However, much of the existing research has focused on specific teaching interventions or experimental outcomes. Less attention has been given to describing the current situation of basketball learning and participation across selected learner- and context-related dimensions.

Recent research in physical education has emphasized that students' learning attitudes and participation are strengthened when teaching models are student-centered, supportive, and meaningful. Ryan & Deci (2020) explained that motivation is supported when individuals experience autonomy, competence, and relatedness. These concepts are relevant to basketball learning because students are more likely to participate when they feel capable, supported, and meaningfully involved in class activities. A systematic review by Zhang et al. (2024) showed that the Sport Education Model can improve students' learning attitudes in physical education, suggesting that structured roles, meaningful participation, and team-based learning are important for student engagement. Similarly, Wang et al. (2024) found that a blended learning model in basketball education improved several physical fitness indicators among Chinese

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university students, showing that innovation in basketball teaching remains an important issue in Chinese higher education.

At Xingtai University, basketball is included in the learning experience of physical education students. However, there remains limited systematic evidence explaining how students perceive basketball learning and participation across key dimensions, including venue and facilities, teaching method, course design and evaluation, campus basketball atmosphere, participation initiative, skill mastery, cognition and attitude toward basketball, and overall satisfaction. It also remains unclear whether students' positive perceptions of course design and campus atmosphere are accompanied by sufficient after-class practice, skill development, and access to basketball facilities. Therefore, investigating this issue in the specific context of Xingtai University is necessary to provide evidence for improving basketball learning and participation. Although previous studies have explained the importance of motivation, teaching approaches, and learning environments in physical education and sport participation, limited research has described the current situation of basketball learning and participation among physical education students by considering learner-related, teaching-related, and environmental dimensions together. In the specific context of Xingtai University, systematic evidence remains limited regarding how physical education students perceive basketball learning, how they participate in classroom and after-class basketball activities, and which dimensions require further improvement. Therefore, this study was necessary to provide empirical baseline information for improving basketball learning and participation at Xingtai University. The questionnaire survey was used to describe students' overall perceptions across the selected dimensions, while semi-structured interviews were used to explain the practical conditions underlying the quantitative findings, such as after-class practice, individual differences in skill development, and venue and equipment constraints.

Based on these theoretical and empirical considerations, the present study examined the current situation of basketball learning and participation across selected learner- and context-related dimensions among physical education students at Xingtai University. A quantitative-dominant explanatory sequential mixed-methods design was employed. The questionnaire survey was used to describe the overall situation and the patterns of students' perceptions across the selected dimensions, while semi-structured interviews were used to explain the quantitative findings in greater depth. Combining quantitative survey data with qualitative interview data helped provide a clearer understanding of both students' perceptions and the practical conditions related to basketball learning and participation.

This study adopted a descriptive conceptual framework to examine the current situation of basketball learning and participation among physical education students. The framework was organized around learner-related, teaching-related, and environmental dimensions. The learner-related dimensions included participation initiative, skill mastery, cognition and attitude toward basketball, and overall satisfaction. The teaching-related dimensions included teaching method and course design and evaluation. The environmental dimensions included venue and facilities and campus basketball atmosphere.

Self-Determination Theory was used as supporting literature to help explain students' motivation and participation, particularly through the concepts of autonomy, competence, and relatedness. However, SDT was not used as a causal model in this study. Instead, it provided a supporting theoretical lens for interpreting dimensions related to motivation, perceived competence, participation, and the learning environment.

Based on these theoretical and empirical considerations, the present study examined the current situation of basketball learning and participation across selected learner- and context-related dimensions,

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namely venue and facilities, teaching method, course design and evaluation, campus basketball atmosphere, participation initiative, skill mastery, cognition and attitude toward basketball, and overall satisfaction.

Methodology

Research Design

This study employed a quantitative-dominant explanatory sequential mixed-methods design. Quantitative data were first collected through a questionnaire survey as the main source of data, followed by semi-structured interviews to explain and support the quantitative findings. Document analysis and field investigation were used as preliminary procedures to develop the research instruments and understand the context of basketball learning and participation among physical education students at Xingtai University.

In this study, the term "related conditions" refers to the contextual and learner-perceived aspects examined through the questionnaire and semi-structured interviews. These include venue and facilities, teaching method, course design and evaluation, campus basketball atmosphere, participation initiative, skill mastery, cognition and attitude toward basketball, and overall satisfaction. The term is used descriptively to explain the conditions associated with the current situation of basketball learning and participation. It does not imply causal relationships or statistically tested predictors.

The research procedure consisted of four stages. First, document analysis was conducted by reviewing relevant studies and documents related to basketball learning, sport participation, teaching methods, venue and equipment support, and campus sport atmosphere. The information obtained from this stage was used to define the questionnaire dimensions and develop the interview guide. Second, field investigation was conducted to understand the general context of basketball courts, equipment, and practice conditions at Xingtai University. This stage provided contextual information for developing items related to venue and facilities and after-class practice conditions. Third, quantitative data were collected through a questionnaire survey administered to all 406 physical education students at Xingtai University. Fourth, semi-structured interviews were conducted with 13 students and teachers to provide explanatory information related to the questionnaire findings, particularly classroom participation, after-class practice, skill mastery, teaching methods, and venue and equipment conditions.

Population, Sample, and Informants

The quantitative target group consisted of 406 physical education students at Xingtai University who had experience in basketball courses. Because the population was manageable and directly relevant to the objective of the study, all 406 students were included in the questionnaire survey. After data screening, 406 valid questionnaires were retained for analysis.

The qualitative informants consisted of 13 participants, including 8 students and 5 teachers. They were selected through purposive sampling based on their direct relevance to basketball learning and teaching at Xingtai University. The selection criteria included experience in basketball courses or basketball teaching, ability to provide detailed information about classroom participation, after-class practice, skill development, teaching methods, and venue and equipment conditions, and willingness to participate in a semi-structured interview.

The number of 13 informants was considered sufficient for the qualitative phase because the interviews were used to explain and support the quantitative findings rather than to develop a new theory. Data from the 8 student informants reflected learners' direct experiences, while data from the 5 teacher informants provided instructional perspectives on teaching practices, skill development, and venue and

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equipment conditions. Therefore, the informants were considered appropriate for clarifying and contextualizing the questionnaire findings.

Research Instrument

The research instruments consisted of a five-point Likert scale questionnaire and a semi-structured interview form.

The questionnaire was developed from relevant concepts, previous studies, and the research context of basketball learning and participation in university physical education. It covered the following dimensions: venue and facilities, teaching method, course design and evaluation, campus basketball atmosphere, participation initiative, skill acquisition, cognition and attitude toward basketball, and overall satisfaction. Each item was rated on a five-point scale, ranging from low agreement to high agreement.

The semi-structured interview form was used to collect more detailed information about students' and teachers' experiences, including classroom participation, after-class practice, perceived skill development, teaching methods, facility conditions, and campus basketball atmosphere. The interview data were used to support the interpretation of the quantitative results.

Instrument Quality

The questionnaire was developed based on document analysis, relevant studies, field investigation, and preliminary interviews. These procedures were used to define the dimensions and indicators related to basketball learning and participation among physical education students. The draft questionnaire was reviewed by experts for content validity and was revised in terms of wording, clarity, and content relevance. A pilot test was then conducted with 30 participants to examine the appropriateness of the items and the reliability of the instrument before the formal questionnaire was finalized.

Trustworthiness of Qualitative Analysis

To enhance the trustworthiness of the qualitative analysis, the semi-structured interview guide was developed in alignment with the questionnaire dimensions. Interview data were analyzed through thematic categorization, and the identified themes were compared with the quantitative findings from the questionnaire. This connection between the two data sources helped check the consistency of the findings and provided contextual explanations for key quantitative results, particularly after-class practice, individual differences in skill mastery, and venue and equipment constraints.

Cautious Interpretation of Cronbach's Alpha

The overall Cronbach's alpha coefficient of the questionnaire was 0.991, and the reliability coefficients of the subscales ranged from 0.955 to 0.983, indicating very high internal consistency. However, these values should be interpreted cautiously because extremely high reliability coefficients may suggest that some items are conceptually similar or overlapping. Therefore, the reliability results were used to support the appropriateness of the questionnaire for descriptive analysis, not to confirm causal relationships or a structural model among the variables.

Qualitative Informants

The qualitative informants consisted of 13 participants, including 8 students and 5 teachers. They were selected through purposive sampling based on their direct relevance to basketball learning or basketball teaching at Xingtai University. The selection criteria included experience in basketball courses or basketball teaching, ability to provide detailed information about classroom participation, after-class practice, skill development, teaching methods, and venue and equipment conditions, and willingness to participate in a semi-structured interview.

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Data Collection

Data were collected from physical education students at Xingtai University. Questionnaires were distributed to all students in the target population. Completed questionnaires were screened for completeness, response quality, and coding accuracy before analysis. After screening, 406 questionnaires were included as valid data. Semi-structured interviews were conducted with selected students and teachers to obtain additional qualitative information. Participants were informed about the purpose of the study, the voluntary nature of participation, and the confidentiality of their responses. Interview information was used only for academic purposes and to support the interpretation of questionnaire findings.

Data Analysis

Quantitative data were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Frequency and percentage were used to describe the demographic characteristics of the respondents, while mean and standard deviation were used to describe the current situation of basketball learning and participation in each selected learner- and context-related dimension.

Mean scores from the five-point Likert scale were interpreted using three descriptive levels: low = 1.00–2.33, moderate = 2.34–3.66, and high = 3.67–5.00. These levels were used only to summarize students' perceptions descriptively and were not interpreted as objective performance standards.

Qualitative data from semi-structured interviews were analyzed through thematic categorization. Interview responses were reviewed, coded, and grouped into major themes related to classroom participation, after-class practice, skill development, teaching methods, venue and equipment conditions, and campus basketball atmosphere.

The integration of quantitative and qualitative findings was conducted during interpretation. The descriptive questionnaire results were first used to identify the overall situation of basketball learning and participation and the dimensions requiring further attention. The interview findings were then used to explain and contextualize the quantitative results, especially the relatively lower mean scores for skill mastery and venue and facilities. In this way, the qualitative findings supported the interpretation of how students participated in basketball learning and which selected learner- and context-related dimensions still required improvement.

Research Ethics

This study was approved by the Ethical Committee for Research in Human of Udon Thani Rajabhat University under Protocol No. 0622.7/221 and Reference No. HECUD. 88/2026. Ethical approval was granted on 12 May 2026, with approval valid until 12 May 2027. Data were collected after ethical approval had been granted. The questionnaire survey and semi-structured interviews were conducted from June 2026. The study was approved through the expedited review process. Participants were informed of the study purpose, voluntary participation, confidentiality, and academic use of the data before completing the questionnaire and participating in interviews.

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Results

The results are presented in three parts: demographic characteristics of the respondents, the current situation of basketball learning and participation, and qualitative findings from semi-structured interviews. The presentation focuses on descriptive findings in order to align with the research objective of examining the current situation and related conditions of basketball learning and participation among physical education students at Xingtai University.

1) Demographic Characteristics of Respondents

Table 1. Demographic Characteristics of Respondents (n = 406)

Variable	Category	Frequency	Percentage
Gender	Male	230	56.65
	Female	176	43.35
	Total	406	100.00
Grade	Freshman	144	35.47
	Sophomore	116	28.57
	Junior	110	27.09
	Senior	36	8.87
	Total	406	100.00
Basketball Course Experience	Had taken a basketball course	406	100.00

Table 1 shows that the respondents consisted of 406 physical education students at Xingtai University. There were 230 male students, accounting for 56.65%, and 176 female students, accounting for 43.35%. In terms of grade level, freshmen represented the largest group, with 144 students or 35.47%, followed by sophomores with 116 students or 28.57%, juniors with 110 students or 27.09%, and seniors with 36 students or 8.87%. All respondents had taken basketball courses, which met the inclusion criteria of the study.

The demographic distribution indicates that the data covered students from all undergraduate grade levels in the physical education program. However, the proportion of senior students was lower than that of other groups. Therefore, the findings should be interpreted as reflecting the overall situation of physical education students at Xingtai University, rather than emphasizing grade-level comparison.

2) Current Situation of Basketball Learning and Participation

Table 2. Descriptive Statistics of Basketball Learning and Participation Dimensions (n = 406)

Dimension	Mean	SD	Rank
Course Design and Evaluation	4.47	0.76	1
Overall Satisfaction	4.47	0.75	1
Campus Basketball Atmosphere	4.45	0.76	3
Cognition and Attitude	4.42	0.80	4

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Table 2. (Continued)

Dimension	Mean	SD	Rank
Teaching Method	4.40	0.82	5
Participation Initiative	4.38	0.84	6
Skill Mastery	4.32	0.89	7
Venue and Facilities	4.29	0.87	8

Table 2 shows that students reported generally positive perceptions of basketball learning and participation. The highest mean scores were found in course design and evaluation and overall satisfaction, both with the same mean score (M = 4.47). This indicates that students perceived the basketball course structure, assessment arrangements, and overall learning experience positively.

Campus basketball atmosphere also received a high mean score (M = 4.45), suggesting that students perceived the campus basketball environment, peer participation, and basketball culture positively. Cognition and attitude toward basketball had a mean score of 4.42, indicating that students generally recognized the value of basketball for physical exercise, teamwork, campus life, and professional development. Teaching method had a mean score of 4.40, reflecting generally positive perceptions of classroom organization, teacher demonstration, teaching interaction, and practice arrangement.

Participation initiative had a mean score of 4.38. Although this score was high, it was lower than the scores for course design, satisfaction, campus atmosphere, cognition and attitude, and teaching method. This suggests that students expressed willingness to participate, but their active participation was not as strong as their positive perceptions of the course and campus environment.

Skill mastery and venue and facilities showed the two lowest mean scores among all dimensions, with M = 4.32 and M = 4.29, respectively. Although both means were still relatively high, their lower ranking indicates that skill development and facility support were comparatively weaker areas. The higher standard deviations of skill mastery (SD = 0.89) and venue and facilities (SD = 0.87) also suggest greater variation in students' experiences. Some students may have perceived that they gained sufficient skill development and had adequate facility access, whereas others may have experienced limitations in technical improvement, venue availability, or equipment support.

Although all eight dimensions were interpreted at a high level, skill mastery and venue and facilities had relatively lower mean scores than the other dimensions. Therefore, these results should not be interpreted as low levels, but rather as comparatively weaker areas within an overall positive pattern of basketball learning and participation.

3) Qualitative Findings from Semi-Structured Interviews

The qualitative findings supported and extended the descriptive results. Interview data indicated that most students were able to participate in classroom-based basketball learning according to the course structure. However, their independent after-class practice remained limited. This suggests that students' basketball participation was still more closely connected with formal classroom requirements than with sustained self-directed practice.

The interviews also reflected several practical conditions related to basketball learning and participation. First, students reported that classroom teaching was often organized through unified group instruction. This format helped maintain basic classroom order but did not always provide sufficient individualized correction for students with different skill levels. Students with weaker foundations may therefore have had fewer opportunities to receive specific feedback on technical problems.

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Second, venue and equipment conditions were identified as practical constraints. Students reported that basketball venues could become crowded during peak periods, and equipment availability could limit effective practice time. These conditions correspond with the descriptive result showing that venue and facilities had the lowest mean score among all dimensions.

Third, students' skill mastery varied across individuals. Some students had more previous basketball experience and were more confident in practice and game situations, while others lacked confidence because of weak technical foundations. This variation helps explain why skill mastery had a relatively lower mean score and the highest standard deviation among the measured dimensions.

Fourth, the campus basketball atmosphere was generally perceived positively. Students recognized that basketball activities, peer participation, and the overall campus environment could encourage engagement. However, the qualitative data suggested that a positive atmosphere alone may not be sufficient to sustain long-term participation if students lack regular after-class practice opportunities, individualized guidance, or accessible facilities.

To integrate the quantitative and qualitative findings, the descriptive questionnaire results were first used to identify the overall situation of basketball learning and participation and the dimensions requiring further attention. The interview findings were then used to explain these quantitative results, particularly the relatively lower mean scores for skill mastery and venue and facilities. This integration helped clarify the practical conditions underlying students' classroom participation, after-class practice, skill development, and access to basketball facilities.

Taken together, the qualitative findings indicate that the current situation of basketball learning and participation at Xingtai University was generally favorable, but still characterized by several limitations. Students showed positive attitudes toward basketball courses and the campus basketball environment, yet independent participation after class, individualized skill development, and facility support remained areas requiring further improvement.

Discussion

The findings showed that physical education students at Xingtai University reported a high level of perceived basketball learning and participation, particularly in course design and evaluation, overall satisfaction, campus basketball atmosphere, cognition and attitude toward basketball, and teaching method. Rather than merely indicating favorable scores, these findings may suggest that students perceived the basketball course as having a clear learning structure, relevance to their professional preparation, and a supportive learning environment. This interpretation is consistent with Self-Determination Theory, which explains that students' motivation and engagement are supported when they experience competence, contextual support, and positive social relationships (Ryan & Deci, 2020; Vasconcellos et al., 2020).

From the teaching-related perspective, the high mean scores for course design and evaluation and teaching method suggest that students perceived the formal basketball course as organized and supportive of learning. This finding is consistent with previous research in physical education and Chinese university contexts, which has shown that structured instruction, motivational support, and meaningful participation can support students' learning motivation, sport skills, physical fitness, and learning attitudes (Hu et al., 2022; Wang et al., 2024; Zhang et al., 2024). However, because the present study used descriptive statistics, these findings should not be interpreted as evidence that teaching methods directly caused higher participation. Rather, they indicate that students perceived the instructional context of basketball learning positively.

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From the learner-related perspective, although students reported high levels of attitude and satisfaction toward basketball, skill mastery had a relatively lower mean score and a higher standard deviation than several other dimensions. This finding may reflect differences in students' prior basketball experience, technical foundation, and confidence. The competence component of Self-Determination Theory helps explain this pattern. Students who feel competent are more likely to engage in learning activities, whereas students who lack confidence in their skills may participate less actively even when they hold positive attitudes toward the course (Ryan & Deci, 2020). Therefore, individualized skill development and feedback appropriate to students' ability levels should be considered important areas for improvement.

An important issue in the findings is that campus basketball atmosphere was rated highly, while independent after-class practice remained limited. This apparent contrast suggests that a positive campus atmosphere may help create interest, social connection, and a sense of belonging, but it may not automatically lead to sustained participation outside formal class time. Continued after-class practice may require additional conditions, such as stronger autonomous motivation, confidence in skill performance, available practice time, structured opportunities, and sufficient access to courts and equipment. From the perspective of Self-Determination Theory, campus atmosphere may support relatedness, but long-term participation also requires autonomy and competence support.

Venue and facilities had a relatively lower mean score than the other dimensions. The qualitative findings helped explain this result by indicating that basketball courts could become crowded during peak periods and that equipment availability could limit effective practice time. These conditions may reduce students' opportunities for repeated practice, skill development, and after-class participation. This interpretation is consistent with the view that physical activity participation is shaped not only by individual factors but also by environmental and contextual support (Bauman et al., 2012). Therefore, even when students have positive attitudes toward basketball and perceive the campus atmosphere favorably, facility-related constraints may still limit sustained participation.

Overall, the findings are consistent with previous studies emphasizing the importance of motivation, perceived competence, teaching support, and environmental conditions in physical education. The present study extends this evidence by providing descriptive and qualitative information from the specific context of Xingtai University. The results suggest that students' overall perceptions of basketball learning and participation were high, but after-class practice, individualized skill development, and venue and equipment management remain areas requiring further improvement. The findings should be interpreted as descriptive evidence of students' perceptions and experiences, not as evidence of causal effects or statistically tested relationships among variables.

Although skill mastery and venue and facilities had relatively lower mean scores than the other dimensions, both dimensions were still rated at a high level. This suggests that students did not perceive these areas negatively overall; rather, they represent aspects that may require further attention when compared with the more highly rated dimensions.

Conclusion and Recommendations

This study examined the current situation and related conditions of basketball learning and participation among physical education students at Xingtai University. The findings showed that students generally reported positive perceptions of basketball learning and participation. Course design and

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evaluation, overall satisfaction, campus basketball atmosphere, cognition and attitude toward basketball, teaching method, and participation initiative were all rated at high levels.

However, skill mastery and venue and facilities showed relatively lower mean scores than the other dimensions. The qualitative findings also indicated that students were able to participate in classroom-based activities, but independent after-class practice remained limited. Therefore, the current situation of basketball learning and participation was generally positive, but improvement is still needed in facility support, after-class practice, and continuous skill development.

Based on the findings, the university should improve the management of basketball courts and equipment to support both formal classes and after-class practice. More opportunities for after-class participation should be provided through small-group practice, basketball clubs, informal activities, and internal competitions that allow students with different skill levels to participate. In addition, teachers should apply teaching approaches that respond to learners' differences, such as skill-based grouping, individualized feedback, and progressive learning activities. These approaches may help students build confidence and improve their basketball skills more continuously.

The findings showed that all eight dimensions of basketball learning and participation were rated at a high level. However, skill mastery and venue and facilities had relatively lower mean scores than the other dimensions. Therefore, future improvement should focus on supporting individualized skill development, after-class practice, and venue and equipment management.

Future research should examine students' actual after-class practice behavior using objective data, such as participation records, basketball skill tests, or longitudinal follow-up. Future studies should also include participants from other universities in order to compare basketball learning and participation across different higher education contexts.

References

Bauman, A. E., Reis, R. S., Sallis, J. F., Wells, J. C., Loos, R. J. F., Martin, B. W., & Lancet Physical Activity Series Working Group. (2012). Correlates of physical activity: Why are some people physically active and others not? The Lancet, 380(9838), 258–271. https://doi.org/10.1016/S0140-6736(12)60735-1

Hu, T., Zhang, M., Liu, H., Liu, J., Pan, S., Guo, J., Tian, Z., & Cui, L. (2022). The influence of "small private online course + flipped classroom" teaching on physical education students' learning motivation from the perspective of self-determination theory. Frontiers in Psychology, 13, Article 938426. https://doi.org/10.3389/fpsyg.2022.938426

Jiang, X. (2016, October 27). Healthy China 2030 plan implemented. National Health Commission of the People's Republic of China. https://en.nhc.gov.cn/2016-10/27/c_70462.htm

Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. Contemporary Educational Psychology, 61, Article 101860. https://doi.org/10.1016/j.cedpsych.2020.101860

State Council of the People's Republic of China. (2019). Outline released to build China into sports leader. https://english.www.gov.cn/policies/latestreleases/201909/02/content_WS5d6d1a96c6d0c6695ff7faa3.html

Vasconcellos, D., Parker, P. D., Hilland, T., Cinelli, R., Owen, K. B., Kapsal, N., Lee, J., Antczak, D., Ntoumanis, N., Ryan, R. M., & Lonsdale, C. (2020). Self-determination theory applied to physical education: A systematic review and meta-analysis. Journal of Educational Psychology, 112(7), 1444–1469. https://doi.org/10.1037/edu0000420

Wang, C., Yuan, Y., & Ji, X. (2024). The effects of a blended learning model on the physical fitness of Chinese university students: A cluster randomized controlled trial in basketball education. BMC Public Health, 24, Article 2451. https://doi.org/10.1186/s12889-024-20001-1

World Health Organization. (2020). WHO guidelines on physical activity and sedentary behaviour. World Health Organization. https://www.who.int/publications/i/item/9789240015128

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Yang, C., Chen, R., Chen, X., & Lu, K.-H. (2021). The efficiency of cooperative learning in physical education on the learning of action skills and learning motivation. Frontiers in Psychology, 12, Article 717528. https://doi.org/10.3389/fpsyg.2021.717528

Zhang, J., Xiao, W., Soh, K. G., Yao, G., Mohd Anuar, M. A., Bai, X., & Bao, L. (2024). The effect of the Sport Education Model in physical education on student learning attitude: A systematic review. BMC Public Health, 24, Article 949. https://doi.org/10.1186/s12889-024-18243-0

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