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Construction of a Mobile Learning Model to Improve Breaststroke Swimming for University Students

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Abstract

Background and Aims: As well as the popularity of mobile smart devices, mobile phones, and tablets inside and outside the campus, it is increasingly convenient for us to obtain big data information on the Internet anytime and anywhere. New epoch planning background, the education reform in colleges and universities to improve the quality of classroom teaching, combining with the network teaching platform, improve the classroom teaching effect, enrich the teaching resources, make mobile learning mode by colleges and universities now recognition and acceptance. The main objective of this study was to construct a mobile learning model to improve breaststroke swimming among university students.

Methodology: A questionnaire was designed for 367 university students. Descriptive statistical method analysis was used to analyze the current of mobile breaststroke swimming learning courses. Clarify the current situation and find the problem to solve. Then, according to the current situation, issues to be addressed, and the requirements of swimming courses, 7 experts' in-depth interviews were invited to extract the mobile breaststroke swimming learning model of university students' teaching elements framework using the NVivo12.0 software. 5 experts were invited to discuss, adopt the IOC test, and develop the first draft of the mobile breaststroke swimming learning model. 19 experts were invited to conduct three rounds of Delphi analysis to conduct the first draft of the mobile breaststroke swimming learning model framework. Finally, we invited 9 experts to perform the Connoisseurship method and finalized the mobile breaststroke swimming learning model.

Results: Confirm the mobile breaststroke swimming learning model. It includes 4 first-level elements, including teaching background, teaching content, teaching process, and teaching evaluation.10 second-level elements, and 23 third-level elements.

Conclusion: Combined with the talent training objectives and requirements, in the construction of a new mobile breaststroke swimming learning model, in addition to the basic offline curriculum setting, full consideration should be given to improving students' technical principles, learning enthusiasm, innovative consciousness, and problem-solving ability. Through in-depth expert interviews and IOC testing, after modification by the Delphi consensus, form the mobile breaststroke swimming learning model draft. Use the Connoisseurship method, to confirm the mobile breaststroke swimming learning model.

Keywords: Mobile Learning; Breaststroke; Teaching Model; University Students

Introduction

Nowadays, with the rapid development and popularization of mobile Internet technology, campus wireless network coverage construction is becoming more and more common. As well as the popularity of mobile smart devices, mobile phones, and tablets inside and outside the campus, it is increasingly convenient for us to obtain big data information on the Internet anytime and anywhere. New epoch planning background, the education reform in colleges and universities to improve the quality of classroom teaching, combining with the network teaching platform, improve the classroom teaching effect, enrich the teaching resources, make mobile learning platform by colleges and universities now recognition and acceptance.

At present, the practical application of mobile breaststroke swimming learning mode in swimming courses in colleges and universities in China is increasing. Especially during the COVID-19 epidemic period, the mobile learning platform guarantees the majority of teachers and students to learn the courses in a special period. However, the researchers are still in the early stage of developing the scientific and reasonable quantitative mobile learning model framework.

Therefore, this study intends to build a mobile learning model for breaststroke swimming courses in universities, through questionnaire surveys and other research methods, and improve the online resource information by using the Superstar Learning online teaching platform. Change the traditional single teaching mode of classroom teaching materials and multimedia courseware, realize the pre-class preview, master the basic content, classroom thematic discussion, case analysis, and other knowledge points, and consolidate the content.

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Conclude the research problems for What should be the mobile learning model to improve breaststroke swimming university students? A scientific, objective, and reasonable mobile breaststroke swimming learning model is constructed, which effectively integrates teaching resources and further strengthens the construction of an integrated curriculum system platform, improves the quality of course teaching, and improves teaching effectiveness. Promoting the practice of mobile frog swimming learning mode in university swimming classroom teaching, improving the traditional classroom teaching mode, and making a modest contribution to the reform.

Objectives

Main objective

To construct a mobile learning model to improve breaststroke swimming among university students.

Subsidiary objective

1. To survey the problems and obstacles of breaststroke swimming learning of university students.
2. To draft the mobile breaststroke swimming learning model.
3. To confirm the mobile breaststroke swimming learning model.

Literature Review

Through literature sorting, with the reform of physical education in universities and the development of science and technology, mobile learning modes are playing an increasingly important role in the field of education. Similarly, college swimming courses are no exception. Special period, more and more colleges and universities began to apply online and offline methods to swimming courses, to stimulate students 'interest in learning, deepen students' understanding of teaching theoretical knowledge, and promote students' sports performance to improve their teaching quality.

Zhang (2014) The teaching mode based on the mobile teaching platform provides a new idea and method for the teaching reform of higher education, changes the traditional situation of teachers speaking and students listening, and strengthens the interaction between teachers and students. At the same time, this model can well integrate all kinds of educational resources, through rich teaching activities, to provide students with a variety of learning environments, so that they truly become the main body of learning. Qin (2018) mobile learning platform teaching mode including single line teaching mode and online hybrid teaching mode, both in network teaching platform for mediation, the use of information technology teaching video, help students to realize knowledge in advance, so that the student theory into practice more convenient, understand more multidimensional action a teaching mode. Zhang (2021) used online and offline mixed teaching to conduct teaching experiments in the public body swimming courses of ordinary universities. Taking the teaching effect of the traditional teaching mode as the reference, the online and offline mixed teaching effect was compared with it, and a multi-level analysis was conducted. The teaching process is tested in stages to explore its differences and advantages and disadvantages, to promote this teaching method for the practical teaching of other technical courses, and to provide substantive data reference for the teaching reform of physical education in colleges and universities.

Dabbagh & Kitsantas, (2012) Interface friendliness: Evaluate whether the interface design of the learning platform is simple, intuitive, and easy to understand and operate. Personalized design effect: Analyze whether the learning platform can provide an effective personalized learning experience according to students' differences. Koole & Parchoma (2013) Clarity of learning objectives: to investigate whether the learning objectives on the platform are clear and clear and in line with the level and needs of students. Gu & Zhu (2018) Relevant researchers evaluated the effect of the mobile learning platform model by quantitative and qualitative methods. At the same time, according to the evaluation results, the model is constantly improved to adapt to the development of the subject and the changing needs of learners.

At present, the research on the mobile swimming learning model mainly involves the application of mobile technology in swimming teaching, the personalized learning design, the real-time feedback system, and the practical application and effect evaluation of the learning platform.

Scholars have extensively discussed the application of mobile technology in swimming learning mode, including but not limited to mobile applications, virtual reality, and real-time feedback systems. The integration of these technologies provides students with a more flexible and intuitive learning experience, enabling them to learn and practice their swimming skills anytime and anywhere. By analyzing students' learning characteristics, levels, and needs, a system is designed to provide customized learning pathways and resources according to individual differences. This personalized design helps to improve students' learning motivation and effect. A real-time feedback system was

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introduced to help students understand and improve their swimming skills more instantly. These systems can provide real-time guidance on posture, breathing, etc., to help students correct their mistakes and improve their skill levels. Through practical application cases and effect evaluation studies, the practical effect of the mobile swimming learning mode in improving students' learning interests, skill levels, and participation is verified. These cases cover different scenarios such as schools and swimming clubs, demonstrating the successful application of mobile learning mode in diverse environments.

Research at home and abroad shows that the online learning mode is the product of the current development of science and technology, and the traditional teaching mode is no longer the only way for us to learn. The online learning mode provides convenience for both educators and participants, whether online learning website, APP, or WeChat mini program, which verifies the effectiveness of the research. However, there are also deficiencies. There is little data on the online learning model, the range of selected research objects is small, most of the research objects are limited to campus students, the method of model verification is relatively single, and the experience time of participants in the modes is relatively short, which is easy to cause large errors in the research results. Research on the construction of China's online swimming learning model, and the construction of apps and websites is still on the rise. However, the comprehensiveness of teaching resources, the price of technical equipment, and the later functional improvement of the website and program are all places that need to be improved.

Conceptual Framework

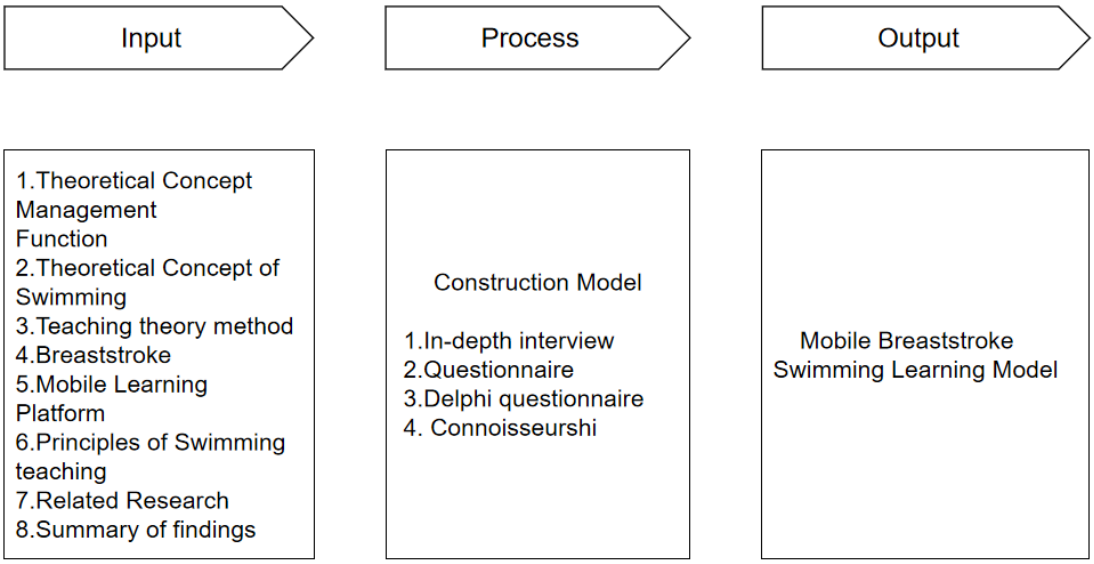

Figure 1 Conceptual framework

Methodology

Population: The population of this study was selected from 4,500 first-year students of compulsory swimming courses at Guangzhou Sport University.

Samples: Samples size use the Taro Yamane method from a sample of 4,500 students. To make the sampling error of the sample within a 95% confidence level, the population used in this research was 367 students (Freshmen at Guangzhou Sport University). This step adopts the method of questionnaire survey to investigate the requirements and current situation of the construction of the university mobile breaststroke swimming learning model.

Research instruments

1. Questionnaire for collection of the data

The questionnaire used to survey the problem and current situations of mobile swimming learning mode in actual swimming teaching would be designed under the university students' swimming course and information on the current problems from the study of related research. The questionnaire would consist of 2 parts: Part 1: Information on the status of the respondents. Part 2:

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Student questionnaire survey, this part was a 5-level scale question with a total of 18 questions. Before using the questionnaire, it will be tested for validity by 5 experts, and the IOC value was 0.95, which is considered acceptable. The criteria for the 5-level evaluation scale (Rating Scale) of Part 2 are as follows: very important (5 points), important (4 points), general (3 points), unimportant (2 points), Very unimportant (1 points).

2. In-dept Interview form for collecting the data from experts

The interview form for to find ways to create a mobile breaststroke swimming learning model for university students. The interview form was an open-ended question. Before implementation, 5 experts were consulted on the appropriateness of the questions（IOC=1）, and the quality was tested by using NVivo12.0 software.

3. Questionnaire for Delphi

The questionnaire in the 3 round of the Delphi method would be created under the mobile breaststroke swimming learning model, combined with the analysis of the current problem from the interview analysis. The questionnaire in the first round of the Delphi questionnaire would be created by the researcher. In the second and third rounds, Delphi questionnaires still be in the same format but the results of the median and CVs from 19 experts will be added.

4. Evaluation form for connoisseurship

The researcher would use the mobile breaststroke swimming learning model as an instrument to request advice and evaluation results from 9 experts in the connoisseurship method, which would be divided into two parts: Part 1 written evaluation content, part 2 evaluation results in table form, the questionnaire was set at 1 to 5 points and the average score is greater than or equal to 4 as the criterion for retaining elements. In which each item must have the agreement of no less than 7 experts.

Data collection

1. Literature and research-related review

According to the needs of the research, focusing on the research content and purpose of the paper, the paper keyword searches "swimming teaching mode" and "mobile learning teaching mode" through databases, the Web of Science, and others. Analyze the text data, and collect the relevant literature and materials on swimming teaching mode, mobile swimming learning teaching mode, and swimming curriculum setting in colleges and universities.

2. Analyze the results of questionnaires for students

Questionnaires were distributed to 367 students in the form of semi-open questionnaires. Online distribution and recycling,367 copies were distributed and 367 copies were recovered, Questions were set around the teaching model of university swimming courses. Use the Questionnaire Star software to distribute and collect questionnaires.

3. Interview 7 experts

To draft the model indicators through expert interviews, including 3 swimming teachers, 2 school administrators, and 2 mobile learning platforms and teaching swimming. The NVivo12 software was used for qualitative research. The interview materials were in the form of manuscripts, with 7 copies of about 17555 words, with more than 2500 words for each copy.

4. Three rounds of Delphi technique

Snowball sampling method for 19 experts, through literature search, preliminary investigation, and expert interviews, the first second, and third level indicators were preliminarily screened, and experts were invited to score and screen the importance in the order of 1-5. Among them, the mean value is the main basis for index screening, and the coefficient of variation (CV) is the ratio of the standard deviation to the mean value, which is used to reflect the degree of dispersion on the unit mean value. The researchers used a CV of 0.25 or less and a median of 3.5 or more as criteria for retaining elements.

5. Connoisseurship method

The Connoisseurship with 9 experts using the 5-point Likert scale method was used to set a score of 1 to 5 points for each element of the mobile breaststroke swimming learning model elements framework, and a suggestion column was set in the questionnaire.

Data analysis

1. Use computer analysis software to collect and organize the data obtained from the questionnaire. ($\bar{x}$, SD.)

2. Content analysis for interview method.

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3. Use the software package to analyze the data on the Delphi method. (Mean ≥ 3.50 and CV. ≤ 0.25)

4. Content analysis for the Connoisseurship method. ($\bar{x}$)

Research Process

This research was divided into 7 steps as follows:

Step 1 Review literature and research

1) Search and collect relevant literature from China Knowledge Network, Wanfang database, and libraries.

Step 2 Questionnaire Survey

1) Distribute questionnaires to relevant 367 students to collect data about the use of mobile learning modes in universities.

2) Analyze and summarize the data from questionnaires.

Step 3 Conduct expert's interview

1) Expert interviews were conducted to gather information on the problems and current situation of the implementation of mobile learning modes in universities.

2) Draft a conceptual framework.

Step 4 Create the questionnaire for Delphi.

1)Summarize insights gathered from expert interviews to inform the questionnaire's design.

2)Develop a questionnaire to collect data from Delphi experts, aiming to construct the design framework of university the mobile breaststroke swimming learning model.

3) Validate the questionnaire by assessing its content validity through Indexes of Items of Objective Congruence (IOC).

Step 5 Conduct the Delphi method

1)Invite 19 experts in relevant fields to evaluate the mobile breaststroke swimming learning model for the university.

2)Administer and gather the questionnaires from Delphi experts through three rounds of surveys.

3) Condense and evaluate the information gathered from the questionnaires.

4) Create the mobile breaststroke swimming learning model framework.

Step 6 Conduct the Connoisseurship method.

Through the connoisseurship method, invite 9 experts to discuss and confirm the mobile breaststroke swimming learning model. The questionnaire was formulated according to the mobile breaststroke swimming learning model, and the questionnaire was set at 1 to 5 points. 9 experts are invited to assign points, and the average score is greater than or equal to 4 as the criterion for retaining elements. After Connoisseurship evaluation, the mobile breaststroke swimming learning model was finally determined.

Step 7 Concluding and writing the final report

Analyze and summarize the relevant analysis, and write the report.

Results

Part 1 To investigate the status of the problem of mobile breaststroke learning teaching mode for university students.

1.1 Discuss the current situation of mobile breaststroke swimming learning course for university students, and compile a semi-open questionnaire around the teaching mode of the university swimming course. The test questionnaire was the IOC index, The Student's questionnaire was set to -1, 0, and +1. To invite 5 IOC tests to check the validity of the questionnaire (IOC=0.95). The scoring criteria are : `X with a mean value of 3.5 or more are selected.4.51-5.00Highest,3.51-4.50High,2.51-3.50Medium,1.51-2.50Low,1.00-1.50 Lowest.

According to the survey data results, this study concluded that teachers still need to optimize the teaching methods and teaching content in the teaching process of university swimming courses. The teaching content should be further made more scientific, with the introduction of mobile learning teaching mode, flexible teaching methods, timely feedback before and after class, and the cultivation of students' autonomy, heuristic teaching, and team cooperation ability in the whole teaching process. The content of the teaching course can enable students to complete the teaching objectives and cultivate practical technical talents.

In addition, the advantages of the current teaching mode are not obvious, and the content coverage of swimming courses is mainly technical practice. However, the "technical class" alone cannot fully cultivate the swimming application ability of theoretical knowledge. For example, some of the technical action points are not clarified and cannot be grasped correctly.

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Therefore, the construction of a new mobile breaststroke swimming learning teaching mode for university students, in addition to the basic offline curriculum setting, should also be fully considered to improve students' technical principles learning enthusiasm innovation consciousness, and the ability to solve problems.

1.2 Experts in-depth interview data collection and the result

Qualitative study using the NVivo12 software. With 7 copies of about 17555 words, with more than 2500 words for each copy. The four dimensions of teaching background, teaching content, teaching process, and teaching evaluation are taken as the ultimate goal of constructing the framework, and we should carry out the work. It includes 4 primary elements, 11 secondary elements, and 28 tertiary elements (Table 1). To invite 5 experts to IOC the validity of the first draft of the mobile breaststroke swimming learning model elements IOC=1.00.

Table 1 The mobile breaststroke swimming learning model of university students' teaching elements framework

First-level elements	Second-level elements	Third-level elements
A Teaching background	A1 Development status	A11 Background
		A12 Frontiers of development
	A2 The teaching mode is good or bad	A21 Advantages of teaching mode
		A22 Disadvantages of teaching mode
	A3 Implementation difficulties	A31 Implementation focus
		A32 Implementation difficulties
B Teaching content	B1 Online teaching	B11 Basic knowledge of theory
		B12 Technical movements and teaching methods
		B13 Contest rules
		B14 Competition appreciation
	B2 Offline teaching	B21 Technique exercises
		B22 Correction of incorrect movements
		B23 Teaching competition
C Teaching process	C1 Preview before class	C11 Online self-preview
		C12 Ask questions
	C2 In-class teaching	C21 Student situation
		C22 Organize teaching, explain and demonstrate
		C23 Technical display
		C24 Exchange and discussion
		C25 Class Summary
	C3After-school consolidation	C31 Assign assignments
		C32 Summary of question reviews
D Teaching evaluation	D1 Homework	D11 Technical assessment
		D12 Standard test
	D2 Technical exams	D21 Homework completion quality
		D31 Attendance
	D3 Usual grades	D32 Classroom performance
		D33 Learning attitude

Part 2 To draft the mobile breaststroke swimming learning model.

Use Delphi to develop the mobile breaststroke swimming learning model for university students

2.1. Implement expert consultation

The Delphi consensus correction method was used to screen the elements of the mobile breaststroke learning mode of university students. The researchers consulted experts via email and finally established a mobile breaststroke learning model for college students with a high degree of expert recognition. In this study, the investigators conducted three rounds of expert consultations. The Delphi consensus correction method was used to screen the elements of the mobile breaststroke swimming learning mode of university students. The researchers consulted experts via email and

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finally established a mobile breaststroke swimming learning model for university students with a high degree of expert recognition.

After the First and second rounds of expert consultation, the average number, coefficient of variability (CV), and median of the data were calculated using SPSS26.0 based on the scores given. By the experts among the 4 first-level elements listed, the average value is higher than 4, the CV value is less than or equal to 0.25, and the median value is greater than 3.5, The experts concerned did not make any suggestions for improvement. Of the 11 second-level elements listed, the average number of A2 The teaching mode is good or bad was 2.81, with CV values of 0. 35 and a median of 3. It shows that the expert scoring situation is more concentrated, and most experts think that this item is generally important. Some experts propose that A2 The teaching mode is good or bad belongs to part A1 Development status, and it is suggested to merge and delete the original secondary elements. For the remaining 10 second-level elements average number values were higher than 4, CV values were less than or equal to 0.25, and median was greater than 3.5. The experts concerned have suggested no improvement and could retain 10 secondary elements.

In the third-level elements, experts recommend that the average number of A21 Advantages of teaching mode and A22Disadvantages of teaching mode are all above 4 points, The CV values were all less than or equal to 0.25 But should be classified into part A1 Development status, therefore, Comprehensive expert opinion combining A21 Advantages of teaching mode and A22 Disadvantages of teaching mode, It was classified as an A12.

Experts recommend that the average number of A32 Implementation difficulties is 4.76, the CV value is 0.10, and the median is 5. Combined with expert comprehensive opinions, it can be combined with an A31 Implementation focus.

Experts recommend a C25 Class summary mean of 3.81, CV value of 0.26, and median of 3. Most experts think this item is generally important. Some experts suggest that C25 Class summary and C32 Summary of question reviews repeat, C32 Summary of question reviews experts think it is more important. Comprehensive expert opinion, solid delete C25 Class summary elements.

Experts recommend a D33 Learning attitude mean of 3.71, CV value of 0.34, and median of 3. Most experts believe this item is generally important. Some experts put forward that D32 Classroom performance elements include D33 Learning attitude, comprehensive expert opinion, and fixed delete D33 Learning attitude elements.

For the remaining 22 tertiary elements, the averages were all higher than 4 points, the CV values were all less than or equal to 0.25, and the median values were all greater than 3.5. The experts concerned have suggested no improvement, and 22 tertiary elements could be retained.

After the three rounds of expert consultation, the mean, coefficient of variability (CV), and median of the data were calculated using SPSS26.0 based on the scores given by the experts. Among the 4 first-level elements listed and the 10 second-level elements listed and the 23 third-level elements listed the average value is higher than 4, the CV value is less than or equal to 0.25, and the median value is greater than 3.5. The experts concerned did not make any suggestions for improvement, so keep these elements.

The three rounds of Delphi consensus modify results: the 4 first-level elements, include A Teaching background, B Teaching content, C Teaching process, and D Teaching evaluation. The 10 second-level elements and the 23 third-level elements.

2.2 Expert authority coefficient

At the same time as each round of expert consultation, experts are also asked to fill out an expert inquiry form. The researcher calculates the expert authority coefficient according to the actual situation of the expert. The test method of expert judgment and familiarity is based on the self-evaluation method. Experts should conduct self-examination and scoring according to their actual situation, as the basis for judgment and familiarity of each round of consultation. The calculated expert authority coefficients were 0.84 and 0.90, respectively, both greater than 0.7. The results show that the 19 experts invited to participate in the Delphi consensus revision have high authority, which further indicates that the constructed mobile breaststroke swimming learning model has high credibility.

2.3The mobile breaststroke swimming learning model draft

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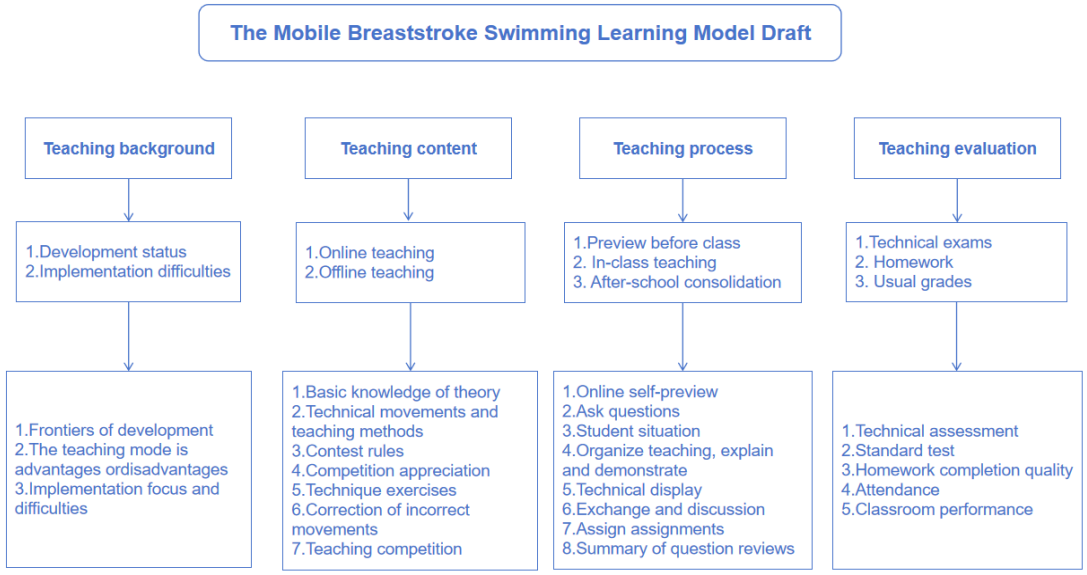

Figure 1 The Mobile Breaststroke Swimming Learning Model Draft

Form The mobile breaststroke swimming learning model draft based on the two rounds of Delphi investigation (Figure 1)**.**

Part 3 To confirm the mobile breaststroke swimming learning model.

3.1 Connoisseurship method

9 experts unanimously suggested that these elements should be retained, suitable for college students' mobile learning swimming courses. It is hoped that it can be applied to the undergraduate swimming teaching course of college students in the later stage. The application of mobile learning mode can improve the enthusiasm of college students in learning, enhance the accumulation of knowledge, and promote the improvement of the teaching effect.

The questionnaire is based on the mobile breaststroke swimming learning model of university students, and the questionnaire is set to 1-5 points. 9 experts were invited to participate in the discussion of the Connoisseurship method. At the same time, the scores of the mobile breaststroke swimming learning model of university students teaching elements framework were combined to identify each element. The average score greater than or equal to 4 points is used as the criterion for retaining elements. All of the calculated results are greater than 4. After the Connoisseurship method discussion, all of the elements can be retained. The mobile breaststroke swimming learning model was finalized.

3.2 Confirm the mobile breaststroke swimming learning model

The mobile breaststroke swimming learning model includes 4 first-level elements, 10 second-level elements, and 23 third-level elements (Figure 2).

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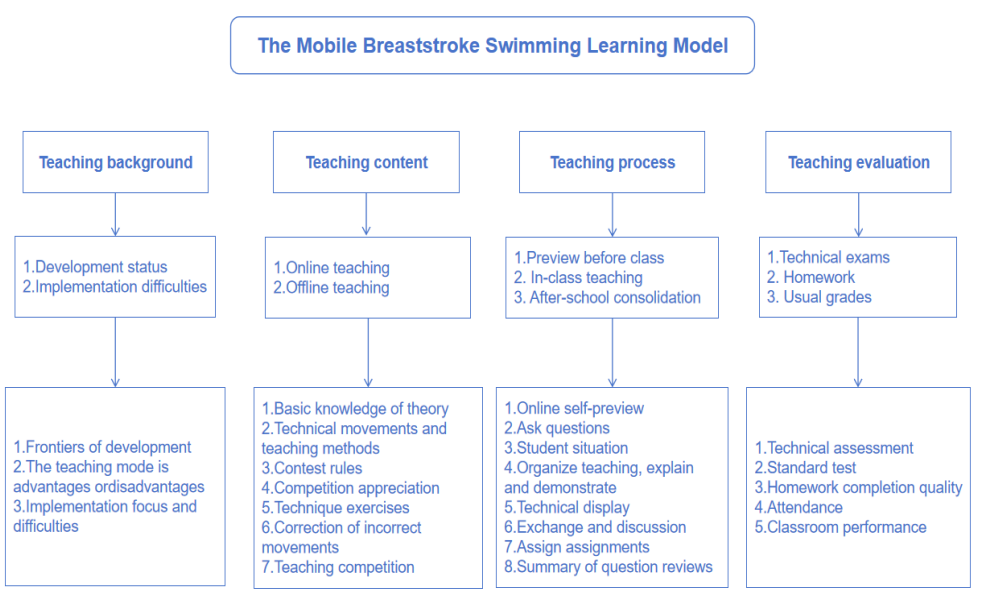

Figure 2 The Mobile Breaststroke Swimming Learning Model

3.3 Summary of the Results

This study studies the teaching status of mobile swimming learning courses. Clarify the current situation and find the problem to solve. To construct a new teaching mode of mobile breaststroke learning, in addition to the existing swimming curriculum, it should be considered to set up reasonable courses from the perspective of students 'initiative, convenience, enthusiasm, and effectiveness to improve students' subjective learning motivation, stimulate students' learning enthusiasm and innovation consciousness, and fully understand the technical principles. Guide and cultivate students' ability to use knowledge to solve problems. According to the current situation, the problems to be solved, and the requirements of swimming teaching, 7 experts were invited to use the NVivo12.0 software. 5 experts were invited to discuss and formulate the first draft of the teaching mode of mobile breaststroke learning in universities.19 experts were invited to conduct three rounds of Delphi analysis to conduct the first draft of the teaching model framework of mobile breaststroke learning. An appreciation group composed of 9 experts was invited to determine the teaching mode of mobile breaststroke learning. It includes 4 first-level elements, including teaching background, teaching content, teaching process, and teaching evaluation.10 second-level elements, and 23 third-level elements.

Discussion

The mobile breaststroke swimming learning model is based on the constructionist theory, and its main purpose is to promote students' independent learning and knowledge construction through practice and experience. In this teaching mode, students in the process of learning breaststroke, let students actively explore in practice, promote initiative, cultivate their independent thinking ability and problem-solving abilities, and gradually master the breaststroke skills and essentials through continuous attempts, reflection, and adjustment. Second, through group activities or peer mutual assistance, to promote communication and cooperation between students, and jointly improve the learning effect. Thirdly, we can also adjust the teaching strategies according to the different needs and abilities of students, and pay attention to the growth and progress of each student. Finally, we should not only pay attention to the mastery of technology but also pay attention to students 'psychological quality, team spirit, and positive learning attitude, to cultivate students' comprehensive quality.

Swimming theory is an integral part of the swimming curriculum system of college students and a necessary module in the mobile breaststroke learning mode. The theoretical basis of swimming can help teachers set clear learning goals, such as improving students' water adaptability and mastering basic breaststroke movements. The theoretical basis of swimming provides a scientific analysis of the movements, which can help students understand the basic movements of breaststroke, including the coordination of kicking, rowing, and breathing. This can enhance students' understanding of the

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technical essentials. In the teaching process, the corresponding teaching methods are designed to deepen the theoretical explanation and video demonstration. The teacher can let the students see the correct breaststroke movements, and explain the movement track of the body and the reaction force of water, to help the students to better master the skills in practice. The importance of feedback can also be emphasized, and teachers can provide timely feedback based on student's performance to help them adjust and optimize the techniques.

Swimming technology is an important part of the whole swimming curriculum system for university students. For the teaching mode of mobile breaststroke, it is equally important to master the swimming technique and theory. In general, the core task of the swimming curriculum model is to use various teaching methods to solve practical problems in the teaching process. Master standard breaststroke skills, in the practical teaching or students can be applied to competition.

The new knowledge points of this study are shown below (Figure 3).

Figure 3 The New Knowledge Points

Recommendation

Academic contribution

The results of this study can help swimming teachers to popularize university swimming courses more efficiently and indicatively, provide a basis for systematic swimming teaching, and provide guidance for students to improve their swimming ability.

Application contribution

This study uses a mobile breaststroke swimming learning model to test the effect of the model, facilitate the subsequent application in Guangzhou universities, help swimming teachers improve the teaching quality of swimming courses, and achieve the teaching objectives.

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