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Development of Flipped Classroom Teaching Program on Children's Basic Gymnastics in Higher Vocation College

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Abstract

Background and Aim: The research aims to design the flipped classroom teaching of children's basic gymnastics in Chinese higher vocational colleges, compare children's basic gymnastics skills between using a flipped classroom teaching program and a traditional teaching program, and then promote the gymnastics teaching in Chinese higher vocational colleges.

Materials and Methods:
The sample of this research was 60 students from two natural classes of "Children's Basic Gymnastics" in the 2023 academic year of Dongguan Vocational and Technical College. 60 students which was divided into an experimental group and a control group. The experimental group was using the flipped classroom teaching program, the control group was using the traditional teaching program. A questionnaire survey method and an In-depth interview method were conducted to develop the teaching content of children's basic gymnastics course. The experimental period was 8 weeks, including 24 theory classes and 26 practice classes. Using mean, standard deviation, and independent sample T-test to analyze the data.

Result: The result shows that the total performance and skill performance of the experimental group and the control group are significantly different, and the experimental group is better than the control group. However, there is no significant difference in the physical quality of the two groups.

Conclusion: In the teaching of children's basic gymnastics in higher vocational colleges, the effect of the flipped classroom teaching program is better than the traditional teaching program, which has a significant effect on the children's basic gymnastics learning performance of students.

Keywords: Flipped Classroom; Children's Basic Gymnastics; Higher Vocation Colleges

Introduction

With the development of global Internet information technology, "Internet + education" has gradually entered people's attention, thus affecting the continuous optimization of the school education system. More and more attention has been paid to modern education informatization, and the development of education informatization is an important part of China's education and teaching reform. In 2012, the Ministry of Education of China issued the Ten-Year Development Plan for Education Informatization (2011-2020); in 2019, the CPC Central Committee and the State Council issued China Education Modernization 2035; in 2020, the Ministry of Higher Education Department issued the Work Points of Higher Education Department of the Ministry of Education in 2020. China's attention to modern education informatization is deepening, and the transformation is accelerating from the attitude of "active development in 2012" to "realizing it as soon as possible in 2019" and "formal construction in 2020"

There are some problems in higher vocational education, such as low employment rates, unclear training objectives, low quality of education, and insufficient practical training links. Strengthen vocational orientation, improve teachers' quality, strengthen practical teaching, and other reform countermeasures. To promote the development of higher vocational education, and improve students' employability and education quality (Liang, 2018). Therefore, to realize the high-quality development of children's basic gymnastics professional courses in higher vocational colleges, the teaching mode will absolutely change accordingly, and new changes will adapt to the development of the times

In the current gymnastics teaching, most of the indoctrination teaching method, with the traditional teaching of students sports culture knowledge and skills learning, teachers and teaching materials as the center (Zhou, 2019). In today's network information highly developed environment,

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teaching methods should keep pace with The Times, with the help of the resources around, effectively play its role, to improve the teaching quality, and promote the scientific implementation and development of physical education reform (Li, 2022). A flipped classroom is a kind of teaching method in through teachers upload teaching video resources before class, and students can complete learning independently, answer questions in class, and cooperative exploration. It is also known as "reverse classroom" (Zhang and Meng, 2013).

China's social informatization has entered the road of rapid development. The Internet environment such as the Internet and media is very superior, and the online teaching resources in various disciplines are gradually enriched. In such an environment, physical education teaching has gradually introduced online resources, especially the traditional teaching program has been unable to meet the needs of higher education teaching in the new era. In Chinese higher vocational colleges, the teaching of children's basic gymnastics specialized courses is still based on the traditional teaching program, and the teaching mode with teachers' classroom explanation and personal demonstration as the main teaching method is slightly single, which cannot adapt to the demands of The Times. “Flipped classroom” is under this background of rapidly developing new teaching methods, is a combination of education and information technology, use of online resources teaching method, introduce flip classroom into Chinese vocational colleges, children can improve higher vocational colleges children's basic gymnastics course teaching mode of a single realistic problem.

Objectives

1. To develop a flipped classroom teaching program on children’s basic gymnastics skills in higher vocational colleges.
2. To compare children’s basic gymnastics skills between using a flipped classroom teaching program and a traditional teaching program.
3. To promote gymnastics teaching in Chinese higher vocational colleges.

Literature Review

Flipped Classroom

Flipped classrooms first appeared in the United States in 2007. It refers to the classroom teaching mode combining online and offline teaching in teaching practice. The realization of this classroom teaching mode depends on the application of a variety of modern teaching technologies**.** Flipped classroom theory is the premise of teaching practice. Whether teaching practice can be properly carried out in the process of education can be said to depend on the perfection of theory, and practice is the benchmark to test theory. Only by pointing out the practical direction of theory first, can we facilitate the development of practice. As a hot issue, the theoretical research of flipped classrooms has been combined with modern technology, and scholars have discussed it in different aspects. Liu (2022) Flipped classroom teaching mode as the new favorite of education informatization, the educational circle has interpreted its theory from multiple perspectives. In general, it boils down to two aspects: what teachers and students should play in the flipped classroom teaching model. And how teachers should design the teaching process before class, to play the teaching effect of flipped classroom teaching mode is the top priority. Wang (2014), flipped classroom as an emerging education concept and teaching mode, through students' extracurricular independent learning, in-class collaboration interaction will know smart internalization, provides teachers with a personalized teaching platform, provides students with personalized learning space, the study of foreign typical flipped classroom teaching model, put forward the personalized learning in flipped classroom teaching model. On the essence and advantages of flipped classrooms and the feasibility of flipped classrooms in China, that flipped classroom is not a substitute for teachers and simple video teaching, not an omnipotent teaching weapon, cannot solve all the problems in teaching; the advantage of flipped classroom can cultivate optimistic students, can help teachers to achieve transformation, is the inevitable product of science and technology education; no flipped classroom practice can be copied, even in the hardware conditions do not allow, can still practice flipped classroom.

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Li, et al (2013) from Henan Normal University also studied the flipped classroom model, The research analyzes the advantages of the flipped classroom in teaching and the challenges it will face in practical teaching, and target the courses for practical applications, to create a learning environment before class, Build a flipped classroom teaching mode of "problem-centered and task-driven". Besides, there are also many scholars based on the design of micro-courses, MOOCs, and task lists, some scholars have compared the flipped classroom teaching mode with the domestic teaching mode and found that the new teaching and heuristic teaching method of the Confucius period coincide with the educational idea of the flipped classroom

To sum up, no matter which kind of flipped classroom model is the most appropriate model in the corresponding era, and they are all a form of flipped classroom. These theoretical studies have laid a foundation for people to deeply understand the flipped classroom, provided a reference for promoting the process of teaching reform in China, and made contributions to changing the current teachers 'teaching ideas and promoting the development of China's education and teaching theories. Flipped classroom in the development of the field of basic education in our country is relatively good, before the introduction of the model in our country, our country's primary and secondary school online network classrooms had been very well developed, because flip classrooms by uploading video or other types of learning materials as the premise, this for the flipped classroom in the implementation of primary and secondary schools in our country laid a good foundation. Flipped classroom has been implemented in some subjects in some primary and secondary schools in China, and it has accumulated rich experience in the process of practice. These research results have laid a solid foundation for the application and promotion of flipped classrooms.

Flipped classroom teaching in sports programs

With the introduction of the flipped classroom teaching model, most scholars have changed from the theoretical research of the flipped classroom to the practical research. Since the concept of the flipped classroom teaching mode has been taken seriously, many Chinese scholars have applied the flipped classroom teaching mode to subject teaching, and the physical education course teaching has gradually introduced the flipped classroom teaching mode, and it is also developing continuously

Zhu and Zhou (2015) through the Hubei normal college sports college volleyball students' study, discuss the role of flipped classroom application in volleyball class: after flipped classroom teaching, the students' volleyball skills have been greatly improved, their cognitive learning interest and volleyball theory will have a great effect on the course of teaching.

Guo (2017) and others pointed out that the flipped classroom applied to Latin dance teaching, can stimulate students' enthusiasm for Latin dance and independence, but the flip classroom teaching mode is not perfect, lack of multimedia teaching resources, to let teenagers Latin dance in flipped better play its role in the classroom, you need to create a favorable policy environment, as well as the rapid development of information technology.

Zhou (2019) did not use any information technology in the application of flipped classroom in the paper, but let the students preview before the class in the form of distributing materials, and let the students use "sports drawing" to simply draw the action skills, and wrote the formula on it so that it is easier to remember. This is a reversal that does not rely on the Internet platform, and students' self-learning efficiency can be tested by looking at their cards. It is a "flipped classroom", a "flipped classroom" combined with a "Tuka". This teaching experiment applies the flipped classroom to the instrument gymnastics with certain difficulty and particularity, which is a subject worth studying. However, whether the students can master this course skillfully will have a certain impact on the effect of the teaching.

Flipped Classroom in Physical Education Teaching

Chi and Shi (2014), combining flip classroom with a variety of methods, can effectively solve the problems existing in secondary vocational physical education teaching, for example, combining flip classroom and traditional teaching methods, can realize the complementary advantages, at the same time, for the two teaching mode in practical application, this paper from the current situation of the secondary vocational sports teaching mode, the role of flipped classroom, flipped classroom

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implementation and evaluation perspective, put forward in the video to fully consider the students' psychological characteristics and learning habits. Liu and Dong (2014) analyzed the practical operation and effectiveness of introducing flipped class into PE class by using the theoretical mode of "three two two one". The theoretical mode of "three, two, two, and one" is also called three learning stages, two teachers, two elements, and two online and offline platforms. According to the characteristics of the flipped classroom and combined with the characteristics of a sports major, a task-driven learning purpose is constructed. In this context, this paper proposes three elements to implement the flipped classroom, namely, students 'awareness of independent learning, teachers' utilization of network resources, and the construction of a network platform. The construction of the "3,2,2, and one" teaching mode has a certain reference value for the application and development of flipped classrooms in physical education teaching. Liu and Wang (2015) and other scholars proposed applying “flipped classroom” to ordinary university physical education majors in the “Research on the Construction of Public Physical Education Teaching Mode in Universities Based on" Flipped Classroom”, and carried out a series of physical education teaching practices on this basis. The experiment is divided into an experimental group and a control group. Finally, compare the skill evaluation with the test results, and the following conclusion is obtained: applying the flipped classroom teaching mode to physical education in colleges and universities is better than the traditional teaching method, which is conducive to students improving their technical ability and meets the requirements of examination evaluation. Liu (2015) discussed the practice of applying flipped classrooms to physical education teaching in junior middle school, briefly described the research status of flipped classrooms at home and abroad, made a simple summary of the relevant theories of flipped classrooms, and analyzed its application effect in physical education teaching in middle school. The results show that in a short period, flipped classroom teaching mode can help students better master sports skills, enhance their self-confidence, help learners better develop their learning, and enable teachers to optimize their teaching process, to speed up the efficiency and quality of teaching. Wang (2015) pointed out that the “flipped classroom” is the premise of the construction of physical education teachers in universities, and an important guarantee for the construction of physical education teachers in universities. This paper analyzes the meaning and realization way of “flipped classroom” and puts forward some valuable suggestions in combination with the disadvantages of "flipped classroom" in domestic universities. Therefore, in physical education teaching, the key to a flipped classroom lies in "giving full play to the advantages of information technology in physical education teaching, giving students more space for practice and exploration, making the combination of physical education teaching methods optimal, and let teachers internalize the sports knowledge and skills they have learned".

Bernard, et al (2017) and others believe that the integration of emerging teaching modes such as flipped classrooms and various teaching methods such as network technology, online teaching, and traditional teaching can more effectively improve students' learning enthusiasm, and reflect the "student development center", which has both traditional teaching environment and online network platform. This new teaching method can fully reflect the students 'learning efficiency, teaching effect, and students' overall satisfaction degree.

To sum up, flipped classrooms have become a hot topic in the teaching mode, especially in the country, the research has been uninterrupted, whether in sports projects or the specific experiments and operations in physical education teaching, there is a sufficient research basis. Flipped classroom covers a wide range and means, and few studies have applied it to sports programs. Flipped classroom in the use of sports teaching strategy research is multifaceted, it is not only to pay attention to students 'academic performance, but more should also pay attention to students' learning attitude, learning interest, learning autonomy and communication ability, explore ability, social adaptability, only in this way, flip the value of the classroom teaching mode can get full play. It is a feasible way to introduce a "flipped classroom" into physical education teaching, but in the implementation process, we must adjust the teaching content appropriately to improve the teaching effect, so that students can better master the relevant basic theories and basic movement skills.

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Gymnastics Teaching

Gymnastics is an important part of students' physical education learning, but the current situation of gymnastics teaching in China is not optimistic. Wang (2019) in the university physical education professional gymnastics general course of sociology influence factors and promotion strategy research —— nine universities in Yunnan province, for example, mentioned in the Yunnan province gymnastics course teachers for many years teaching habits, still, adopt the traditional teaching method, not conform to the trend of the education information age, not to study the use of network technology. Therefore, traditional teaching methods still play an important role in the local gymnastics course teaching and apply Internet technology to physical education in the modern teaching process. Traditional teaching methods make it very difficult to improve students' self-study ability and learning interest. Therefore, teachers should use modern teaching methods to improve the students 'interest, no longer demonstrate to teach sports skills, and should pay attention to improving the students' quality in various aspects through gymnastics learning. Therefore, teachers should conform to the development trend of educational informatization and boldly use scientific and technological means to add new elements to physical education teaching. Chang (2016) said in the Investigation and Research on the Status quo of Gymnastics Selected Courses in Physical Education in Sports Colleges and Universities in Henan Province that for most higher education colleges and universities in Henan Province, the traditional and single teaching means are a common problem in physical education teaching. Teachers explain demonstration, students' group practice, and other methods of repeated use. However, in the teaching of special gymnastics elective courses, teachers cannot teach through individual guidance according to the current problems of students and cannot achieve the teaching effect of teaching students by their aptitude, which leads to students resisting gymnastics courses, and the learning effect is not satisfactory. Sun (2012) pointed out in the Research on the Teaching Status and Countermeasures of Gymnastics General Course in Universities in Shaanxi Province those gymnastics, different from other events, has high requirements on students' physical control ability and their ability to respond to emergencies. The teaching goal is no longer the pursuit of student gymnastics skills. Contemporary gymnastics teaching gradually begins to pay attention to the embodiment of students' emotional value goals and the improvement of comprehensive quality. It is far from enough to master gymnastics skills and only rely on class time, which puts forward high requirements for students' active learning consciousness. However, the traditional teaching mode makes it difficult for students to develop the consciousness of independent practice after class, and it is difficult to form the action representation. Therefore, the teaching means should be combined with modern technology, so that students can more intuitively feel the techniques and methods of gymnastics, have an interest in the learning content, and then achieve the goal of improving their comprehensive ability.

To sum up, the teaching mode of gymnastics courses in China is generally conservative, following the traditional teaching mode and process, mainly with teachers' demonstration and explanation. However, with the increasing age of teachers, especially those who are retiring, it is difficult to ensure the standardization and correctness of the demonstration movements, and cannot help students to form the correct movement representation. During the practice process, it is easy to appear fear and produce negative emotions in gymnastics practice. Gymnastics projects are gradually fading in the development of physical education in colleges and universities due to a series of complex problems. In this context, changing the current situation of gymnastics teaching, relying on scientific and technological support, enriching teaching means, and innovating gymnastics teaching methods have become the top priority.

Summary

Foreign research on this new teaching mode has been relatively common, and the core problems are the different learning degrees of flipped classrooms and the difference between flipped classroom modes on students' learning motivation, independent learning consciousness, and learning enthusiasm and the traditional teaching mode. Thus, confirming the advantage of the flipped classroom to the teaching effect. The flipped classroom has become a hot spot in the teaching mode, especially in domestic research has never stopped, both the comprehensive theoretical research and the specific

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operation of teaching experiments have sufficient research basis. It includes the connotation characteristics of the flipped classroom, the mixed-use of teaching mode and traditional mode, the development problems in China, the challenges and promotion strategies, etc. Flipped classroom involves a wide range of fields and uses various methods, but most of them are conducted in the form of literature and data methods, comparison, and interview. The above research results have laid a good foundation for the application of flipped classrooms, played a certain reference role in promoting "curriculum reform" in China, and contributed to changing the current teaching concept and promoting the formation and development of new teaching theories in China. The teaching mode of gymnastics courses in China is generally conservative, following the traditional teaching mode and process, mainly with teachers' demonstration and explanation. However, with the increasing age of teachers, especially those who are retiring, it is difficult to ensure the standardization and correctness of the demonstration movements, and cannot help students to form the correct movement representation. During the practice process, it is easy to have fear and negative emotions during the gymnastics practice. Gymnastics projects are gradually fading in the development of physical education in colleges and universities due to a series of complex problems. In this context, changing the current situation of gymnastics teaching, relying on scientific and technological support, enriching teaching means, and innovating gymnastics teaching methods have become the top priority.

Conceptual Framework

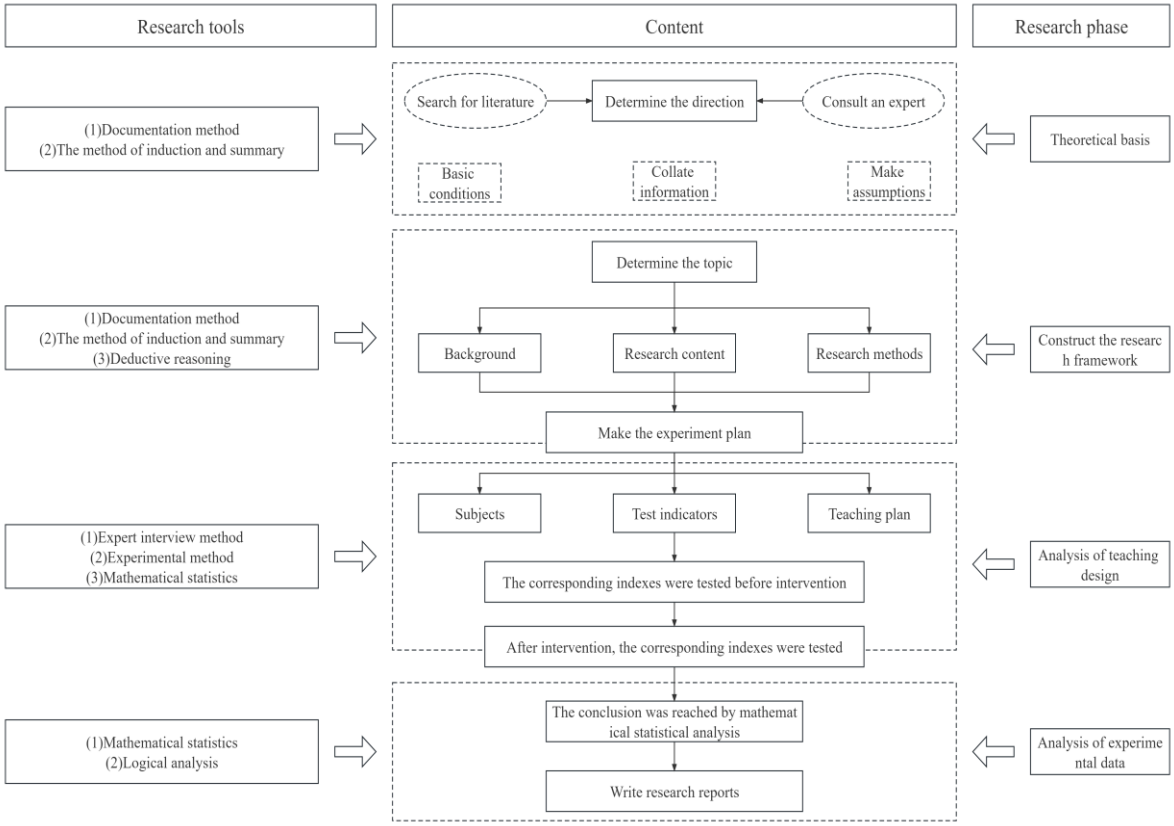

Figure 1: Conceptual framework

Methodology

Population and sample size

The sample of this research was 60 students from two natural classes of “Children's Basic Gymnastics” in the 2023 academic year of Dongguan Vocational and Technical College. 60 students which was divided into an experimental group and a control group. The experimental group was using

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the flipped classroom teaching program, the control group was using the traditional teaching program, both classes have not received systematic children's basic gymnastics technical training.

Research tools

The flipped classroom teaching program which designed by the researcher. And the questionnaire.

Data Collection and Data Analysis

A questionnaire survey method and an In-depth interview method were conducted to develop the teaching content of children's basic gymnastics course.

The experimental period was 8 weeks, including 24 theory classes and 26 practice classes, and the final examination in the last class in the eighth week. The teaching plans all set the same overall teaching objectives and segmented teaching objectives.

The overall teaching content and class hour assignment of the control group and the experimental group are shown in Table 1.

Table 1: Overall teaching content and allocation of class hours between the control group and the experimental group

3	Children's basic gymnastics special technical module	Children's basic gymnastics special teaching guidance skills, handstand and support balance, mat on the gymnastics group body front roll, side hand roll, jumping goat, jumping box, horizontal bar, and other gymnastics technical movements teaching and exercise.	16
4	Examination	Two parts of classroom examination + final examination: 1. Meet the basic theoretical requirements of course learning; 2. The completion standard and quality of basic technical action; 3. The mastery of technical action teaching methods and the explanation and application of protection and help techniques.	2

Using SPSS software, the collected data is described for statistical analysis, comparative analysis, and the corresponding data processing.

Comparison and comparative analysis of the experimental results between the flipped classroom teaching program and the traditional teaching program.

Results

1. The influence of flipped classroom teaching of children's basic gymnastics and traditional classroom teaching in higher vocational colleges on students' technology are as follows:

Table 2: The average overall test scores of the experimental and control groups

Group	Technical results 60%	check on work attendance 10%	classroom performance 10%	Teaching practice 20%	Total score
experimental group	57.00	10.00	9.83	19.57	96.40
control group	52.71	10.00	8.50	16.70	87.88

Note: The results in the table are the average scores of the class, and the unit (points).

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Table 3: Table of experimental group and control group

Group	box horse	Horizontal bar	cartwheel	neck and shoulder stand with elbow support	The group rolled over	headstand
experimental group	9.64	9.28	9.67	9.50	9.50	9.50
control group	8.87	8.54	8.81	8.76	8.86	8.88

Note: The scores in the table are the average scores of the skill test of the class, and the total score of each score is 10 points, and the unit (points).

According to the output results of SPSS software, the total score and skill score data of the experimental group and the control group can be considered to follow a normal distribution, and the T-test of independent samples can be conducted.

Table 4: Independent sample T-test for post-experimental test scores between experimental and control groups

Index	**experimental group**	**control group**	**t**	**p**
Horizontal bar	96.40±0.99	87.88±2.77	15.844	0.000*
Skill grades	57.00±0.52	52.71±1.38	15.91	0.000*

Note: p> 0.05, no significant difference; * p <0.05, significant difference

The results show that the total performance and skill performance of the experimental group and the control group are very significantly different, and the experimental group is better than that of the control group.

2. The influence of children's basic gymnastics flipped classroom teaching and traditional classroom teaching on students' physical quality

2.1 Comparison of pre-test and post-test results of body morphology and physical fitness in the experimental group.

Table 5: Comparison of pre-test and post-test results of body morphology in experimental groups

Information	**Before the experiment**	**After the experiment**	**t**	**p**
age	18.07±0.25	18.07±0.25	0.000	1.000
stature	171.65±2.16	171.68±2.14	0.060	0.952
weight	63.57±2.73	63.57±1.65	0.000	1.000

Note: p> 0.05, no significant difference; * p <0.05, significant difference

The results showed that there was no significant difference in age, height, weight, and other body morphology.

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Table 6: Comparison of pre-test and post-test results of physical quality in the experimental group

Project	Before the experiment	After the experiment	t	p
vital capacity(ml)	5397±108	5402±71	0.213	0.832
Sit forward(cm)	18.07±3.03	32.4±2.80	19.039	0.000*
1000m(s)	221.4±8.32	221.4±6.52	0.000	1.000
50m(s)	6.49±0.20	6.49±0.17	0.000	1.000
standing long jump (cm)	2.59±0.06	2.60±0.07	0.546	0.587
Pull-up (s)	11.10±2.73	18.53±3.86	8.621	0.000*

Note: p> 0.05, no significant difference; * p <0.05, significant difference

The results showed that there was no significant difference in vital capacity, 1000m, 50m, and standing long jump, and in forward flexion and pull-up in the sitting position.

2.2 Comparison of pre-test and post-test results of body morphology and physical quality in the control group.

Table 7: Comparison of pre-test and post-test results of body morphology in the control group.

Information	Before the experiment	After the experiment	t	p
age	18.03±0.32	18.03±0.32	0.000	1.000
stature	171.72±2.20	171.88±2.07	0.302	0.764
weight	61.83±2.17	62.38±1.81	1.066	0.291

Note: p> 0.05, no significant difference; * p <0.05, significant difference

The results showed that there was no significant difference in age, height, weight, and other body morphology in the control group.

Table 8: Comparison of pre-test and post-test results of physical quality in the control group

Project	Before the experiment	After the experiment	t	p
vital capacity(ml)	5354±79	5371±80	0.819	0.416
Sit forward(cm)	20.08±2.80	31.27±2.75	15.62	0.000
1000m(s)	225.0±9.40	222.7±7.72	1.035	0.305
50m(s)	6.47±0.21	6.45±0.19	0.257	0.789
standing long jump (cm)	2.60±0.07	2.60±0.07	0.089	0.930
Pull-up (s)	11.93±2.75	20.57±2.84	11.961	0.000*

Note: p> 0.05, no significant difference; * p <0.05, significant difference

The results showed that there were no significant differences in vital capacity, 1000m, 50m, standing long jump, and no significant differences in forward flexion and pull-up in the sitting group.

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2.3 Comparison of the physical quality results of the two groups after the experiment

Table 9: Comparison of physical quality of experimental and control groups

Project	experimental group	control group	t	p
vital capacity(ml)	5402±71	5371±80	1.605	0.114
Sit forward(cm)	32.40±2.80	31.27±2.75	1.583	0.119
1000m(s)	221.40±6.52	222.70±7.72	0.705	0.484
50m(s)	6.49±0.17	6.45±0.19	0.784	0.436
standing long jump (cm)	2.60±0.07	2.60±0.07	0.165	0.869
Pull-up (s)	18.53±3.86	20.57±2.84	2.326	0.024*

Note: p> 0.05, no significant difference; * p <0.05, significant difference

The results showed that there was no significant difference in physical fitness between the experimental group and the control group.

Conclusion

1. In the children's basic gymnastics teaching in higher vocational colleges, selected the Dongguan vocational and technical college level 2023 social sports professional 60 students (club body 1 class 30 people, club body 2 class 30 people) for the experiment object, the two classes flipped classroom teaching mode, after 8 weeks of learning, the final experimental results (total and skills) using SPSS software comparative analysis, significant difference shows that the experiment and control group, experimental group significantly better than the control group. Therefore, in the teaching of children's basic gymnastics in higher vocational colleges, the effect of the flipped classroom teaching mode is better than the traditional classroom teaching mode, which has played a significant effect on the children's basic gymnastics learning performance of students in higher vocational colleges.

2. There was no significant difference in the body morphology, and no physical differences, including in vital capacity, 1000m, 50m, standing long jump; forward flexion, and pull-up in the sitting position. Therefore, in the basic gymnastics teaching for children in higher vocational colleges, both flipped classroom teaching mode and traditional classroom teaching mode have played a significant effect on students' upper limb strength and flexibility.

3. After the experiment, there is no significant difference in the physical quality of the two groups, that is, in the basic gymnastics teaching in higher vocational colleges, the flipped classroom teaching mode and the traditional classroom teaching mode have the same effect on students' physical quality.

4. The combination of the “Learning Pass” online learning platform and the flipped classroom teaching mode can play a supervisory role in the students' pre-class preview. Flipped classroom teaching can help teachers complete the teaching task, achieve the teaching goal, and have a good effect on the gymnastics course teaching.

Discussion

The biggest advantage of the flipped classroom is that it learns independently before and after class, which has a strong dependence on students' learning consciousness, and may not have the expected effect on students with poor self-discipline. The implementation of flipped classrooms is highly dependent on resources, and it is easy to carry out in higher vocational colleges or higher universities, but it is difficult to carry out physical education in mountain villages or primary and secondary schools with poor resources in China. This is consistent with the research result of Guo

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(2017) that the implementation of the flipped classroom in Latin dance instruction can ignite students' passion for Latin dance and encourage their independence. However, the flipped classroom teaching model is not without its shortcomings, particularly the scarcity of multimedia teaching resources. To fully harness the potential of the flipped approach for teenage Latin dance instruction, it is essential to establish a conducive policy environment and leverage the rapid advancement of information technology. From the perspective of teaching effect acquisition, flipped classrooms are worth popularizing to the teaching practice of various sports programs, but ignore whether physical education teachers want to adopt this teaching mode, because the introduction of flipped classroom teaching mode will greatly increase the workload of physical education teachers.

Recommendation

1. In the flipped classroom teaching experiment, the advantages of mobile phone teaching software are used to improve students' ability to use theoretical knowledge and ensure the mastery of movement skills. To reach not only to do but also will teach, to lay the foundation for their future entry into the teaching profession.

2. Select the most appropriate software for practical application. For the implementation of teaching, we should fully comply with the current Internet wave, and require teachers to use computer technology reasonably.

3. In the process of flipped classroom teaching, we should pay attention to students' practice, fully consider the differences between students, and teach students by their aptitude with appropriate teaching methods, to create opportunities for students to learn and grow from each other so that each student can not only improve with the help of teachers but also grow independently.

4. Promote the implementation of education informatization, and constantly improve the quality of teachers to comprehensively improve teachers' understanding of information education. Continuous optimization of teaching conditions lays a foundation for the further development and application of flipped classroom teaching.

5. For the follow-up study on the flipped classroom teaching mode in children's basic gymnastics teaching in higher vocational colleges, the indicators of physical form and physical quality should be further refined, and the recruited subjects should be balanced with male to female ratio, to further deepen the theoretical and practical research on this direction.

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