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Developing a Collaborative Teaching Program for Basketball Class in Vocational College Students

Wu Nannan[1] and Nopporn Tasnaina[2]
Faculty of Sports Science and Technology, Bangkokthonburi University, Thailand
[1]E-mail: 979720292@qq.com, ORCID ID: https://orcid.org/0009-0002-3448-9572
[2]E-mail: aipia2489@gmail.com, ORCID ID: https://orcid.org/0009-0001-6086-0657
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Abstract
Background and Aim: At present, the traditional teaching program of colleges and universities has certain advantages in teaching knowledge and skills, but neglects the cultivation of students' comprehensive practical ability. To solve this problem, it is necessary to explore a new model suitable for physical education teaching in colleges and universities. So, the main objective of this research was to develop a collaborative teaching program for basketball classes for vocational college students.
Materials and Methods: This study was quasi-experimental. The researcher used a questionnaire for 40 students and reviewed literature to investigate the problems and status of basketball courses in vocational colleges. And interview 7 experts for the discussion of the factors involved in the design and evaluation of the collaborative teaching program. The two rounds of Delphi with 19 experts to correct and retain all aspects of the collaborative teaching program for basketball class in the vocational college, and reformulate the teaching program. Finally, use an experimental method to study the result of using a collaborative teaching program. The data were analyzed using a statistical software package for mean, standard deviation, and paired t-test and independent t-test. The statistical significance threshold was 0.05.
Results: 1. There was a significant difference in post-test on all items in physical fitness, social adaptation, and teaching practice performance between the experimental group and the control group ($p < 0.05$). On the basketball skill of post-test results between the experimental group and control group, there is a significant difference in the free throw line shot hits the mark and comprehensive dribble layup standard ($p < 0.05$). 2. There was a significant difference in physical fitness, basketball skills, social adaptation, and teaching practice performance between the pre-test and post-test within the experimental group ($p < 0.05$).
Conclusion: The collaborative teaching program for basketball class in vocational college students, that have been proven through experimentation and experts, has produced satisfactory results. They can be put into practice, and when implemented, should take into account differences in age and educational level of learners.
Keywords: Basketball Class; Collaborative Teaching Program; Vocational College Students

Introduction

With the rapid development of the economy, it seems that the talents trained by universities cannot meet the needs of society, but the vocational education complementary to university education has gradually grown. In the past ten years, the professional talents moving from vocational colleges to society have made great contributions to the socialist construction of our country. There are some problems in talent training in vocational colleges, such as unclear training objectives, unreasonable curriculum design, and a lack of sufficient attention to humanistic quality education, which also makes it difficult for students to meet the actual needs of society for highly skilled talents.

Students in vocational colleges are bound to face greater intensity and high-density homework. Therefore, it is very necessary to improve the vocational ability of vocational students, which requires vocational students to cultivate good sports habits, master the knowledge of sports, and build a healthy body, to adapt to the heavy labor of various industries. As an important part of the quality education plan, the physical education courses in higher vocational colleges are responsible for the training of students 'physical quality, students' professional ability, and the importance of improving students' professional quality. Song (2023) believes that at present, the physical education in higher vocational colleges lags, the content of physical education courses is outdated, and it fails to follow the pace of The Times and the development of higher vocational education. Physical education courses in higher vocational colleges are an integral part of education and teaching, which should follow the pace of The Times and carry out corresponding reforms. Cui et al. (2020) believe that although the group activities of students in higher vocational colleges have their own characteristics and tend to be diversified, most of them have problems with an imperfect management system, insufficient activity funds, and a low professional degree of teachers. Li et al (2022) found problems such as insufficient top-level design,

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inadequate government supervision and coordination, backward construction concept, separation of curriculum standards from the professional world, lack of participation in industry enterprises, and imperfect evaluation system.

Through literature investigation and personal practice, we found that there are many problems in basketball courses in higher vocational colleges, and most of them adopt collective teaching under the current general trend. For course teaching, in the process of collective teaching, it is found that there are few teaching programs in domestic universities, and the teaching is too monotonous, making it difficult to make students interested in basketball courses in the course, and cannot cultivate their consciousness and thought of lifelong physical education. After consulting relevant literature and investigation, the main theme of the basketball class is. For a long time, China's basic education has implemented homogeneous teaching based on collective teaching, which assumes that the needs of students are consistent, to uniformly allocate classroom teaching resources to ensure that.

This paper introduces the curriculum development of the collaborative teaching program. This teaching program integrates other teaching theories and teaching programs without violating the students. Experimental research on basketball teaching through various collaborative teaching programs. To determine that the collaborative teaching program has a good development for basketball, he can greatly improve the diversity of the teaching program.

Objectives

1. To study the current situation of the teaching program for basketball classes in vocational college students.
2. To draft and develop the collaborative teaching program for the basketball class in vocational college students.
3. To find out the experiment results between participation in the collaborative teaching program and the traditional teaching program for basketball class in vocational college students on physical fitness, basketball skills, social adaptation, and teaching practice performance.

Literature Review

Higher vocational colleges

A higher vocational college is to cultivate a certain degree of higher education knowledge, professional skills, and technical knowledge, and a more prominent application of the technical practice operation ability of the junior college. Higher vocational colleges include two educational levels of junior college and undergraduate degree, and their name suffix is vocational and technical college, vocational college, junior college, etc.

Yang (2008) The germination and development of higher vocational colleges appeared with the call of The Times. Up 44 percent from 1.08 million at the end of the 20th century, 1.08 million to 1.56 million. With the deepening of the reform in recent years, the whole society attaches great importance to the development of vocational education, especially since the implementation of the Decision on Vigorously Developing Vocational Education issued by the State Council, various vocational and technical colleges have developed vigorously.

Mao et al (2021) Higher vocational education, as an important part of China's higher education system, is the main force to promote the popularization of higher education, and plays a pivotal role in the process of building a lifelong education system and promoting economic and social development. And higher vocational colleges as the main carrier of the implementation of higher vocational education, in the construction of method vocational education system, establish the type of higher vocational education attribute era background, the identity of the academic organization clearer mainly bear the practical technical knowledge concise and teaching, exploration and innovation, transformation and application and other academic tasks.

The physical education teaching method is mainly based on physical practice.

1. Complete practice method

The complete method is the method of learning and practicing completely and continuously from the beginning to the end of the action, regardless of parts and paragraphs. It applies to sports where there is no qualitative difference between "will" and "not," or sports are not technically difficult

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or necessary, or insoluble at all. Problems that must be paid attention to when applying the complete method: Restriction practice, a method to correct movement errors. Such as practice when starting, practice setting a certain height on the head of the students after the low front high of the inclined bar, in this kind of restriction to make them experience, master the correct action, to avoid the error of early straight up to run.

Induction practice method: It is a simple, specialized practice similar to the learned action technique. The choice of induced exercises should be purposeful, with attention paid to the consistency of the muscles it uses and the order of force with the physical exercises learned.

Self-suggestion method: students in the clear method to complete the action and pay attention to meet some requirements, and in practice to consciously suggest to themselves to meet the requirements. If the hind legs are not enough, you should pay attention in practice. Auxiliary exercise: it is the exercise of simple technical movements similar to the learned body exercises to help students master the more difficult movements.

Decomposition practice method: refers to the complete action into several parts, a section of the physical education teaching method. It is suitable for the "qualitative difference between" will and" no," or sports technically difficult and decomposed sports items.

2. Cycle practice method

According to the needs of teaching and exercise to select several practices means, set up several corresponding practice stations (points), students according to the prescribed order, route and practice requirements, station by station practice and cycle method, it is mainly the practice method, not the teaching method, but it is also a teaching organization method. There are many ways of circular practice, mainly flow type and group rotation type, two kinds.

Methods of physical education teaching are mainly based on sports and competition activities.

Refers to the teaching of teachers to create a certain situation and competition activities, so that students, through more vivid sports practice, edify their temperament, improve sports ability, and improve participation in sports teaching methods. The PE teaching methods based on scene and competition activities include sports game method, sports competition method, situational teaching method, and so on.

1. Sports game method: The game method usually has a certain plot and competitive elements, a variety of content and forms. However, it is the plot, competition, cooperation, and other elements in the game that can help physical education teachers to cultivate students 'thinking and judgment ability in the process of learning, cultivate students' sentiment, and conduct psychological exercises for students. Therefore, the game method is widely adopted in physical education teaching.

2. Sports Competition Method: It refers to a teaching method of learning and practicing skills by organizing student competitions. Strictly speaking, competition is also a form of game, but there are two main differences between competition and the aforementioned game method: (1) game has many types of competition, cooperation, performance and so, while competition focuses on competition; (2) game is not limited to a certain event, but competition is often related to a certain sport.

3. Scenario teaching method: It is a teaching method that mainly adapts to the primary school low and middle grade students, using the lower grade students who are keen to imitate, rich imagination, dominant image thinking, and lively and educational significance. This method mainly follows the law of children's understanding and emotional change.

The PE teaching method is mainly based on inquiry activities.

The physical education teaching methods based on inquiry activities include the discovery method and the small group teaching method. Also known as exploration method, research method, refers to the students facing the concept and principles of sports learning, teachers just give them some examples and problems, let the students through observation, verification activities, thinking, discussion and listening and other ways to independently explore learning, and discover and master the corresponding principles and conclusions.

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Discovery method of the guiding ideology is based on the student as the main body, through positive independent activities, make the students in master, understanding and solve problems of the attitude at the same time, cultivate their initiative to explore the learning steps and ability, study the process of objective things, improve the cause of the development of found things and the ability of internal connection.

Small-group teaching method: Also known as "small group teaching method", it is a teaching method to improve students 'learning initiative, improve learning quality, and achieve students' social training for students through the collective factors in physical education teaching, the social communication between students and students' mutual help and learning. Although the teaching methods of small groups are also in various forms, there is generally a process of grouping and forming a collective at the beginning of the unit. In this process, it is important to make the group have a certain cohesion and their respective learning goals.

Yang (2020) the results show that: 1, the application found teaching method, highlight the students 'subjectivity, learning process, teaching process pay attention to students' active participation in teaching situation as a design principle, is conducive to strengthen the teaching of technical action understanding, teaching difficulties, explore the process more deeply into the students' learning process.2. Compared with the traditional teaching method, the teaching method of badminton general courses in college physical education based on discovery teaching method emphasizes students' active participation in thinking, increasing the problem creation situation, teacher guidance, problem correction, and helps students to understand the connotation of action and improve their training performance in basic technology teaching.3. The implementation of the teaching method of badminton general physical education courses in colleges and universities based on the discovery teaching method, there was no significant difference in the overall badminton performance of students, but the experimental group made obvious progress.

To sum up, the main teaching programs and means in China are mainly taught in the above aspects. There is still a lot of space for us, so we should continue to innovate and find out the teaching programs and curriculum construction suitable for higher vocational students at this stage.

Conceptual Framework

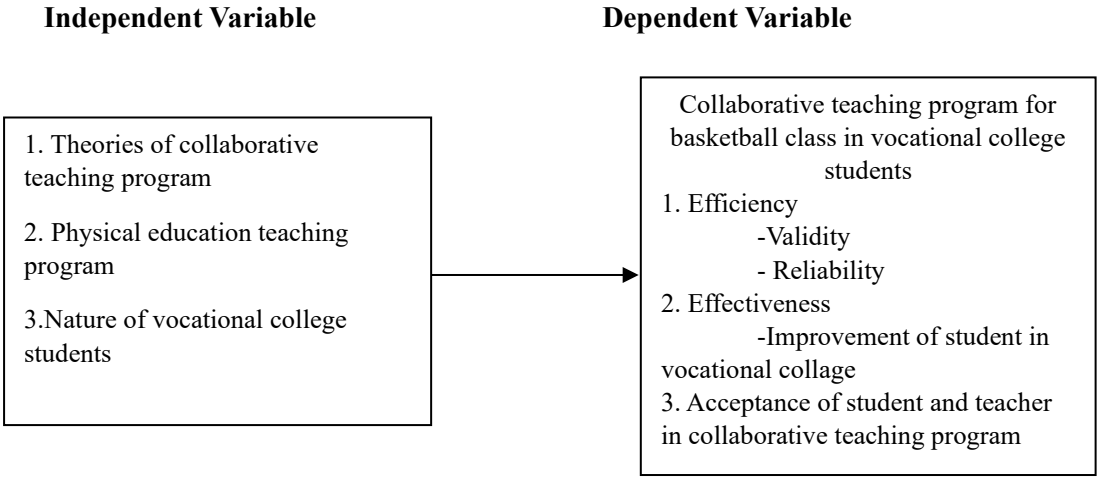

Figure 1 Conceptual Framework

Methodology

Population and Sample

There are 1300 sophomores in Guangdong Ecological Engineering Vocational College. Because basketball is an elective course, the school has a small course selection procedure.

The school stipulates that there are only 200 students in the basketball class every year. In this experiment, 40 students were selected from the 200 students as samples for the whole experimental method.

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Based on the scores on the basic basketball skills and physical fitness tests, the athlete scores from 1 to 40 points in order. They were then systematically divided into two groups: the experimental group (n=20) and the control group (n=20).

Research Instrument

1. Questionnaires: The questionnaire part is divided into three parts: 1. The student questionnaire before the construction of the new teaching model mainly includes the questionnaire on students' interest in basketball, self-learning ability in treating basketball, teamwork ability, and ability to analyze problems. 2. Questionnaire on the student IOC "Promoting the development of basketball classes in vocational colleges through teaching models".

2. Expert interview form: Based on an in-depth literature review and reading, full-time teachers from higher vocational colleges in Guangdong Province, senior and middle-level leaders of higher vocational colleges, professional basketball coaches from training institutions, and researchers who have been engaged in academic research for many years were invited to conduct interviews. The expert interviews were divided into two rounds; the first round was mainly for the discussion of the factors involved in the design and evaluation of the collaborative teaching program, and the second round was conducted after a 16-week practice of the collaborative teaching program.

3. Delphi questionnaire: The researchers mainly used two rounds of Delphi questionnaires, the first round was after expert interviews and student questionnaires, and a experimental group model was preliminarily formulated to conduct expert discussions to correct and retain all aspects of the new teaching model, and the second round was to reformulate the teaching model after the first round of Delphi statistical removal problems and expert suggestions.

4. Experimental plan: The experimental process was divided into two groups: the experimental group and the control group, and the teaching was carried out through two different teaching modes. The experimental group uses a collaborative teaching program, and the control group uses a traditional teaching program.

Data Collection

1. Review the literature and analyze the model construction process and physical education test content related to the collaborative teaching program. And try to find out the advantages and disadvantages of the traditional teaching program, as well as the advantages and disadvantages of the collaborative teaching program.

2. Conduct student questionnaires, questionnaires on students' interest in basketball, questionnaires on students' ability to work together before experiments, questionnaires on students' problem-solving ability, the relevant content of students' physical fitness test, and the relevant content of students' basketball skill assessment.

3. Conduct expert interviews to confirm the shortcomings of the collaborative teaching program and what can be learned, which can also provide a certain basis for Delphi's investigation. (first round) and confirm the practicality of the collaborative teaching program (second round). Respondents included 9 experts.

4. Use the collaborative teaching program to conduct group tests on experimental subjects, collect data, and modify the plan.

5. Officially start the 16-week continuous experiment, and collect training data before and after the experiment.

6. Collect the questionnaire of the students in the experimental group on the collaborative teaching program and the experts' requirements and effectiveness of each link in the collaborative teaching program, and then analyze the data to verify the effectiveness and applicability of the collaborative teaching program.

Data Analysis

1. Descriptive statistical methods, including the computation of the average, standard deviation, and percentage, are utilized to analyze the data obtained from the questionnaire.

2. Descriptive statistics, specifically the median and interquartile range, were employed to analyze the Delphi consensus data. The criteria for the analysis included a median of ≥ 3.50 and an interquartile range of ≤ 1.50.

3. Evaluate the content validity of the expert interview outline.

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4. The experimental result within the group was used paired sample t-test, and the results between groups were compared using an independent sample t-test.

Results

1. Investigation results of the problems and status of basketball courses in Vocational Colleges in Guangdong Province.

Questionnaire survey result: The analysis of students' interest and engagement in basketball reveals a mixed but generally positive attitude towards the sport. While around 55% of students find basketball lessons boring or unengaging, suggesting a need for more innovative approaches, many students express a strong desire to participate in basketball and consider it one of their favorite classes. More than 60% show enthusiasm for taking basketball lessons and applying the skills in their daily lives. However, the majority rarely engage in basketball activities outside class, indicating a need to enhance the accessibility and attractiveness of such activities. Despite this, many students are actively involved in extracurricular basketball, follow basketball news, and enjoy discussing it socially, reflecting the sport's broad appeal in students' lives. Overall, while students are highly engaged in basketball outside of class, improving the appeal of the lessons themselves would boost overall student interest and participation.

The analysis of students' teamwork and analytical problem-solving skills in basketball reveals several key insights. Students generally show a moderate to high willingness to participate in basketball activities, with a strong motivation to learn technical skills. However, their ability to observe, self-adjust, and help others is less developed, suggesting a need for improvement in active observation and self-correction. In terms of analytical problem-solving, students are consistent in their engagement but need more guidance in self-reflection and error correction. While they are capable of using resources to address problems, there is room for further development. Overall, students excel in teamwork and mastering skills but require additional support in self-reflection and problem-solving to enhance their overall performance in basketball.

The analysis of students' independent learning ability in basketball highlights their strong self-motivation and determination. Students show excellent concentration, persistence, and initiative, especially when facing challenges such as fatigue or external distractions. They actively reflect on their performance, often summarizing and assessing their progress, demonstrating a clear sense of purpose and a desire for self-improvement. Students are willing to put in the effort during practice and competition, and they can self-assess and identify areas for growth. Overall, students exhibit a high level of self-regulation, self-reflection, and motivation, which are essential for successful independent learning and personal development in basketball. These insights can inform the development of a collaborative teaching program to further enhance their learning experience.

Expert interview result: Several experts to discuss this question, but everyone has their focus are published their views, personal summary: in the student questionnaire should start from three aspects 1, students; interest in basketball questionnaire 2, students; team cooperation and analysis of problem-solving ability 3, the students; autonomous learning ability of questionnaire. Mainly from these three aspects of the investigation. In the establishment of a collaborative teaching program, we should consider many factors, such as the formulation of teaching objectives, which should not be too high, to meet the needs of students. Various teaching programs can be created in teaching programs and teaching evaluation, which can well mobilize the enthusiasm of students and the development of all aspects.

Validated by the second round of the Delphi method voting from 19 samples, the median mid-interquartile range (IQR) from each element of the teaching objective, teaching method, teaching content, and teaching evaluation was greater than 3.50, and the IQR value was less than 1.50.

The table below shows that the diversified collaborative teaching program of the basketball course in higher vocational colleges has the potential for further implementation. The investigator-developed method is accurate and reliable.

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NO.	Content	Mdn	IQR
Instructional objectives			
1	Knowledge and skill objectives (such as dribbling, passing, shooting, defense, etc., to reach the level of skilled use)	4.00	1.00
2	Process and method objectives (Students can actively participate in discussions, division of labor and cooperation, complete the learning tasks together, and solve the problems encountered in basketball learning and practice.)	4.00	1.50
3	Emotional attitudes and value goals (Set up the students 'correct sports values, which is an important way to promote personal comprehensive development and improve comprehensive quality, and cultivate the students' awareness of lifelong physical education)	4.00	1.50
4	Innovation and development goals (Encourage students to give full play to their innovative thinking in basketball learning and practice, such as putting forward new ideas and methods in tactical design and technology application, to cultivate students' innovative ability. Pay attention to students' differences and personalized development needs.)	4.00	1.50
Teaching method			
5	Group learning, cooperative learning, and teaching	5.00	1.00
6	Task-driven teaching	5.00	1.50
7	Situation teaching method	5.00	1.50
8	Multimedia-assisted teaching method	4.00	1.00
9	Situation introduction teaching	4.00	1.00
10	game teaching	5.00	1.00
11	Club teaching	4.00	1.00
Content of courses			
12	Introduce the teaching content and teaching objectives, establish the class WeChat group, and conduct the pre-experimental test on the students' physical form, physical quality, basketball technology, teaching practice ability, and the recycling questionnaires.	4.50	1.50
13	Introduce the relevant theoretical knowledge of basketball, such as the origin and development of basketball sports	4.50	1.50
14	Learn the basic standing skills of basketball and the basic dribbling skills of basketball	4.50	1.50
15	Conduct physical exercises and learn basketball attack, defense, and other footwork skills	4.50	1.50
16	Learn some of the individual offensive skills of basketball, basketball turns, direction, and other skills	4.50	1.50
17	Basketball shooting technique	4.50	1.50
18	Learn basketball passing and receiving skills, including both hands chest pass, master pass, and so on	4.50	1.50
20	Theory course: Analysis of basic basketball tactics theory	4.00	1.50
21	Learn the combination technology of multiple transportation and transmission investments	4.50	1.50
23	Learn relevant theories about personal skills	4.50	1.50
24	Related theory and application of skill practice	4.50	1.50
25	Learn things about rebounding and personal defense skills	4.50	1.50
Teaching evaluation			

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NO.	Content	Mdn	IQR
26	Evaluation of students: learning results (skill assessment, theoretical knowledge assessment, and competition performance evaluation)	4.00	1.50
27	Evaluation of teaching process (students, classroom performance evaluation, feedback evaluation of teaching method, feedback, learning progress range evaluation, learning attitude and effort degree evaluation)	4.00	1.50
28	Evaluation of teaching resources (teaching materials, teaching facilities, and sites)	4.00	1.50

The Experimental results and analysis

Table 1 Comparison of the pre-test and post-test on physical fitness within the experimental group (n=40)

No	Test	Pre-test (n=20)		Post-test (n=20)		t	p
		$\bar{x}$	SD	$\bar{x}$	SD		
1	50 m Run (s)	7.05	0.14	6.67	0.75	-0.52	0.00*
4	Standing long jump (m)	2.75	0.77	2.82	1.92	0.59	0.00*
5	1,000-m Run (s)	215.25	22.89	208.48	24.25	-0.42	0.00*

*p<0.05 represents that there is a significant difference.

Table 1 showed that the p-values of the index of pre-test and post-test on physical fitness within the experimental group were < 0.05. So, it found that there is a significant difference.

Table 2 Comparison of the post-test on physical fitness between experimental group and control group (n=40)

No	Test	Experimental group (n=20)		Control Group (n=20)		t	p
		$\bar{x}$	SD	$\bar{x}$	SD		
1	50 m Run (s)	7.09	0.15	6.67	0.75	-0.52	0.00*
4	Standing long jump (m)	2.77	0.92	2.82	1.92	0.59	0.00*
5	1,000-m Run (s)	219.48	18.25	208.48	24.25	-0.42	0.00*

*p<0.05 represents that there is a significant difference.

Table 2 showed that the p-values of the post-test on physical fitness between the experimental group and control group < 0.05. So, it found that there is a significant difference.

Table 3 Comparison of the pre-test and post-test on basketball skills within the experimental group (n=40)

NO.	Test	Pre-test (n=20)		Post-test (n=20)		t	p
		$\bar{x}$	SD	$\bar{x}$	SD		
1	The free-throw line shot hits the mark	14.40	4.18	18.00	2.75	-4.41	0.00*

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NO.	Test	Pre-test (n=20)		Post-test (n=20)		t	p
		x̄	SD	x̄	SD		
2	Free throw line shooting skill evaluation	6.52	0.63	7.43	0.57	-8.85	0.00*
3	Comprehensive dribble layup standard	14.45	2.91	16.60	2.41	-6.58	0.00*
4	Comprehensive dribble layup technology evaluation	6.79	0.63	7.45	0.59	-7.18	0.00*

*p<0.05 represents that there is a significant difference.

Table 3 showed that the p-values of the index of pre-test and post-test on basketball skills within the experimental group were < 0.05. So, it found that there is a significant difference.

Table 4 Comparison of the post-test on basketball skills between experimental group and control group (n=40)

NO.	Test	Experimental group (n=20)		Control Group (n=20)		t	p
		x̄	SD	x̄	SD		
1	The free-throw line shot hits the mark	18.00	2.75	15.60	3.87	1.11	*0.00
2	Free throw line shooting skill evaluation	7.43	0.57	6.77	0.62	1.84	0.05
3	Comprehensive dribble layup standard	16.60	2.41	14.80	2.72	1.22	*0.04
4	Comprehensive dribble layup technology evaluation	7.45	0.59	6.97	0.72	1.08	0.07

*p<0.05 represents that there is a significant difference.

Table 4 showed that the post-test on basketball skills between the experimental group and control group showed a significant difference in the free throw line shot hits the mark and comprehensive dribble layup standard (p > 0.05).

Table 5 Comparison of the pre-test and post-test on social adaptation within the experimental group (n=40)

NO.	Test	Pre-test (n=20)		Post-test (n=20)		t	p
		x̄	SD	x̄	SD		
1	Interest in basketball learning	74.90	4.34	81.70	6.52	-5.29	0.00*
2	Team ability	27.25	2.55	29.85	2.88	-6.72	0.00*
3	Independent learning ability	29.65	2.56	73.95	3.01	-7.36	0.00*
4	Analyze the problem-solving ability	29.65	2.56	33.25	2.67	-8.34	0.00*

*p<0.05 represents that there is a significant difference.

Table 5 showed that the comparison of the pre-test and post-test on social adaptation within the experimental group resulted in a significant difference on all items (p < 0.05).

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Table 6 Comparison of the post-test on social adaptation between the experimental group and the control group (n=40)

NO.	Test	Experimental group (n=20)		Control Group (n=20)		t	p
		x̄	SD	x̄	SD		
1	Interest in basketball learning	81.70	6.52	76.80	5.63	1.68	0.02*
2	Team ability	29.85	2.88	27.90	2.73	1.14	0.01*
3	Independent learning ability	73.95	3.01	71.15	4.02	0.85	0.03*
4	Analyze the problem-solving ability	33.25	2.67	31.05	2.76	1.39	0.01*

*p<0.05 represents that there is a significant difference.

Table 6 showed that the comparison of the post-test on social adaptation between the experimental group and control group resulted in a significant difference on all items ($p < 0.05$).

Table 7 Comparison of the pre-test and post-test on teaching practice performance within the experimental group (n=40)

NO.	Test	Pre-test (n=20)		Post-test (n=20)		t	p
		x̄	SD	x̄	SD		
1	Ability to write teaching plans	12.80	0.89	13.85	0.98	-7.76	*0.00
2	Network teaching media application ability	11.05	1.31	11.90	1.20	-5.10	*0.00
3	Classroom organization ability	12.05	1.19	13.20	0.89	-5.51	*0.00
4	language competence	13.65	1.08	14.85	1.08	-4.48	*0.00
5	Correct error ability	14.50	1.14	15.70	1.34	-6.99	*0.00

*p<0.05 represents that there is a significant difference.

Table 7 showed that a comparison of the pre-test and post-test on teaching practice performance within the experimental group showed a significant difference on all items ($p < 0.05$).

Table 8 Comparison of the post-test on teaching practice performance between experimental group and control group (n=40).

NO	Test	Experimental group (n=20)		Control Group (n=20)		t	p
		x̄	SD	x̄	SD		
1	Ability to write teaching plans	12.80	0.89	13.85	0.98	-7.76	*0.00
2	Network teaching media application ability	11.05	1.31	11.90	1.20	-5.10	*0.00
3	Classroom organization ability	12.05	1.19	13.20	0.89	-5.51	*0.00
4	language competence	13.65	1.08	14.85	1.08	-4.48	*0.00
5	Correct error ability	14.50	1.14	15.70	1.34	-6.99	*0.00

*p<0.05 represents that there is a significant difference.

Table 8 showed that the comparison of the post-test on teaching practice performance between the experimental group and control group showed a significant difference on all items ($p < 0.05$).

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Conclusion

1. The scores of physical fitness at pre-test and post-test within the experimental group show a significant difference on all items ($p < 0.05$).

2. The scores of basketball skill at pre-test and post-test within the experimental group show a significant difference on all items ($p < 0.05$).

3. The scores of social adaptations at pre-test and post-test within the experimental group show a significant difference on all items ($p < 0.05$).

4. The scores of teaching practice performance at pre-test and post-test within the experimental group show a significant difference on all items ($p < 0.05$).

5. The scores of physical fitness of the post-test between the experimental group and the control group show a significant difference on all items ($p < 0.05$).

6. The scores of basketball skills of the post-test between the experimental group and the control group show a significant difference in the free throw line shot hits the mark and comprehensive dribble layup standard ($p < 0.05$).

7. The scores of social adaptations of post-test between the experimental group and control group show a significant difference on all items ($p < 0.05$).

8. The scores of teaching practice performance of the post-test between the experimental group and control group show a significant difference on all items ($p < 0.05$).

Discussion

Establishing a collaborative teaching program requires adequate school facilities, skilled teachers, and strong theoretical knowledge, such as we will have some games in the collaborative teaching program, which will appear need some game props and other equipment, so we will need the process of buying sports equipment all sports equipment should have corresponding reserves. The support of the school management, the promotion of a collaborative teaching program, and the training of trust for full-time sports teachers should be regular and uninterrupted. In this way, the special name is conducive to the development of the full name of teachers, not only in their special field achievements, but developed in an all-around way. This point of view and Lan. (2016) said that the education and teaching ability of university teachers is an important standard to measure their quality and professional level. At present, due to the guidance of teachers' evaluation mechanism in colleges and universities in China, university teachers generally attach importance to the accumulation of subject professional knowledge and scientific research, and lack sufficient enthusiasm and research in their teaching work.

The influence of the rapid development of network teaching, we should adapt to the current sports skills class need to seek breakthrough trend, the network teaching reasonable applied to our physical education, improve the teaching effect of college basketball, gradually introduced into the sports teaching process, schools and related departments should strengthen attention, use some mature network teaching platform to carry out the teaching, but also support the production and application of network teaching resources. This point of view and Hao (2002) said that the application of modern information technology in the research of teaching mode is not enough. Researchers only regard computers and other modern teaching media as auxiliary tools or a factor in the application of the teaching model.

Pluralistic teaching mode requires students to have strong autonomous learning ability, the ability to make rational use of network teaching, and the ability to cooperate between teachers and students. This point can be well solved through experiments. It not only improves the relationship between teachers and students, enhances students' autonomous learning ability but also cultivates students' problem-solving ability. LI et al (2024) said that the exploration and practice of the cooperative teaching mode between teachers and students in higher education is not only an innovation of the traditional educational model, but also a profound practice of modern educational ideas, which is of far-reaching theoretical and practical significance.

Recommendation

Recommendation for This Research

1. Teachers should absorb the advantages of the traditional teaching program, abandon the shortcomings, and combine the two teaching programs for teaching.

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2. Set the difficulty of the problem according to the students' basketball level. The difficulty of the new teaching problem is relatively small, and the difficulty of the review lesson is relatively large.

3. The setting of problems should highlight the key and difficult points of the teaching content, which is conducive to students mastering basketball skills faster.

Recommendation for Future Research

1. The study spent 16 weeks and 32 class hours on the experimental group, which leads to a short teaching experiment time, which makes this study not rigorous enough and needs to be improved in a later stage.

2. According to the characteristics of teaching objects and school conditions, the implementation process of PBL is further improved.

3. The curriculum arrangement time of the PBL teaching program is increased, and several evaluation indices are added at the same time to make the teaching effect more reliable.

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