International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China

Huang Dongyi[1], Chanchai Siriphan[2] and Prakit Hongseanyatham[3]
[1,2,3 Faculty] of Sports Science and Technology, Bangkokthonburi University, Thailand
[1]E-mail: pladongyi@163.com, ORCID ID: https://orcid.org/0009-0000-6630-8583
[2]E-mail: siriphan.cs@gmail.com, ORCID ID: https://orcid.org/0009-0000-9981-655X
[3]E-mail: prakitsport@gmail.com, ORCID ID: https://orcid.org/0009-0009-2196-0258

Received 03/03/2025 Revised 03/05/2025 Accepted 11/06/2025

Abstract

Background and Aim: Traditional swimming teaching models have many problems, such as uneven distribution of teaching resources, A single teaching method, insufficient student engagement, and a lack of personalized teaching. These issues not only restrict the effectiveness of swimming courses but also affect the improvement of students' sports skills and comprehensive quality. Therefore, this research was to construct a swimming mixed teaching model for physical education majors of university students, which offers new ideas and methods for global physical education reforms and promotes the exchange and development of physical education worldwide.

Materials and Methods: This research was mixed-methods research. The participants in this research can be divided into 5 groups, which are as follows: (1) 330 students and 23 swimming teachers from 4 universities in Guangdong Province, China were selected as a sample and distributed the questionnaires to all 330 students and 23 swimming teachers; (2) 7 experts were invited to in-depth interview; (3) 19 experts were participated in a two-round Delphi consensus; (4) 9 experts were participated in focus group discussion to enhance the completeness of the swimming mixed teaching model; (5) 9 experts were participated in a connoisseurship discussion to confirm the swimming mixed teaching model. The average and standard deviation were utilized to analyze the data obtained from the questionnaire; the consensus data was analyzed by using median and interquartile range, with criteria set at a median of ≥ 3.50 and an interquartile range of ≤ 1.50.

Results: The swimming mixed teaching model for physical education majors of university students comprises 8 first-level elements, namely, teaching ideas, teaching objectives, teaching content, teaching methods, teaching environment, teaching process, teaching evaluation, and teaching feedback, 20 second-level elements, and 74 third-level elements. This model is student-centered, emphasizing the cognitive construction, internalization, and consolidation of knowledge and skills.

Conclusion: By integrating online and offline teaching methods, it effectively improves teaching outcomes and enhances students' learning experiences.

Keywords: Swimming Mixed Teaching Model; Physical Education Major; University Students

Introduction

In the global wave of educational reform, physical education, as a key area for cultivating students' healthy lifestyles and comprehensive quality, is facing unprecedented demands for change. In recent years, the international educational community has increasingly emphasized the importance of physical education, with many countries incorporating it into the core of their educational reforms and highlighting the role of physical education courses in promoting students' holistic development. Against this backdrop, the swimming mixed teaching model has emerged as an innovative teaching strategy and has gradually become a focal point in international educational research. By integrating online and offline teaching resources, this model not only optimizes the allocation of teaching resources but also stimulates students' interest and autonomy through personalized learning paths and enriched interactive experiences (Wang, H, 2020). In the realm of physical education, the application of the swimming mixed teaching model is particularly crucial. It can address issues such as uneven resource allocation and A single teaching method in traditional physical education teaching, and enhance students' learning experiences and teaching effectiveness through technological means (Chudam, W, 2021).

In China, with the successive implementation of guiding documents such as the National Medium- and Long-Term Education Reform and Development Plan (2010-2020), the Overall Plan for Deepening Education Evaluation Reform in the New Era, and China Education Modernization 2035, higher education is undergoing unprecedented changes. These policies have not only propelled the informatization and

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

modernization of education but also emphasized the importance of deepening education evaluation reform, improving education quality, and cultivating high-quality talents with comprehensive development. In 2024, the Outline for Building a Strong Education Nation (2024-2035) issued by the Central Committee of the Communist Party of China and the State Council further clarified the strategic direction of digital transformation in education, highlighting the need for new infrastructure in education, intelligent upgrades, and integrated innovation to inject new momentum into high-quality education development. In the field of physical education, the Ministry of Education has also released several policy documents, including the Notice on Several Measures to Strengthen the Construction of Physical Education Teachers in Primary and Secondary Schools in the New Era, aimed at enhancing the professional quality and teaching capabilities of physical education teachers. These policy documents provide a clear direction and policy support for the reform of physical education (Hao, X., 2024).

However, despite the progress made in the application of the swimming mixed teaching model internationally, its use in physical education remains in the exploratory stage, especially in the niche area of swimming teaching, where relevant research and practical cases are relatively scarce. Traditional swimming teaching models have many problems, such as uneven distribution of teaching resources, A single teaching method, insufficient student engagement, and a lack of personalized teaching. These issues not only restrict the effectiveness of swimming courses but also affect the improvement of students' sports skills and comprehensive quality. Therefore, how to integrate national education policy orientations with the development trends of educational informatization and construct an efficient and innovative swimming mixed teaching model has become a core issue that urgently needs to be addressed in the reform of swimming courses in the physical education major of universities (Chen, L., and Ren, F, 2021).

This study focuses on the construction of a swimming mix teaching model for the physical education majors of university students, aiming to build a swimming mixed teaching model to address the limitations of traditional teaching models. The research will not only draw on international experience in mixed teaching but also combine China's latest education policies to explore how to achieve a balance between personalization and collectivization in physical education. By introducing the swimming mixed teaching model, this study will provide an internationally oriented reference framework for the reform of university physical education, promoting a shift from traditional teaching models to modern, informatized, and scientific ones. Additionally, the study will empirically verify the effectiveness of the swimming mixed teaching model in enhancing students' sports skills and comprehensive quality, providing practical cases and theoretical support for international physical education reforms.

Objectives

To construct a mixed teaching model for physical education majors of university students.

Literature Review

1. Mixed Teaching Method

The mixed teaching method refers to the integration of traditional face-to-face teaching with online teaching, aiming to leverage the strengths of both approaches to enhance teaching effectiveness. This model combines online resources with offline interactions, breaking the limitations of time and space to provide students with a more flexible and personalized learning experience (Zhao Y.F. et al., 2024). In the context of physical education, the mixed teaching model is particularly suitable for practice-intensive courses such as swimming, where online theoretical teaching can be combined with offline practical guidance to increase student motivation and skill levels (Zhou, L., 2024). The mixed teaching method is characterized by interactivity, personalization, and openness. Interactivity is reflected in online discussions, real-time feedback, and offline group cooperation, enhancing communication and collaboration between teachers and students. Mixed teaching methods can be classified based on different teaching needs and course characteristics. Common types include the combination of online and offline teaching, as well as synchronous and asynchronous learning. The online-offline

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

combination model provides preview and review resources through online platforms, with offline classes focusing on practical operations and discussions (Xu, Y., 2025).

Feng, Y. (2022). The study emphasizes key teaching principles such as student-centered learning, individualized instruction, gradual progress, safety-first, integration of online and offline components, and fostering autonomous and cooperative learning. It also highlights the issue that some current teaching ideas suffer from a gap between theory and practice, often neglecting the diverse learning needs and individual differences of students. The mixed teaching model is an innovative educational approach that integrates traditional face-to-face teaching with modern online teaching. It aims to combine the strengths of both methods, incorporating the immediate interaction and emotional connection of traditional teaching with the rich resources and flexibility of online learning. Mixed learning is a reflective product of e-learning, with its core idea being the organic combination of face-to-face (F2F) teaching and online learning to reduce costs and enhance efficiency (Zhang, B., 2022). This model has unique value in the context of university physical education, specifically in swimming courses for physical education majors. Students can receive face-to-face guidance from teachers in the pool while also accessing a vast array of online resources to arrange their own learning pace. For example, they can preview swimming techniques or review competition rules online, thereby maximizing learning outcomes (Su, L.Q., 2012).

2. Swimming mixed teaching model

Although differentiated instruction is not strictly a mixed learning model, its application in swimming education provides certain insights for swimming mixed learning. Zhu, W.L. (2018), drawing on years of swimming teaching practice, explored the application of "differentiated instruction" in swimming courses at maritime colleges. The practice has shown significant teaching effectiveness. Differentiated instruction, which groups students according to their different levels and abilities, can meet the diverse learning needs of students and enhance the targeting of teaching. In swimming mixed learning models, the concept of differentiated instruction can be adopted to stratify students based on their online learning performance and offline behavior, and to develop personalized teaching plans to further improve teaching quality. Swimming Mixed Learning Models are products of the times and the demands of educational reform. Various types of mixed learning models have emerged and been practiced in swimming education. The MOOC-SPOC mixed learning model, the "flipped classroom + mixed learning" model, and the "Internet + Education" mixed learning model have all brought new vitality and possibilities to swimming education. By integrating online and offline resources, they have compensated for the shortcomings of traditional teaching and enhanced the interactivity and targeting of instruction. The Vocational Education Cloud SPOC mixed learning model has also proven effective in practice, improving students' academic performance and satisfaction levels (Pu, J., and Liu, X., 2023).

In summary, swimming mixed learning models have emerged in the context of educational digital transformation. Various models, such as MOOC-SPOC, flipped classroom + mixed learning, and "Internet + Education," have optimized teaching processes and enhanced interactivity and targeting by integrating online and offline resources. The Vocational Education Cloud SPOC mixed learning model has also achieved good results in practice. However, current models still face challenges such as limited resources, A single evaluation method, and insufficient coordinated development among different models. Future research needs to further refine theoretical and practical systems, strengthen resource integration and sharing, innovate evaluation methods, promote model integration and innovation, and enhance teachers' capabilities to continuously improve the quality of swimming education.

3. Mixed teaching models in other disciplinary fields

The effective implementation of mixed teaching models relies on high-quality teaching platforms and rich teaching resources. Optimizing teaching platforms and resources can provide students with a better learning experience and improve learning outcomes. Zhang, A.N. et al. (2024) demonstrated in basic chemistry experiment teaching that a problem-guided and integrated online-offline teaching model significantly enhanced students' understanding of acid-base titration, promoting deep learning. This optimized teaching platform and resource design provided students with rich learning materials and interactive opportunities, enhancing their learning enthusiasm and autonomy. Additionally, improving feedback systems is an important aspect of optimizing mixed

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

teaching models. Timely and effective feedback can help teachers understand students' learning situations and adjust teaching strategies. It can also help students understand their learning progress and improve learning methods.

Mixed teaching models, as an innovative teaching approach, have significant advantages and broad application prospects. However, to better leverage their role, optimizations are needed in multiple aspects, including course objectives and evaluation mechanisms, faculty training, teaching platforms and resources, and feedback systems. By constructing rational course objectives and evaluation mechanisms, mixed teaching models can be provided with a clear direction and effective monitoring. Strengthening faculty training to enhance teachers' information technology capabilities ensures the effective implementation of mixed teaching. Optimizing teaching platforms and resources and improving feedback systems can provide students with a better learning experience and improve learning outcomes. In the future, with the continuous development of information technology and the renewal of educational concepts, mixed teaching models are expected to play a greater role in the educational field, providing strong support for the cultivation of high-quality talents (Long, H. Z. and Tuo, X. Y., 2022).

Liu, W. et al. (2024) explored the integration of online and offline components in the teaching of mathematical physics methods. They emphasized that a well-designed blended teaching model can effectively promote deep learning and enhance teaching outcomes. This aligns with the current study's approach of diversifying and structuring teaching content through a blended teaching model, thereby enhancing its scientific rigor and practical applicability.

4. Summary

Based on the research findings of existing scholars, this study systematically reviewed the current application, advantages, and challenges of mixed teaching models in physical education and other disciplinary fields. By combining the characteristics of swimming teaching, a swimming mixed teaching model for physical education majors of university students was developed. This provides theoretical support and practical references for the application of mixed teaching models in university physical education swimming courses and offers new ideas and methods for promoting the widespread application of these models in the field of physical education.

Conceptual Framework

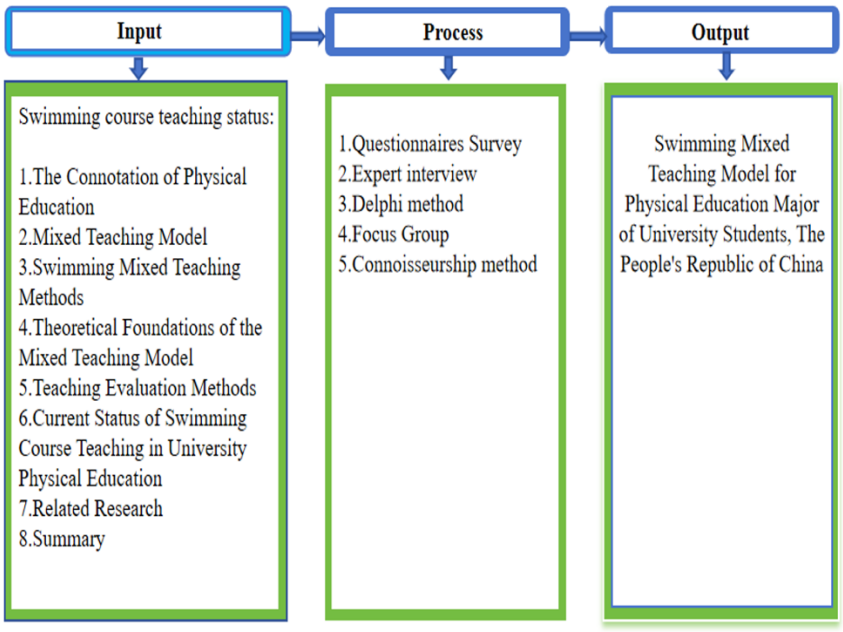

Figure 1 Conceptual framework

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

Methodology

1. Research Tools

In this research, the research tools are as follows:

(1) Teacher Questionnaire. The teacher questionnaire consists of 20 items, covering aspects such as swimming teaching objectives, content, methods, and evaluation. It was distributed to 23 swimming teachers from 4 universities in Guangdong Province using the "WenJuanXing" software. Before distribution, 5 experts conducted an Index of Item-Objective Congruence (IOC) evaluation on the questionnaire to ensure its validity.

(2) Student Questionnaire. The student questionnaire, containing 20 items, was administered to 330 university students majoring in physical education using the "WenJuanXing" software. 5 experts conducted an Item Objective Congruence (IOC) evaluation on the questionnaire to ensure its validity

(3) Expert Interview Outline. The expert interview outline aims to collect professional insights and experience sharing from 7 experts regarding the construction of a swimming mixed teaching model. After being developed, the expert interview outline was submitted to 5 experts for Index of Item-Objective Congruence (IOC) evaluation.

(4) Delphi Expert Consensus Scale. The Delphi expert consensus scale is used to record the results of two rounds of Delphi consensus, screening out high-importance factors and constructing the swimming mixed teaching model. After development, the Delphi expert consensus scale was submitted to 5 experts for Index of Item-Objective Congruence (IOC) evaluation.

(5) Focus Group Discussion Outline. The focus group discussion outline aims to collect 9 experts' opinions on the elements and framework structure of the swimming mixed teaching model.

(6) Connoisseurship Expert Evaluation Outline. The connoisseurship expert evaluation outline is used to evaluate the swimming mixed teaching model. This outline uses a Likert five-point scale.

2. Population and Sample

Population specification and size

This research selected teachers and students of the swimming courses in the physical education major from four universities in Guangdong Province, namely South China Normal University, Guangzhou University, Guangzhou Sport University, and Guangdong University of Education, as the research objective. The total number of students enrolled in the swimming courses in the physical education major from these four universities was 2,350 students and 23 swimming teachers. The number of students and teachers in the four universities that offer the swimming courses is as follows:

1) South China Normal University has 350 students and 6 teachers.
2) Guangzhou Sport University has 420 students and 10 teachers.
3) Guangzhou University has 480 students and 3 teachers.
4) Guangdong University of Education has 1,100 students and 4 teachers.

The student sample size was determined using the Taro Yamane table. Based on the total student population of 2,350 students, the calculated sample size was 330 students. All 23 swimming teachers were included as the sample for the teacher questionnaire survey. The sample can be divided as follows:

1) South China Normal University has 49 students.
2) Guangzhou University has 67 students.
3) Guangzhou Sport University has 59 students.
4) Guangdong University of Education has 115 students.

Research Participation

In this research, all experts were selected using the purposive sampling method.

Expert for Experts' interview: 7 experts, including 1 physical education administrative personnel, 2 physical education teachers, and 4 university swimming teachers, were invited to conduct an expert interview. All seven experts hold master's degrees or higher and have more than 10 years of relevant teaching and administrative work experience.

Expert for Delphi: 19 experts, including 2 leaders of university management, 3 physical education

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

researchers, 6 university swimming teachers, 3 senior swimming coaches, 3 university physical education teachers, and 2 educational information technology personnel, were selected to conduct a two-round Delphi consensus.

Expert for Focus Group: 9 experts, including 3 physical education experts, 5 swimming teaching and training teachers, and 1 information education technology specialist, were invited to conduct a focus group discussion. All of them have more than 15 years of work experience.

Expert for Connoisseurship: 9 experts, including 3 sports scientists, 3 physical education experts, and 3 swimming teachers, were selected to conduct a connoisseurship panel to discuss and confirm the model.

3. Data Collection

1. The questionnaires were distributed to 23 swimming teachers and 330 students of the swimming courses in the physical education major from four universities in Guangdong Province by using the "WenJuanXing" software. The questionnaire survey aims to understand their perspectives on the current status of swimming teaching.

2. A face-to-face interview was conducted with 7 experts. With the experts' consent, comprehensive information from the expert interviews was collected through audio recordings and written notes. The purpose of the expert's interview was to draft the Delphi consensus scale.

3. The Delphi expert consensus scale was distributed to 19 experts in two rounds via email. The results of two rounds of expert consensus will be used to develop the swimming mixed teaching model for the physical education major of university students.

4. A focus group discussion was conducted with 9 experts. The purpose of the focus group discussion with the expert was to enhance the completeness of the model. Experts discussed the rationality of the elements and framework structure of the swimming mixed teaching model.

5. An evaluation outline for the swimming mixed teaching model was designed, and 9 experts participated in a connoisseurship discussion. Their evaluation suggestions were collected and organized into textual data. The purpose of the connoisseurship discussion was to confirm the effectiveness and feasibility of the developed swimming mixed teaching model for the physical education major of university students.

4. Data Analysis

1. This study conducted a questionnaire survey among students and teachers. The collected data were analyzed using descriptive statistical methods, primarily employing mean ($\bar{x}$) and standard deviation (S.D.).

2. Interview with seven experts, focus group discussions, and connoisseurship discussions using content analysis to analyze the data.

3. A two-round Delphi consensus using median and interquartile range (IQR) to analyze the data. The criteria of a median ≥3.50 and an interquartile range ≤1.50.

4. A Likert scale was employed to evaluate the data collected from the experts, calculating the mean score for each measure based on their evaluations and feedback.

The meanings of the five-point scale evaluations are as follows: 1 = Very Poor, 2 = Poor, 3 = Moderate, 4 = High, 5 = Highest. The details of the score criteria are as follows (Best John W, 1977):

Average score range	Meaning
4.20 – 5.00	Highest
3.40 – 4.19	High
2.60 – 3.39	Moderate
1.80 – 2.59	Poor
1.00 - 1.79	Very Poor

Results

Part 1: Investigate the current situation and problems of swimming teaching in physical education majors of university students through questionnaires

1. Analysis of teacher questionnaire survey results

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

A total of 23 questionnaires were distributed and collected, with a response rate of 100%. Based on the Likert five-point scale rating system, the mean and standard deviation were calculated, and the statistical results are shown in Table 1 below.

Table 1 Results of teacher questionnaire survey

Questionnaire Items	Total Score		Result
	$\bar{X}$	S. D	
1. The teaching philosophy focuses on cultivating students' practical ability and comprehensive quality	3.20	0.80	Medium
2. Teaching goals are clear and can help students master swimming skills and related knowledge	3.15	0.85	Medium
3. Teachers adopt a variety of teaching methods, including explanation, demonstration, practice and group cooperation	1.80	0.60	Very low
4. Teach a wide variety of strokes and swimming techniques	3.00	0.90	Medium
5. Combine teaching content with practical applications, such as self-rescue and life-saving skills	2.20	0.70	low
6. Teaching evaluation is comprehensive, including skill test, theory examination and classroom performance	2.90	0.80	low
7. Teachers are able to give timely feedback on students' progress and problems	3.40	0.50	Medium
8. Sufficient teaching space to meet the needs of classroom teaching	3.30	0.60	Medium
9. The teaching environment is safe, well-equipped and well maintained	3.35	0.55	Medium
10.Teachers can effectively use modern information equipment to teach	2.40	0.75	low
11. Teachers have rich teaching experience and professional qualifications	3.10	0.80	Medium
12. Enrichment of extracurricular extensions of the curriculum, such as swimming clubs and competitions	2.60	0.85	low
13.The curriculum can meet the learning needs of students at different levels, such as beginning scholars and advanced students	1.70	0.50	Very low
14.The teaching content is not sufficiently integrated with the latest concepts of physical education	2.00	0.65	low
15. Assessment methods can effectively assess students' learning outcomes and skill levels	3.00	0.80	Medium
16. The teaching resources (such as teaching materials, equipment, venues, etc.) provided by the school can meet the teaching needs	3.10	0.75	Medium
17. Schools provide adequate support for teachers' career development (such as training, further study, research opportunities, etc.)	2.70	0.80	low
18. Teachers feel moderate work pressure during teaching	3.20	0.65	Medium
19. Teachers have a reasonable workload to ensure the quality of teaching	3.00	0.70	Medium
20.In the current teaching model, the combination of online resources and offline teaching is seriously insufficient	1.90	0.60	Very low
Total average	2.95	0.75	Medium

From Table 1, the evaluation of the swimming course highlights several areas for improvement. While teaching ideas and objectives moderately emphasize practical skills and comprehensive student development, clarity in objectives requires enhancement. Teaching methods are insufficiently diverse, and practical applications like lifesaving skills are lacking. Teaching resources and facilities are generally adequate, but need improvement in resource sufficiency. Teaching evaluation methods lack comprehensiveness, though feedback on student progress is relatively strong. Teachers struggle with modern technology integration and receive insufficient professional development support, though the workload is manageable. The implementation of the mixed teaching model is highly inadequate, failing to meet students' varied learning needs and lacking integration with modern sports education concepts. Overall, there is a need for improved teaching strategies, resource allocation, and blended learning adoption to enhance teaching effectiveness.

2. Analysis of students' questionnaire survey results

A total of 330 questionnaires were sent out, and 328 were recovered, with a recovery rate of 99.39%. Based on the Likert five-point scale rating system, the mean value and standard deviation were calculated, and the statistical results are shown in Table 2.

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

Table 2 Results of students' questionnaire survey

Questionnaire Items	Total Score		Result
	$\bar{X}$	S. D	
1. The teaching philosophy focuses on cultivating students' practical ability and comprehensive quality	3.20	0.60	Medium
2. Teaching goals are clear and can help students master swimming skills and related knowledge	3.10	0.55	Medium
3. Teachers use a variety of teaching methods, including explanation, demonstration, practice and group work	2.30	0.70	low
4. Rich teaching content, covering a variety of swimming styles and swimming skills	3.00	0.65	Medium
5. Teaching content that can be combined with practical applications, such as self-rescue and life-saving skills	1.40	0.50	Very Basic
6. The teaching evaluation method is comprehensive, including skill test, theory examination and classroom performance	2.90	0.60	Medium
7. Teachers are able to give timely feedback on students' learning progress and problems	3.20	0.50	Medium
8. Sufficient teaching space to meet the needs of classroom learning	3.10	0.55	Medium
9. The teaching environment is safe, well-equipped and well maintained	3.00	0.60	Medium
10. Teachers can effectively use modern information equipment to teach	1.60	0.65	Very low
11. Teachers have rich teaching experience and professional qualifications	2.90	0.60	Medium
12. Teachers have a serious and responsible teaching attitude and care for students	3.20	0.55	Medium
13. The extracurricular extension of the curriculum is abundant, such as swimming clubs and competitions	1.50	0.60	Very low
14. The curriculum can meet the learning needs of students at different levels, such as beginning scholars and advanced students	1.60	0.65	Very low
15.The teaching content is not sufficiently integrated with the latest physical education concepts	2.20	0.70	low
16. Assessment methods can effectively assess students' learning outcomes and skill levels	2.90	0.60	Medium
17.The overall teaching effect can meet students' learning expectations	3.00	0.65	Medium
18. Students' overall satisfaction with swimming lessons is high	3.10	0.55	Medium
19.Current teaching methods can meet the diverse learning needs of students	2.90	0.60	Medium
20. In the current teaching model, the combination of online resources and offline teaching is insufficient	1.40	0.50	Very Low Teaching
Total average	2.85	0.62	Medium

From Table 2, the evaluation of the swimming course reveals several areas for improvement. The teaching ideas and objectives focus on developing students' practical abilities, but the alignment and clarity need strengthening. Teaching methods are insufficiently diverse, and the integration of practical skills, such as self-rescue and lifesaving, is lacking. While teaching resources and facilities are generally adequate, there is room to enhance resource sufficiency. The teaching evaluation system is moderately effective, with room for improvement in comprehensively assessing student outcomes. Teachers' use of modern information technology is inadequate, and their overall competence, while satisfactory in attitude and experience, requires further enhancement, particularly in technology integration. The implementation of the mixed teaching model is highly insufficient, with a lack of extracurricular activities and a failure to meet the diverse learning needs of students, indicating a need for a more optimized and inclusive course design.

The analysis of the current situation and problems in swimming teaching can be summarized as follows: (1) unclear teaching philosophy and objectives; (2) monotonous teaching methods and insufficient practical content; (3) insufficient application of modern information resources and facilities; (4) incomplete teaching evaluation and feedback mechanisms; (5) inadequate support for teacher competence development; (6) insufficient integration of online and offline teaching.

Part 2: Construct a swimming mixed teaching model for physical education majors of university students.

1. The results of the expert's interview.

After interviews with 7 experts, the expert panel unanimously agreed that the foundation of the swimming mixed teaching model should be grounded in solid theoretical principles and clear instructional guidelines, with a student-centered approach aimed at enhancing teaching effectiveness. Experts recommended drawing on constructivist, humanistic, connectivism, and mixed learning theories. The model's teaching objectives should cover knowledge, skill, and affective domains, focusing on professional swimming theory, skills, safety awareness, and self-directed learning. The teaching content should integrate online and offline resources, with online content including pre-class assignments and discussions, and offline content focusing on practical training and classroom interactions. The teaching methods should be diverse and targeted, incorporating video instruction and inquiry-based learning

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

online, with demonstration, cooperative, and game-based methods offline. Teaching evaluation should be comprehensive, combining online assessments, practical skills evaluations, and peer and self-evaluations. The experts concluded that the swimming teaching model must be improved across multiple areas, including ideas, objectives, content, methods, environment, and evaluation, to better meet students' learning needs and foster holistic development.

2. The results of the second round of the Delphi consensus.

The questionnaire was sent to 19 experts for a second round of evaluation, aiming to further build expert consensus and improve the applicability and accuracy of the indicator of the swimming mixed teaching model.

Based on the results of the second round of surveys, all elements constituting the swimming mixed teaching model for physical education majors of university students demonstrated high stability and consistency, with an interquartile range (IQR) of less than 1.5 and a median greater than 3.5. These two key indicators fully meet our pre-set criteria for retention. Additionally, after a comprehensive review, the expert panel did not propose any further modifications, further confirming the rationality and reliability of the evaluation results. After two rounds of Delphi consensus, the swimming mixed teaching model for the physical education major of university students was ultimately determined. This model includes 8 first-level elements, 20 second-level elements, and 74 third-level elements. The final composition of the swimming mixed teaching model is presented in Table 3 below:

Table 3 The final swimming mixed teaching model for the physical education major of university students

First level elements	Second level elements	Third level elements
A1 Teaching Ideas	B1 Theoretical basis	C1 Constructivist learning theory
		C2 Humanistic learning theory
		C3 Connectivist learning theory
		C4 Mixed learning theory
	B2 Teaching Principles	C5 Student Center Principle
		C6 Principle of individualized teaching
		C7 The principle of gradual progress
		C8 Safety First principle
		C9 Principle of Online and offline integration
		C10 Principle of autonomous and cooperative learning
A2 Teaching Objectives	B3 Knowledge Objectives	C11 Basic theoretical knowledge objective of swimming
		C12 Swimming professional theoretical knowledge objective
	B4 Skill objective	C13 Swimming Professional Skill objective
		C14 Swimming teaching competence objective
		C15 Swimming safety awareness training objectives
		C16 Objective of autonomous swimming learning ability
		C17 Professional Ethics Standards Objectives for teachers
		C18 Positive Emotional Attitude Objective for swimming learning
		C19 Goal of communication and cooperation in swimming learning
A3 Teaching Content	B6 Online teaching content	C20 Online swimming homework before class
		C21 Online swimming technical content
		C22 online swimming tactics content
		C23 Online game video content
		C24 online swimming teaching skills content
		C25 online swimming knowledge test content
		C26 online swimming group discussion content
		C27 Online swimming game video content
		C28 Online Classroom interactive Q&A
		C29 Online Swimming case study
	B7 Offline teaching content	C30 Offline swimming technology content
		C31 Offline swimming tactics content
		C32 Offline swimming competition and referee content
		C33 Offline swimming teaching skills content
		C34 Offline classroom interactive Q&A
		C35 Offline swimming case study
		C36 Offline swimming homework
A4 Teaching Method	B8 Online teaching method	C37 online swimming video teaching method
		C38 Online swimming inquiry teaching method
	B9 Offline teaching methods	C39 Offline swimming demonstration teaching method

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

First level elements	Second level elements	Third level elements
		C40 Offline swimming cooperative teaching method
		C41 Offline swimming game teaching method
		C42 Offline swimming competition teaching method
		C43 Offline swimming stratified teaching method
A5 Teaching environment	B10 online platform	C44 Learning Management system
		C45 Mobile communication equipment
	B11 Offline facilities	C46 Swimming training grounds
		C47 Physical Fitness Gym
	B12 Learning Resources	C48 Textbooks
		C49 Reference books
A6 Teaching process	B13 Preparation before class	C50 Assign class content preview tasks
		C51 provides online resources for self-directed learning
		C52 guides students in developing study plans
	B14 Classroom implementation	C53 Teacher gives explanation and demonstration
		C54 Teachers guide students in training
		C55 Teachers and students interact and exchange feedback
	B15 Reflection after class	C56 Assign class work
		C57 Summary of classroom learning
		C58 Collect student feedback
		C59 Teacher self-reflection
A7 Teaching evaluation	B16 Online teaching evaluation	C60 Use of online learning resources
		C61 Online assignment completion assessment
		C62 Online discussion Engagement assessment
		C63 Online instructional content test assessment
	B17 Offline teaching evaluation	C64 Offline classroom performance assessment
		C65 Offline Practical Skills Assessment
		C66 offline panel discussion and cooperation evaluation
		C67 Offline work completion evaluation
	B18 Diversification evaluation	C68 Student self-assessment
		C69 Peer evaluation
		C70 Comprehensive teacher evaluation
A8 Teaching feedback	B19 Online learning timely feedback	C71 Online student learning effect and experience feedback
		C72 Online teacher evaluation feedback
	B19 online learning real-time feedback	C73 Offline student learning effect and experience feedback
		C74 Offline teacher teaching effect evaluation feedback

3. Focus group discussion on the swimming mixed teaching model for the physical education major of university students.

The focus group consisted of 9 experts, aiming to enhance the completeness of the model and explore the rationality and practicality of the teaching model, and to propose suggestions for improvement. Based on the discussions of the focus group experts, the swimming mixed teaching model overall demonstrates high scientific validity, rationality, and practicality. The suggestions provided by the experts are constructive and aimed at enhancing the effectiveness of teaching within the existing model. These suggestions include optimizing pre-class preparation, paying attention to individual differences among students, adding affective attitude cultivation, integrating online and offline content, introducing innovative teaching methods, optimizing the teaching environment, adding post-class reflection guidance, enhancing the evaluation mechanism, and focusing on the sustainability of the teaching model. Through these suggestions, the teaching effectiveness of the swimming mixed teaching model and the learning experience of students can be further improved within the existing framework.

Part 3: Confirm and validate the swimming mixed teaching model for the physical education major of university students.

Overall, the experts believe that the established swimming mixed teaching model for university physical education majors performs well in terms of framework structure, composition elements, and technological application, demonstrating high scientific validity, rationality, and practicality. The experts unanimously agree that the teaching model can effectively enhance teaching effectiveness and students' learning experiences and meet the current teaching and training standards for university physical education majors. With further optimization and promotion, the teaching

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 6: November-December 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

model is expected to provide higher-quality teaching resources and learning experiences for university physical education majors.

Secondly, an appreciation questionnaire for the swimming mixed teaching model was developed, using a Likert scale with a "five-point" rating system, ranging from 1.00 to 5.00. Based on the comprehensive calculation of expert ratings, elements with an average score higher than 4.51 are considered to meet the retention criteria, indicating that the components of the model possess high rationality and practicality. To further enhance the cyclical continuity of the swimming mixed teaching model, the researchers conducted additional integration and optimization of the elements, ultimately establishing the framework structure model of the teaching model as shown in Figure 3:

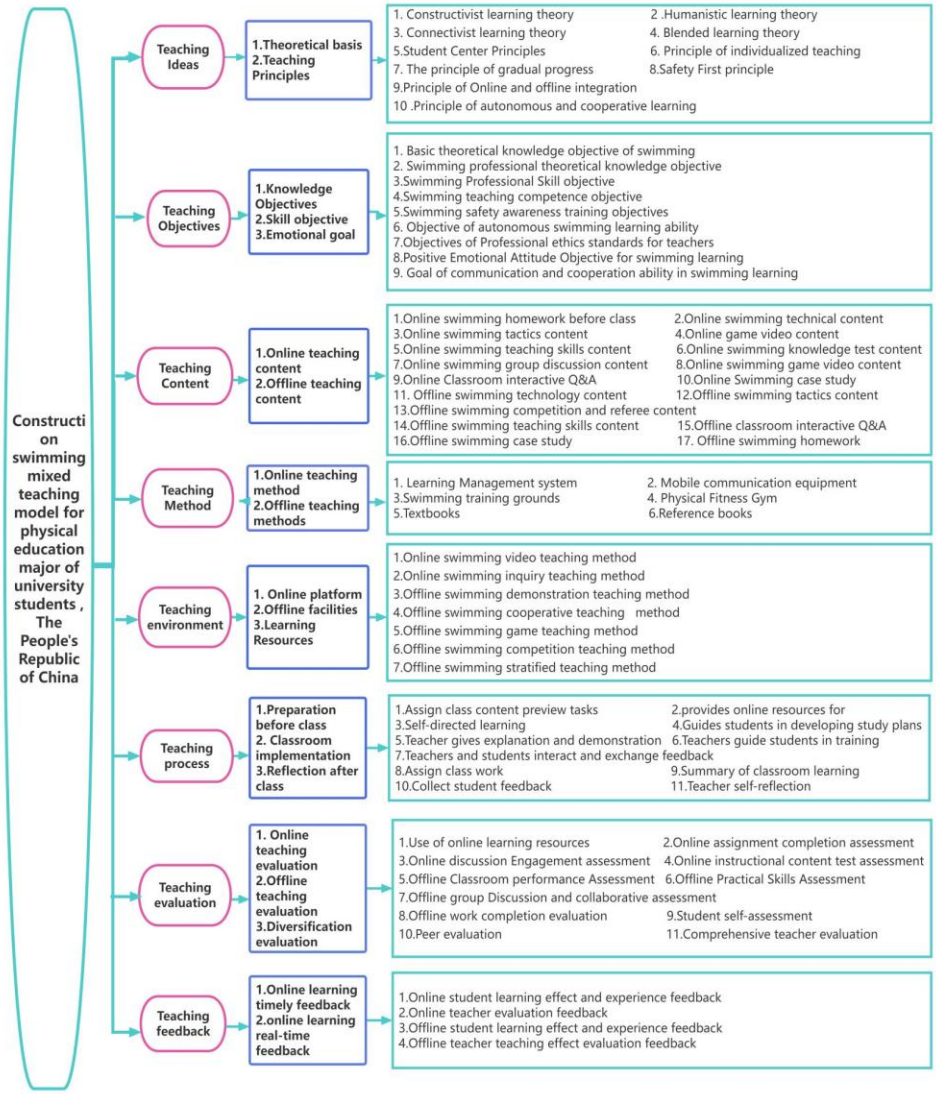

Figure 2 The swimming mixed teaching model for the physical education major of university students

Conclusion

The rationality and practicality of the swimming mixed teaching model for physical education majors of university students were validated through experts using connoisseurship discussion. Using a five-point rating scale, the model was evaluated based on its rationality and practicality, and the framework was ultimately determined. The model includes 8 first-level elements, 20 second-level elements, and 74 third-level elements. Experts unanimously

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

agreed that the swimming mixed teaching model demonstrates significant advantages and potential in terms of framework structure, content elements, application of information technology, and alignment with the training standards for university physical education majors.

Discussion

Teaching Ideas: The teaching ideas of the swimming mixed teaching model consist of two parts: Theoretical Basis and Teaching Principles. The theoretical basis covers constructivist learning theory, humanistic learning theory, connectivism learning theory, and mixed learning theory, emphasizing student-centeredness, knowledge construction, and autonomous learning. The teaching principles include the student-centered principle, the principle of individualized teaching, the principle of gradual progress, the safety-first principle, the principle of online and offline integration, and the principle of autonomous and cooperative learning, aiming to ensure the scientific and effectiveness of teaching. In current research, some teaching ideas suffer from a disconnection between theory and practice, failing to fully consider individual differences and learning needs among students (Feng, Y., 2022). This study integrates theory and practice, emphasizing the combination of online and offline teaching to break through the limitations of traditional teaching models and fully reflect the combination of student subjectivity and teacher guidance. Xu, Y. (2025) pointed out that the mixed teaching model can effectively promote students' cognitive, emotional, and behavioral engagement, which is highly consistent with the teaching ideas of this study. The results of this research are consistent with those of the two researchers. This study further optimizes the teaching ideas, achieving innovation and optimization of the teaching ideas through the mixed teaching model, with strong scientific and practicality.

Teaching Objectives: The teaching objectives of this model are composed of knowledge objectives and skill objectives, aiming to cultivate students' solid basic theoretical knowledge of swimming, professional theoretical knowledge, as well as swimming professional skills, teaching abilities, and safety awareness. In current research, some teaching objectives focus too much on knowledge transmission while neglecting the cultivation of students' abilities (Zhou, L., 2024). This study clarifies the combination of knowledge and skill objectives, emphasizing the integration of knowledge and the ability to cultivate students' comprehensive quality. The mixed teaching model combined with the mentor system can significantly improve students' satisfaction and academic performance, which is highly consistent with the teaching objectives of this study. Additionally, Zhao, Y. F. et al. (2024) explored the modular diversified teaching model for medical statistics courses, emphasizing that teaching objectives should focus on the cultivation of students' comprehensive abilities, further proving the scientific and rationality of the teaching objective design in this study. The views of this paper are consistent with those of the two researchers. This study further refines the teaching objectives, achieving a dual improvement in knowledge and ability through the mixed teaching model, with strong scientific and feasibility.

Teaching Content: The teaching content of this model consists of online teaching content and offline teaching content. The online content includes swimming techniques, tactics, case studies, etc., while the offline content focuses on practical operations and interactive discussions. This study optimizes the connection between online and offline teaching content, achieving an organic combination of theory and practice. In current research, some teaching content suffers from poor integration between online and offline components (Zhang, A.N. et al., 2024). The problem-guided and combined online-offline teaching model can significantly improve students' inquiry abilities and learning outcomes, which is highly consistent with the teaching content design of this study. Additionally, Liu, W. et al. (2024) explored the "dual teacher" mixed teaching model, emphasizing that teaching content should focus on the deep integration of online and offline components, further proving the scientific and practicality of the teaching content design in this study. The views of this paper are consistent with those of the two researchers. This study further optimizes the structure of teaching content, achieving diversification and stratification of teaching content through the mixed teaching model, with strong scientific and practicality.

Recommendation

Recommendation for current research

1. The swimming mixed teaching model developed in this study has significant application value. It is recommended that universities in Guangdong Province that major in physical education take the lead in

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

introducing this teaching model. Through teacher training and resource optimization, the effective implementation of the model can be ensured to enhance students' skills and autonomous learning abilities.

2. Given the systematic and innovative nature of this teaching model, it is suggested that it be gradually promoted in physical education majors across universities nationwide. By organizing teacher training and teaching seminars, teachers can be helped to master the implementation methods of the mixed teaching model, ensuring its effective application nationwide and promoting the overall improvement of physical education teaching quality in universities

Recommendation for further research

1. Future research should further expand the scope of the study by conducting cross-regional research on the mixed teaching model. By comparing teaching outcomes in different regions and analyzing the impact of regional differences on the teaching model, more comprehensive references can be provided for nationwide educational reform.

2. The current research mainly focuses on the short-term assessment of teaching outcomes. It is recommended to conduct long-term tracking studies to analyze the long-term impact of the Mixed Teaching Model on students' academic achievements, career development, and lifelong learning abilities. Through long-term tracking, the sustainability of the model and its profound impact on students' future development can be further verified.

References

Best, J. W. (1977). *Education research* (3rd ed.). Prentice Hall.

Chen, L., & Ren, F. (2021). Practice exploration of the mixed teaching model in swimming and lifesaving courses. *Contemporary Sports Science and Technology*, 10, 142–144.

Chudam, W. (2021). The study of swimming teaching strategies in higher education. *Academic Journal of Thailand National Sports University*, 14(1), 249–264.

Feng, Y. (2022). Research on online and offline mixed teaching models in higher vocational colleges in the background of education informatization. *Journal of Higher Education*, 10(28), 110–113.

Hao, X. (2024). Exploration of teaching models for swimming courses in college sports in the new era. *Sports World*, 5(3), 77–79.

Liu, W., Zhang, M. L., & Lu, H. M. (2024). Exploration of a blended teaching model for promoting deep learning. *Advances in Vocational and Technical Education*, 6(5), 46–50.

Long, H. Z., & Tuo, X. Y. (2022). "Three-stage" mixed teaching model: From model generation to practical application—Taking "games and guidance for young children" as an example. *Chinese Journal of Educational Technology*, 43(8), 116–122.

Pu, J., & Liu, X. (2023). Application of the MOOC platform online and offline mixed teaching model in the physical education major: Take the tennis course as an example. *Journal of Jiangxi Open University*, 8(4), 35–42.

Su, L. Q. (2012). Current situation and reform thinking of swimming teaching in ordinary colleges and universities. *Contemporary Sports Technology*, 12(30), 23–25.

Wang, H. (2020). Research on the application of mixed teaching mode in physical education. *Frontiers in Sport Research*, 2(4), 16–18.

Xu, Y. (2025). A study on college students' English learning engagement in mixed teaching mode. *Contemporary Foreign Language Studies*, 1, 84–95.

Zhang, A. N., Fan, L., Zhang, Q. Y., & Luo, L. (2024). Design and practice of mixed teaching model in basic chemistry experiments: Taking acid-base titration as an example. *Chemistry Education (Bilingual)*, 45(24), 77–83.

Zhang, B. (2022). Exploration of online mixed teaching model reform in applied higher education institutions under the Internet background. *Chinese Science and Technology Papers*, 17(06), 713.

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878

Zhao, Y. F., Qin, Y. Y., Jin, Z. C., He, Q., Wang, R., & Wu, C. (2024). A study on modular and diversified teaching models in eight-year medical statistics courses. *Chinese Journal of Health Statistics*, 41(5), 775–777.

Zhou, L. (2024). Mixed teaching model combined with mentorship to improve medical students' satisfaction and learning outcomes in clinical anatomy. *Journal of Sun Yat-sen University (Medical Sciences)*, 45(6), 853–865.

Zhu, W. L. (2018). Research on the teaching mode of "integration of inside and outside course" in swimming course in ordinary universities. *The Sports World (Academic Edition)*, 5(12), 133–134.

Citation
Huang, D., Siriphan, C., & Hongseanyatham, P. (2025). Construction Swimming Mixed Teaching Model for Physical Education Major of University Students, the People's Republic of China. International Journal of Sociologies and Anthropologies Science Reviews, 5 (6), 569-582; DOI: https://doi.org/10.60027/ijsasr.2025.6878