BADMINTION SKILLS IMPROVEMENTS THROUGH FIRST PRINCIPLES OF INSTRUCTION OF VOCATIONAL STUDENTS OF ZHENGZHOU VOCATIONAL COLLEGE OF FINANCE AND TAXATION

LI QIAN

A thesis submitted in partial fulfillment of the requirements for
Master of Education in Curriculum and Instruction
Academic Year 2024

Thesis:	Badmintion Skills Improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation
Author:	Li Qian
Program:	Curriculum and Instruction
Advisor Committee:	Dr.Phenporn Thongkamsuk
Advisor Committee:	Associate Professor Dr.Jittawisut Wimuttipanya

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Bansomdejchaopraya Rajabhat University approved this thesis paper in partial fulfillment of the requirements for the Master of Education Program in Curriculum and Instruction

..... Dean of Graduate School
(Assistant Professor Dr.Nukul Sarawong)

Committees:

..... Chairman
(Associate Professor Dr.Jittirat Saengloetuthai)

..... Committee
(Dr.Phenporn Thongkamsuk)

..... Committee
(Associate Professor Dr.Jittawisut Wimuttipanya)

..... Committee
(Assistant Professor Dr.Supaporn Srihamee)

..... Committee and Secretary
(Assistant Professor Dr.Tanaput Chancharoen)

Thesis	**Badminton skills improvements through first principles of instruction of vocational students of zhengzhou vocational college of finance and taxation**
Author	**Li Qian**
Program	**Curriculum and Instruction**
Major Advisor	**Dr.Phenporn Thongkamsuk**
Co-advisor	**Associate Professor Dr.Jittawisut Wimuttipanya**
Academic Year	**2024**

ABSTRACT

The purpose of this study is: 1) To improve Badminton skills of vocational students Zhengzhou Vocational College of Finance and Taxation by using First principles of instruction; 2) To compare vocational students' Badminton skills before and after the implementation of First principles of instruction. The sample group Zhengzhou Vocational College of Finance and Taxation of 36 students. from a random sample of a specific group.

The research tools include 1) teaching plans based on First principles of instruction; 2) Badminton ability test. The data were statistically analyzed, and the standard deviation and t test were dependent samples.

The results show that:

1. First principles of instruction can effectively improve the vocational students' Badminton skills.

2. After First principles of instruction, the vocational students' badminton skills is significantly higher than that before teaching.

Keywords: First Principles of Instruction, Vocational Students, Badminton Skills.

Acknowledgements

Time flies, my study career is about to come to a successful end, and looking back at every step I have taken, I am full of emotion and gratitude. Here, I would like to extend my most sincere thanks to all the people who have given me care, support and help on my way to school.

First of all, I would like to express my heartfelt thanks to Dr.Phenporn Thongkamsuk and Assoc.Prof.Dr.Jittawisut Wimuttipanya. They not only gave me careful guidance academically, taught me valuable knowledge and research methods, but also gave me meticulous care and encouragement in life. When I encountered difficulties and setbacks, Dr.Phenporn Thongkamsuk and Assoc.Prof.Dr.Jittawisut Wimuttipanya always listened patiently and gave me advice to keep me moving forward, which I will always remember.

Thanks to all the teachers and classmates who promoted Zhengzhou Vocational College of Finance And Taxation. During the research, they and I learned from each other, made progress together, encouraged and supported each other, which made me feel the strength and warmth of the team. Without their help and cooperation, I can't finish the research work smoothly.

Thanks to my family, it is your constant support and encouragement that keeps me moving forward. Your understanding, tolerance and selfless dedication are the source of motivation for my continuous efforts, which keeps me firm on the road to study.

Finally, I would like to thank all the teachers, classmates and friends I met during my study. It is your companionship, help and encouragement that make me feel warm and strong, and let me go further on the academic road.

Li Qian

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Chapter 1
Introduction

Rationale

With the continuous reform and development of quality education in the new era, the physical education curriculum in colleges and universities occupies an increasingly important role in the comprehensive cultivation of students' quality education. In 2005, the Opinions of the Ministry of Education on Further Strengthening Physical Education Work in Institutions of Universities clearly pointed out that all colleges and universities should implement the educational policy of all-round development, strengthen the reform of physical education, and explore scientific methods and paths to promote the realization of teaching objectives(Ministry of Education,PRC,2005)."Opinions on Education Work" emphasizes the realization of educational goals according to the scientific method and path. In June 2014, the Ministry of Education issued the Basic Standards for Physical Education Work in Institutions of Higher Education also pointed out that education and teaching methods should be improved, and the attractiveness, characteristics and effectiveness of physical education should be enhanced to promote the overall level of physical education work in schools (Ministry of Education, PRC, 2014). In 2017, The General Office of the State Council issued the Opinions on Deepening the Reform of the Education System and Mechanism, stressing that " a new type of teaching relationship based on student development should be established. Improve the teaching methods and learning methods, change the teaching organization form, innovate the teaching means, and reform the student evaluation method(Xinhua News Agency, 2017). "In 2020, the General Office of the CPC Central Committee and The General Office of the State Council issued the Opinions on Comprehensively Strengthening and Improving School Physical Education in the New Era, pointing out:" Reform and innovation, facing the future, based on the needs of The Times, update the educational concept, deepen the teaching reform, so that school physical education can meet the reform and development requirements of education (Xinhua News Agency, 2020)."The pace of physical education teaching reform in Chinese colleges and universities has never stopped, advocating innovative teaching methods, exploring new learning methods, and implementing the requirements of quality education. From the perspective of the overall level of education reform, basic education is still the main position of education reform. It is urgent to build the bridge of physical education

curriculum reform in colleges and universities, enrich the forms of physical education teaching, and seek the physical education teaching mode that can not only meet the individual needs of students, but also promote the all-round development of students.

School physical education is the most representative part of the national fitness campaign. As a public basic curriculum project chosen by more and more college students, badminton has been warmly sought after. In recent years, with the development of The Times, physical education teaching, more and more college students participate in extracurricular sports, more and more colleges and universities are gradually equipped with badminton courts, and have opened badminton options classes, more and more badminton competitions. In higher vocational education, the university physical education course, as a public basic course, is to complete the integration with the major, realize the professional physical development, cultivate students' vocational sports planning ability, and commit to cultivate technical and skilled talents who can meet the needs of the society and jobs. In the face of the growing demand of contemporary college students to improve badminton technology, the traditional university physical education teaching mode has been unable, and it has become an urgent need to change the teaching mode timely and enrich the teaching means.

First principles of instruction is a teaching mode to improve the teaching quality and teaching effectiveness proposed by Professor Merrill. It has incomparable advantages in cultivating students' interest in learning and critical thinking. Since Professor Sheng Qunli introduced First principles of instruction to China in 2003, it has attracted the attention of scholars and conducted research and practical exploration. From the curriculum teaching of primary and secondary schools to the curriculum teaching, it has shown good results in his teaching. In 2018, Fang Ting made a theoretical elaboration on the design principles, principles and design cases in combination with the teaching of aerobics professional courses. Through experiments, she verified the positive effect of First principles of instruction on students' technical level, learning attitude and independent learning ability (Fang Ting, 2018). In 2019, Xiao Ting used First principles of instruction to conduct a teaching comparison experiment, which verified its feasibility and effectiveness in improving the teaching effect (Xiao Ting, 2019). In 2020, Liu Yujia used this mode to take "wheel skipping rope" as an example to carry out micro-class design practice, and the conclusion shows that it can effectively improve students' ability to solve practical problems and flexible application ability (Liu Yujia, 2020).

It can be seen from reading the relevant literature of First principles of instruction that the breadth and depth of research are increasing day and day, and the way of research is changing from logical reasoning to empirical research. The research results provide rich practical basis and template for the application and promotion of First principles of instruction in teaching practice. First principles of instruction is in line with the concept of curriculum and teaching reform in China, A new model with good operability and good effectiveness, Is a good theory highly praised and recognized by scholars at home and abroad, Applying First principles of instruction to public physical education courses in higher vocational colleges, Implement the application of hybrid learning, By organically integrating theory and practice through specific carriers (projects, tasks, learning situations), To improve the classroom efficiency, It is a beneficial attempt to enhance students' professional ability.

In public sports courses in colleges and universities, more and more college students choose badminton courses, badminton entertainment and ornamental is not only beneficial to promote students 'physical and mental health, in badminton can cultivate its self-confidence, brave, decisive and other excellent psychological quality, sublimation of contemporary college students' moral, intellectual, physical and technical level. Introduce First principles of instruction university public sports badminton courses, badminton course, for example, through the design of sports course content, standardize the teaching implementation process, cultivate students' ability to independent analysis and solve problems, reflection optimization teaching design content in teaching practice, put forward Suggestions and countermeasures, provide reference for higher vocational public sports teaching reform. This study is to promote the reform and development of public physical education curriculum in higher vocational colleges in the general environment of education and teaching reform in the new era. Badminton basic technology in public sports courses, for example, using the First principles of instruction, adhere to the development of students' development as the fundamental guiding ideology, focusing on basic skills training learning, with the fusion post demand oriented, response to the national policy, the implementation of the university physical education curriculum standards, adhering to the "enjoy the fun, enhance physique, sound personality, temper will" education concept, the implementation of the "church, practice, often play" documentation requirements, from knowledge teaching to innovative talent training.

This study uses First principles of instruction to complete the teaching of badminton basic Technology of university physical education in the public basic courses of higher vocational colleges, That First principles of instruction is recognized

as a prescriptive instructional design principle, The stage of effective teaching is based on the work task as the core, Activation stage (activating the old knowledge), Display stage (demonstrating new knowledge), The application stage (application of new knowledge) and the integration stage (integration) are consistent with the "structure, guidance, guidance and reflection" cycle in the process done in the work task. Will First principles of instruction into the public sports course teaching process, first to learners to solve the problem, for specific task teaching, not only focus on the teaching process, pay more attention to the process of students do, especially the process of sports practice, pay more attention to students' independent inquiry, autonomous error correction, self growth process, through the application of First principles of instruction teaching mode, effectively improve the level of students Badminton. We select samples in the process of physical education teaching, according to the students' sports level, professional needs, professional physical fitness reserve, vocational development planning, etc., according to the needs of professional work tasks, to achieve the coordinated and integrated development of public physical education education and professional education, to provide a new reference for vocational education theory.

To sum up, First principles of instruction can not only fully meet the needs of badminton basic technology classroom teaching practice, but also help students cultivate the ability of independent inquiry, error correction and self-growth, this research makes full use of First principles of instruction to complete the course teaching practice research, explore a new teaching mode to improve students' knowledge and skills of badminton.

Objectives(s)

1. To use First principles of instruction to imporve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

2. To compare vocational students' Badminton skills before and after the implementation of First principles of instruction .

Research Hypothesis

After the implementation of the First principles of instruction, the students' improve Badminton skills has been obviously.

Scope of the Research

Population and the Sample Group

Population

Vocational students of Zhengzhou Vocational College of Finance And Taxation, is second grade of 3 classes of 36 students each, a total of 108 students.

The Sample Group

Through a sampling cluster random method, a survey was conducted among 36 students from marketing major of second grade vocational students for 1 class. Each class consisted of Badminton skills a mix of high, middle and low lever.

The Variable

Independent Variable: First Principles of Instruction

Dependent Variable: Badminton skills

Content

Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation. There are physical education courses (badminton events) of five chapter, 16 hours in total:

Chapter 1: Basic knowledge of badminton (2 hours)

Chapter 2: Stance and Footwork (4 hours)

Chapter 3: Batsmanship of net shots (4 hours)

Chapter 4: Batsmanship of deep clears (4 hours)

Chapter 5: Receive service and rally (2 hours)

Time

The research period is from July 2024 to December 2024 and is divided into the following stages:

1. Develop proposal research in July 2024.

2. Modified and completed: 1) Revise and complete the course plan according to the learning method of First principles of instruction. 2) Complete the preliminary badminton basic test July 2024 to August 2024.

3. Experimental studies will be conducted from September 2024.

4. The formal research will be conducted in October 2024.

5. Summarize the research and complete the research paper, which will be published in November 2024.

Advantages

1. The level of students. Students to participate in the First principles of instruction teaching mode of classroom teaching, can stimulate sports enthusiasm, fully display their skills, expand badminton skills learning vision, provides the contemporary college students personality development of learning way, let the students in independent attempt, cooperation to explore learning mode, layers of efficient learning, to improve the students' interest and autonomous learning ability for beneficial attempt.

2. The level of teacher. Teachers use First principles of instruction to carry out badminton technology teaching with on task, presenting the task list to learners first, and the teaching content step by step. By guiding students to show actively, and teach closely according to the goal, it can effectively improve the learning efficiency of badminton technology. First principles of instruction in the university sports "badminton basic technology" course teaching attempt, enrich and develop the theory system of school sports teaching mode, for the PE teachers teaching provides a new teaching mode in curriculum design, teaching objectives, teaching method selection, teaching evaluation, etc., for the university sports teachers apply First principles of instruction to provide realistic reference and case support.

Definition of Terms

First Principles of Instruction is a student-centered teaching method. It refers to the basic principles and guiding ideology summarized based on learning theory and teaching practice in the process of education and teaching. These principles are designed to guide teachers in how to effectively organize teaching activities and promote students' learning and development. This principle is an important reference basis for educators when designing and implementing teaching plans. It usually includes five step,as follows:

Step 1: Focus on problem-solving. Emphasis on problem-centered and promoting learning by solving practical problems. This includes assigning tasks, task levels and problem sequence, designed to promote learning by solving a range of problems.

Step 2: Activate the existing knowledge. Design the teaching content. It involves the activation of old knowledge, that is, using the existing knowledge and experience of learners as the basis of new knowledge, to promote learning through the recall, connection and application of knowledge.

Step 3: Show out the new knowledge. Fully display new knowledge to ensure that the teaching display is consistent with the learning objectives, including providing positive and counterexamples of concepts, progressive logic of display procedures, etc., to show the "process" in an intuitive way.

Step 4: Try the application exercises. Learners are required to apply knowledge or skills to solve problems and promote learning through practice and post-tests.

Step 5: Complete the mastery. The skilled use of knowledge, to achieve the transfer, application and creation of knowledge, truly achieve the purpose of drawing inferences from one example, mastery.

Badminton Skills refers to the various hitting methods and strategies used in badminton. These include a single technique, including serving, receiving, killing, picking, rubbing, and net diagonal, and how to combine them to form a tactical combination, such as creating scoring opportunities by mobilizing an opponent to move.Skills of badminton also includes physical training such as physical strength, flexibility, and explosive boost to enhance skills in the game.

In college badminton class, the tools to measure badminton technology mainly include professional stopwatch, starting whistle, ruler, badminton buckets and score record table. These tools are used to document the students' technical performance, ensuring the accuracy and objectivity of the evaluation. Each course will be tested on three observation points, with a total of 45 after six consecutive sessions.

Research Framework

Using First principles of instruction to promote Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.The research concept framework is as follows:

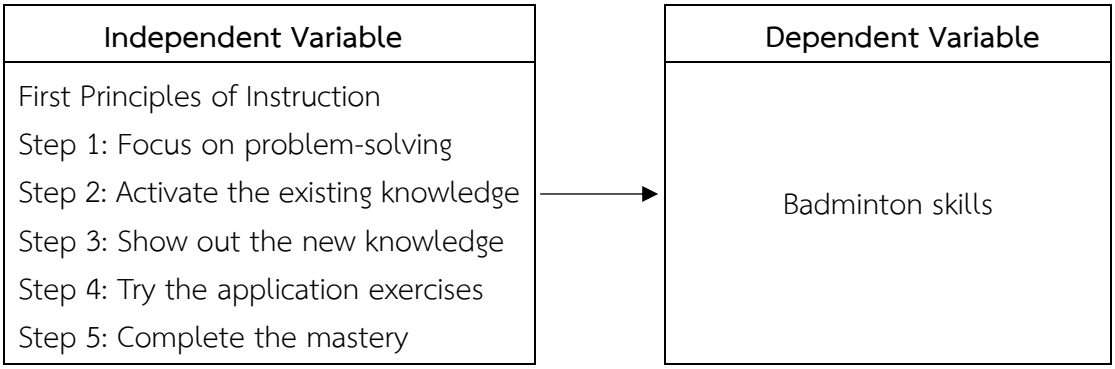

Figure 1.1 Research Framework

Chapter 2
Literature Review

This title research Using First principles of instruction to promote Badminton skills of vocational students Zhengzhou Vocational College of Finance and Taxation. In this paper, the following documents are studied, and the theory and related research put forward by the researcher are as follows:

1. First principles of instruction
2. Badminton skills
3. Related Research

The details are as follows:

First Principles of Instruction

1. The meaning of First Principles of Instruction

Foreign scholars have studied First principles of instruction earlier, and different scholars have analyzed the concept, application, specific methods and mechanism of First principles of instruction.

Sheng Qunli and Song Xun (2009), It is believed that "First principles of instruction" is a teaching mode to improve the teaching quality and teaching effectiveness proposed by professor Merrill, a famous American educational design theorist, based on the problems existing in current teaching. It is put forward on the basis of absorbing many well-known educational theories, such as Herbart's "five-step teaching mode" (preparation-presentation-association-generalization-application), Vanderbilt's "Star Wealth" learning circle, and McCarthy's four-component learning (why? What is it? How to do? What should I do?), Jonathan's constructionist learning environment (CLE), etc.

Xiao ting (2009), "First principles of instruction" advocates learners to learn knowledge and skills in complete tasks, rather than learning from specific problem situations. He believes that the task sequence follows the principle of problem sequence and decomposes the central problem into multiple sub-tasks from easy to difficult, from simple to complex, teachers will give careful guidance to the first task, and then gradually transition from supporting to the last task to the most complex task, and finally make learners have the ability to solve complex problems. Such a problem sequence is in line with the psychological characteristics of learners. At the beginning of facing the problem, learners lack the ability to solve complex problems.

They can only start from solving simple problems and gradually go deeper step by step.

Zhou Wenxue, Zhang Yuhui, seinfeld (2021), the first teaching principle also called "five-star teaching principle", by the contemporary famous education psychology and teaching design theorist David Merrill, it discusses how to make the teaching better promote learning, the specific teaching task in step by step to solve practical problem situation. Its main idea emphasizes that teaching should be "oriented to complete tasks" as the purpose, and points out that teaching is a process of interaction between two layers of interrelated circles.

David Merrill (2023), the target audience of the "primary teaching Principles" is the teaching designer. Merrill and colleagues found that many instructional designers did not systematically study psychology and often found terms such as "concepts" or "procedures" difficult to understand. After careful consideration, Merrill and his colleagues decided to use everyday language to facilitate the understanding of teaching practitioners. Therefore, the "primary teaching principles" identifies five contents to be taught: "what" (factual knowledge), "which part" (factual knowledge), "which kind" (conceptual knowledge), "how to do it" (procedural knowledge) and "what happened" (conditional knowledge). This classification applies to most subject areas and is unrelated to the specific content of the different fields. Most of the cognitive skills in almost all subject areas can be described using these five learning contents or knowledge.

Chen Xia, Cao Shulan (2024), The primary teaching principle was first proposed by M. David Merrill in the United States. This theory focuses on "problems" and turns teaching projects into operational sub-tasks to train students to acquire new knowledge in real scenes. This theory is of great help to improve the importance of information presentation while ignoring the disadvantages of effective teaching characteristics

2. Teaching Steps of First Principles of Instruction

Li Wenzuo, Liu Shaoli (2020), We actively follow First principles of instruction in teaching structural chemistry:

Step 1 The teaching content revolves around and links with the practical problems.

Step 2 Evoke the relevant memories of the learned knowledge.

Step 3 The teaching process is explained in combination with practical examples.

Step 4 Constantly strengthen the practice, and constantly apply the new knowledge.

Step 5 Apply what you have learned to practice.

Tang Yan, Wang Shuhui, Liu Lu (2020), Whether it is the design of teaching tasks, or the design of teaching sequence, teachers play a leading role in the design and implementation process. The steps are activate old knowledge, learn new knowledge, constructing new knowledge, applying new knowledge, complete the mastery.

Chen Lijuan (2020), Combined with the three processes of SPOC teaching "before, during and after class", the SPOC teaching design model is constructed, and the teaching design of the course teaching content is carried out on this basis.

Step 1 Focus on problems, create tasks

Step 2 Clear content, build resources

Step 3 Application of new knowledge, from support to release

Step 4 Integration, reflection and improvement.

Li Yang, Ran Qinqin, Lin Ling (2022), First principles of instruction It reflects the teaching characteristics of "double interaction", and learners change from passive acceptance to active learning:

Step 1 "Focus on issues" as the center

Step 2 In the demonstration of new knowledge before class, learners need to work together in groups

Step 3 Study and discuss the tasks in the class

Step 4 In the application of new knowledge in the class, the discussion and report of variant problems need peer mutual help and pooling wisdom

Step 5 Apply knowledge to solving new problems raised by teachers

Sun Maowei, Fan Jiali (2023), In the SPOC mixed teaching design of equipment technology course in the military academy, the five links of the primary teaching principles are implemented one by one. The steps are Focus on the problem, Activate old knowledge, Proof of new knowledge, Applying new knowledge, Be well versed in.

Chen Xia and Cao Shulan (2024), The primary teaching principle has the following key elements:

Step 1 Problem oriented: students take problem solving as the learning orientation, teachers divide tasks into operational sub-units;

Step 2 Activate the old knowledge: activate students' original knowledge and skills through teaching design, and lay a foundation for learning new knowledge;

Step 3 Show new knowledge: demonstrate the knowledge they will learn to students and guide students to discuss and understand independently;

Step 4 Using the new knowledge: students try to use the newly learned knowledge and skills to solve problems and complete the preset tasks;

Step 5 Complete the mastery: and students can flexibly use new knowledge and skills in their daily life.

3. Applied First Principles of Instruction in Class

3.1 First Principles of Instruction in Physical Education

With the vigorous development of sports, the research layer of sports teaching, because the First principles of instruction in other disciplines, some scholars on the theory of First principles of instruction in sports research, more and more sports workers will apply different teaching mode in sports teaching, provide reference for the development of physical education teaching.

Dong Bikai (2015), First principles of instruction starting from the basic teaching procedure, proposed the construction of problem-oriented PE teaching mode, and emphasized that students can find their own problems and deficiencies in self-display and mutual communication; advocating the use of First principles of instruction to improve students' learning enthusiasm and promote the development of college physical education.

Zhang Zhenyu (2017), Proposed to build a physical education teaching mode on the basis of First principles of instruction, and advocated that in physical education teaching, students should master the procedures needed to solve problems, rather than telling students to pay attention to when solving problems, and students should be guided to study by means of point.

Fang Ting (2018), In its master's thesis, combined with the characteristics of aerobics teaching, the design principles, design principles and design cases of First principles of instruction were theoretically expounded, and through strict teaching experiments, it further verified the positive role of First principles of instruction on students' technical level, learning attitude, ability of independent creation and independent learning ability and independent learning ability.

Liu Yujia (2019), In order to improve the standardization of physical education teaching, studied the teaching design of physical education based on First principles of instruction, and took "wheel skipping" as an example to practice First principles of instruction guide physical education teaching. The practice shows that the five-star teaching design mode can make the fragmented knowledge of micro-courses form a complete learning circle, effectively improve the learners' ability to

solve practical problems and flexible application, and provide direction and guidance for the teaching design of high-quality micro-courses.Reading domestic First principles of instruction related literature can see the breadth of research.

Li Shun (2010), Used First principles of instruction to teach outdoor basketball class for two semesters, and affirmed the positive influence of First principles of instruction on students' interest in sports learning and enthusiasm for learning. Subsequently, the author based on the accumulated experience to promote the First principles of instruction to the sports and health care theory class teaching and the school track and field team.

3.2 First Principles of Instruction in Nonphysical Education Teaching

The maturity of First principles of instruction also leads to the exploration of practice. More and more scholars combine First principles of instruction with subject teaching to provide reference for the practical application of First principles of instruction in teaching. In 2006, domestic scholars combined First principles of instruction with practical teaching for the first time, and successfully applied First principles of instruction to classroom teaching.

Zhang Jiaoling, Chen Yanmei, Tang Chunming (2020), the micro course under the guidance of the primary teaching principles, can effectively inspire students 'thinking, improve students' interest in learning, and change the presentation of knowledge content from shallow to deep, which is conducive to students 'construction of knowledge and improve students' independent learning ability. In view of some teaching difficulties in higher mathematics courses, the teaching practice of micro course is carried out according to the teaching concept of the primary teaching principle, and good teaching results have been achieved. The students 'classroom teaching quality evaluation is about 93 points, and the students' satisfaction is high.

Li-mei sun (2020), applied in internal medicine nursing practice course of first teaching principle, highlights the main body position of the nursing students in learning, inspired the learning initiative and enthusiasm, prompting nursing students theory with practice, realize the complete task teaching, learn knowledge of cohesion, improve the effectiveness of classroom teaching, enrich the nursing case library applied to the practical experience of nursing education. However, this study lays more emphasis on theoretical study; the learning situation of e-teaching platform for nursing undergraduates cannot be well supervised and evaluated. Therefore, how to better integrate the primary teaching principle with the medical nursing practice

teaching and network resources, and cultivate the modern high-quality nursing talents needed by the society still needs further research.

Zhu Fei, Chen Zuman, Hu Sheng (2020), through the reform of experimental curriculum, students can use their brains, positive thinking, improve the ability of literature search ability, scientific research ability, so that students can use the knowledge of all disciplines, improve the knowledge structure, exercise the students' practical ability, cultivate the innovation consciousness, rigorous, scientific attitude and style, enhance the team spirit, strengthen the interaction and communication with teachers.

Chen Jie (2022), the ultimate goal of teaching based on the primary teaching principle is to let students learn to solve complex problems or complete complex tasks, which is consistent with the requirements of the construction of new liberal arts. Taking the primary teaching principle as the guidance, improve the teaching design, focusing on the problem as the core, pay attention to the activation of the old, knowledge, demonstrating new knowledge, applying new knowledge and mastery in teaching, the teaching practice shows that this teaching design can make students gain a sense of achievement and increase their confidence in learning. In the next step, this teaching design strategy will be applied to the teaching of Python courses in other majors to improve the overall learning effect of students.

Hao Yan (2022), the primary teaching principle provides guidance for the teaching design of the flipped classroom, and makes the flipped classroom more scientific, normative and effective. As far as British and American literature courses are concerned, this new teaching mode can integrate knowledge transmission, ability cultivation and value shaping. While imparting knowledge, it can cultivate students' speculative innovation and cross-cultural ability, reflect the value of the discipline in The Times, and help the construction of new liberal arts.

Conconclusions from the analysis of the above literature reports, as shown in Table 2.1:

Table 2.1 First principles of instruction

Auther	Chen Xia (2024)	Sun Mao wei (2023)	Li Yang (2022)	Li Wen zuo (2020)	Tang Yan (2020)	My Research detail
Step1	1) Problem oriented	1) Focus on the problem	1) "Focus on issues" as the center	1) Teaching content around the practical problems	1) Activate old knowledge	1) Focus on problem-solving
Step2	2) Activate the old knowledge	2) Activate old knowledge	2) Demonstration of new knowledge	2) Evoke the relevant memories of the learned knowledge	2) Learn new knowledge	2) Activate the existing knowledge
Step3	3) Show new knowledge	3) Proof of new knowledge	3) Study and discuss the tasks	3) Combination with practical examples	3) Constructing new knowledge	3) Show out the new knowledge
Step4	4) Using the new knowledge	4) Applying new knowledge	4) Application of new knowledge	4) Constantly apply the new knowledge	4) Applying new knowledge	4) Try the application exercises
Step5	5) Complete the mastery	5) Be well versed in	5) Solving new problems	5) Apply what you have learned to practice	5) Complete the mastery	5) Complete the mastery

As can be seen from the table, although the First principles of instruction proposed by each scholar is different, after careful study, the conclusion is that Establish teaching objectives, Design the teaching content, Determine the teaching method, Divide the teaching process, Evaluate the teaching effect. On the basis of these scholars, combined with the characteristics of badminton teaching, the First principles of instruction is divided into five steps:

Step 1: Focus on problem-solving. Building the task sequence framework with the complete task as the core is the primary link of First principles of instruction. In the teaching activities, we should closely adhere to the teaching objectives to determine a central problem related to the improvement of badminton skills. In this teaching stage, teachers should create problem situations related to students, attract students 'attention, mobilize students' desire to learn, but also present task lists to

students, help students to clarify the learning tasks, account for the learning benefits, so that students gradually master the way to solve problems, improve the ability of learning.

Step 2: Activate the existing knowledge. This stage is the introduction stage, which is a key step for teaching development and implementation. Through questions, discussion and demonstration, teachers know whether learners have any knowledge and experience, badminton skills, as the basis for learning new skills, awaken relevant information; if there is not enough relevant knowledge and experience, then the primary task of learning new skills is to "remedy the knowledge" to check the gaps and strengthen the guidance of weak links. Activate the old knowledge can help learners to smoothly connect with the old and new learning tasks, adjust and transform the psychological mode of learners, and make full preparations for the better establishment of the new knowledge structure.

Step 3: Show out the new knowledge. This link for the core teaching link, teachers should closely around badminton skills teaching goal teaching implementation, provide students with more than one sample demonstration, at the same time in the students' autonomous inquiry learning and collaborative learning, carefully provide guidance to do according to their aptitude, according to the teaching content and existing teaching conditions reasonable matching teaching media, realize the effectiveness of information presentation.

Step 4: Try the application exercises. In this link, we should closely follow the learning goal of badminton technology, strengthen practice supervision, practice closely follow the goal, and gradually reduce teachers' guidance and intervention, so as to provide students with enough time for practice and opportunities to apply what they have learned. In this process, mistakes should be corrected and the goal should be clearly achieved.

Step 5: Complete the mastery. This link is a key opportunity for students' desire for further study and continuous efforts. It is also an important way for them to individually use their badminton skills and knowledge. Mutual cooperation and evaluation between peers is the most effective when students are proud of their badminton learning results and show newly acquired skills. This link requires students not only to show their new skills, but also to correct and distinguish the badminton skills they have learned through the form of teaching and competition, so as to further promote the improvement and application of badminton skills.

Badminton Skills

1. Sports Characteristics and Value of Badminton

Badminton movement through the field constantly moving, jumping, turn, swing, reasonable use of various hitting technology and footwork the ball on the court, which increases the strength of the upper limbs, lower limbs and waist muscles, speed up the exercise body blood circulation, enhance the function of the cardiovascular system and respiratory system.

Long-term badminton exercise can make the heart beat strong and powerful, increased lung capacity, durability, including shoulder exercise and cervical activities, but excessive exercise will lead to lumbar muscle strain. Exercise can release stress and promote physical and mental health. Badminton is suitable for men, women, old and young, and the amount of exercise can be determined according to individual age, physique, sports level and the characteristics of the field environment. College students can be used as an effective means to improve the physical function to exercise, can cultivate their confidence, courage, decisive and other good psychological quality. The research on the value of badminton mainly analyzes on physical exercise, psychology, health care and rehabilitation, entertainment and friendship.

Liu Jing (2019), In the study of the fitness value of Badminton, the value of badminton was expounded from three aspects of entertainment, exercise and health rehabilitation. The exercise value of badminton is to enhance physical fitness, cultivate will quality, cultivate psychology and improve psychological quality; health rehabilitation function on cardiovascular system, respiratory system function and immunity, nervous system agility, delay aging can be used as a means to restore physical strength.

Qi Yankui and Jia Rui (2019), talked about the health value of badminton in the article "The Health Value and Development Trend of badminton": (1) it is conducive to the development of intelligence. The paper emphasizes that in the process of each practice, should pay attention to observation, with the brain ball, in the long run is beneficial to the development of intelligence (2) to promote the overall development of physical quality and strengthen the body. The paper said that often engaging in badminton can improve the mobility of the upper and lower limbs and trunk, improve the function of the respiratory system and cardiovascular system, improve the aerobic and anaerobic energy supply capacity, regulate the nervous system and improve its ability to resist lactic acid. (3) it is a place for entertainment and making friends. During practice and competition, people

communicate with each other, which is conducive to promoting individual socialization.

Liu Bo (2019), in the analysis of the health value of badminton, good exercise characteristics, high safety, good mass foundation and easy to promote the advantages of badminton, The health value of badminton is analyzed from the following aspects: (1) the comprehensive aspects conducive to the fitness of the masses, Comprehensively improve the physical fitness; (2) In the psychological aspect, it can make people think quickly, Have a significant role in cultivating people's will, quality and firm belief, Fierce competition can be more exercise the psychological quality; (3) It is conducive to the development of intelligence; (4) to meet the needs of human appreciation; (5) Is conducive to the establishment of lifelong sports thought, To achieve the goal of physical health; (6) It is conducive to entertainment and making friends. Related documents also include Analysis of the Value of Badminton Fitness by Li Mei and Liao Xian, Cheng Feng's Thoughts on the Value of Badminton in Universities, Sun Henyu's Research on the Value of Badminton in National Fitness Activities in our province, etc.

Example (2022), with the continuous deepening of the concept of national fitness, badminton shows a development trend of popularization and deepening. Badminton has the diverse characteristics of convenient practice methods and flexible organization forms, which has gained the love of many athletes among the people. Countries in recent years to the promotion of badminton career, also gradually intensify attention, based on this, need, explore the background of the national fitness, local badminton sustainable development path, clear, the problems existing in the process of badminton development, put forward effective countermeasures, prompting Badminton in the national fitness environment, play its actual value.

Du Feifei (2023), badminton, as a systemic, coordinated and competitive sport, has a wide range of suitability and ease of learning. This paper discusses the technical requirements, physical fitness requirements, ease of learning, suitability, interpersonal communication and teamwork, physical health benefits, mental health effects, and the promotion and development in national fitness sports. Studies have found that badminton not only has multiple benefits for physical health, such as improving heart and lung function, muscle strength, and coordination, but also has a positive impact on mental health, such as stress relief, self-esteem and self-confidence. In addition, badminton can also promote social communication and teamwork, and help to foster the spirit of cooperation and build social relationships.

In the national fitness campaign, the promotion and development of badminton requires strengthening the construction of field facilities, the establishment of education and training systems, the holding of competitions and events, the establishment of communities and clubs, publicity and promotion, and the formulation of supporting policies and measures. To sum up, badminton has important value and potential in the national fitness, and should be promoted vigorously, so that more people can benefit from the benefits and fun of this sport.

Zheng Qi (2023), as one of the traditional sports events in China, badminton plays an important role in the national fitness with its entertainment, safety and fitness characteristics, laying a mass foundation for the creation of a sports atmosphere in the whole society. In recent years, although the types of sports have increased, the requirements for badminton on both the field and equipment are relatively low. In addition, badminton has the advantages of covering a wide range of age and simple operation, so that most people regard this sport as the first choice for physical exercise. Based on this, this paper first summarizes the characteristics of badminton, then points out the promoting role of badminton in national fitness, then analyzes the SWOT of badminton development, and finally puts forward the development strategy of badminton in national fitness, aiming to provide theoretical reference for the implementation of the national fitness program.

2. Development Status of College Badminton

Xiong Xuezhen (2021), the Outline of the "Healthy China 2030" Plan, clearly points out that: " Strengthening health education in schools and integrating health education into the national education system is an important part of quality-oriented education in all education stages." As an important part of the national education system, as the main education mode to promote the healthy development of students' physical and mental health, school physical education is particularly important. Badminton is an important teaching project in physical education courses in colleges and universities, is one of the popular sports to promote the development of young students' health of body and mind, at the same time has a broad mass base in our country, is the second public sports, in addition our country in badminton champion from zero to sweep the world badminton, is now one of the world badminton competitive power. In China, whether in school sports, social sports or competitive sports, badminton has a pivotal role. The healthy development of badminton in colleges and universities has a certain positive significance for improving the physical health level and mental health level of young students, as well as

further improving the national physical and mental health literacy, boosting the strategic goal of healthy China, and helping the healthy China action.

Yi Rui (2022), "national fitness" has been an important guiding route to enhance the physical health of the national people for a long time. As an important member of Chinese society, college students are also of great significance to realize the "national fitness" of college students. After analysis, it is found that badminton has its own unique characteristics in colleges and universities, which is more in line with the development route of national fitness. Meanwhile, badminton in colleges and universities has diversified values, such as health value, social value, era value, cultural value and so on. According to the characteristics and values of badminton in universities, the following innovative development modes are proposed: (1) build university Badminton clubs; (2) improve the quality of badminton venues and facilities; (3) establish badminton equipment sales and supervision system in universities; (4) build the campus sports culture with badminton in universities; (5) actively establish public badminton activities and competitions in universities to improve the development efficiency of badminton in universities and promote the perfection of "national fitness" in China.

Xue-song li (2022) in the Shandong province youth badminton reserve talent training way research article points out: in Shandong province of badminton project funding, training ground and facilities can not meet the daily requirements of athletes training, each year about the number of badminton games is relatively small, and the quality is not high, which leads to athletes technical training and psychological training are guaranteed, hindered the Shandong province badminton reserve talent rate.

Li Panpan (2023), the integration of sports and education in colleges and universities is the combination of the physical education department and the education department. In the traditional operation mechanism, the education department is usually responsible for specialized talent training and general education, and the physical education department provides students with basic physical exercise skills and methods. Badminton is one of the traditional advantages of competitive sports in China, with a good mass foundation. The development of badminton in colleges and universities can not only enrich the campus life of college students, achieve the purpose of improving students' physical quality, but also help to strengthen the realization of the strategic goal of sports power. However, from the results of Chinese college students badminton Championships over the years, the performance of badminton in Henan Province is not very ideal.

Zhu Kaikai and Gao Tingting (2024), badminton is a sport that is widely loved in China. In universities, more and more students choose this sport for exercise in their spare time. We should give full play to the advantages of badminton, strike while the iron is hot, continue to innovate, and accelerate the realization of the "national fitness" for college students, so as to promote the development of the national plan to comprehensively improve the quality of the national people. The proposal and promotion of national fitness has laid a good foundation for the construction of a strong sports country in China. As an important part of the society, colleges and universities should vigorously promote badminton, which is loved by many students, constantly explore its innovative development mode, and contribute to the promotion of national fitness.

Zhou Zheng (2024), under the background of "Healthy China 2030" planning outline, college physical education will shoulder the responsibility of improving students' physical health and promoting their health level. With the high attention to the development of physical education in China, the development of physical education in colleges and universities presents a trend of diversification, and all kinds of sports associations and sports clubs have developed rapidly, which greatly promotes students' participation in sports. From the current situation of sports development in universities, badminton is well developed and students generally like it. Most universities set up badminton clubs. Considering the current construction of college badminton clubs from the perspective of high-quality development, there are still many problems, which are waiting to be solved. The author took advantage of the opportunity to participate in a research group to conduct research on some university clubs, discuss the prominent problems existing in the construction and development of badminton clubs, and put forward the optimization path combined with practice, in order to promote the better and faster development of university badminton clubs in China in the future.

Yan Yilan, Zhu Huimin, Berlin (2024), at present, the development of the sports cause in universities in Heilongjiang Province is still in the initial stage. Facing many problems, universities should continue to actively invest in the sports cause. Good material selection is for the sake of lay a solid foundation for the development of sports team in the future, reasonable training, practice is a necessary means to improve the level of sports team, at the same time the coaches to improve their own, technical level, with the players constantly communication, take the initiative to understand the players their own movement, with the right method to stimulate the players training enthusiasm and enthusiasm. The players should communicate

with the coaches in time, develop the good habit of recording their own training content, arrange the time of learning and training reasonably, and strive for the maximum and all-round progress. Only when all aspects are working hard, can the Badminton in Heilongjiang province develop healthy, stable and lasting way.

3. The Development of Badminton Teaching in Colleges and Universities

Yuan Guoliang (2020), pointed out in the Innovative Thoughts on the Teaching Methods of Badminton Technology in Colleges and Universities that in the teaching of badminton technology in colleges and universities in China, there are the phenomena of low teaching quality and weak badminton technology for students in a large range. As a result, the development of badminton in China is insufficient, which is unfavorable to the long-term development of badminton project. Therefore, it is necessary to implement innovation in the existing badminton technology teaching courses in colleges and universities, enhance the understanding of badminton among college students, let more students pay attention to and like this sport, and make up for the shortage of reserve talents of badminton in China.

Zhang Jing (2022), in college physical education teaching, badminton is the main sport. As a sport that students like very much, most students have not received systematic learning, but only stay in the state based on entertainment. In this case, the opening and teaching practice of badminton courses in colleges and universities provide a systematic learning space for college students, which is of great significance to promoting the growth of students. The characteristics of badminton are distinct, and the basic characteristics are as follows: ornamental, entertainment, fitness.

Sun Ling (2022), ordinary colleges and universities offer sports option courses, which is a necessary way to improve students' physical quality and promote their physical and mental health development. College students are in the active and energetic age group. Many students will participate in basketball, badminton, football and other sports in their spare time, among which badminton is not high requirements for the field is deeply loved by students. Therefore, in badminton, for example, the problem is not students lack of badminton needs, but how to through the design of the inside and outside integration teaching mode, break through the limitation of traditional badminton teaching, realize the badminton class inside and outside the integration teaching, enable students to practice anytime and anywhere, encourage students to actively participate in badminton options.

Han Dongyang (2023) has entered the Internet era, and students are highly dependent on mobile phones. browsing mobile phones for a long time has become a phubber, which not only affects students 'personal physical quality, but also brings

adverse effects to students' mental health. How to effectively carry out physical education teaching in school education has become the focus of school teaching reform, attaches great importance to the innovation of teaching mode and the optimization of teaching means. In badminton teaching, teachers need to analyze the problems existing in previous teaching activities, formulate appropriate innovative strategies according to students 'interests and teaching reform ideas, and build efficient physical education classes, so that students can truly participate in badminton learning activities and improve students' comprehensive physical education ability.

Li Ran (2023), in the Internet era, badminton teaching in universities is also facing new challenges and opportunities. Internet technology has provided important support for the digital transformation of physical education, and also brought new changes for the teaching mode, curriculum construction and other aspects. The study of the badminton teaching situation and the countermeasures of curriculum construction in colleges and universities under the background of the Internet is not only conducive to promoting the modernization process of physical education in colleges and universities, but also can provide useful reference information for teachers and students in colleges and universities, and also helpful to promote the application and development of Internet technology in the field of education.

Guan Xiangwei (2023), badminton is a relatively common sport in China. For college students, badminton can be used as an important means to promote growth and development and improve physical function. At the same time, the appropriate amount of badminton can also promote the growth and development of young people, and can further cultivate their confident, brave and decisive good psychological quality. Badminton teaching in physical education teaching in colleges and universities, on the one hand, can enrich students 'physical education content, on the other hand, it can also improve students' sports awareness, which is of certain help to their future career development.

Dong Yang (2023), believes in the article "Exploration on the Construction and Innovation of Badminton Teaching Methods in Higher Vocational Colleges" that teachers actively guiding students to learn and participate in training can help students master more sports skills and at the same time enhance their physique. Through the detailed analysis of the problems exposed in the current badminton teaching in higher vocational colleges, the construction and innovation strategies of badminton teaching methods are put forward from the aspects of creating efficient classroom, online and offline integration, and club teaching.

Ye Yu, Tang Wanying (2024), in recent years, badminton has established a broad mass base in the upsurge of national fitness, which has a strong ornamental, fitness, entertainment and competitive, and has been popularized and developed in all kinds of schools in China. As an important branch of mass badminton, badminton in colleges and universities is the key point for China to build a power in education and sports, and is also an effective way to enrich the campus life of college students and help them form lifelong sports consciousness. At the same time, the characteristics of badminton project are consistent with the physical and mental development law of college students, so it is deeply loved by the majority of college students. Based on this, the development and promotion of college badminton is of great significance to promoting the physical and mental health of college students and shaping the concept of lifelong sports. With the continuous development of physical education and badminton teaching in China, the traditional badminton teaching mode has been unable to conform to the current trend of social development. Under the background of the integration of sports and education in the new era, the development of badminton teaching in universities in China faces the following threats and challenges.

Based to the above literature report analysis is as follows: Badminton has the function of improving the body function and enhancing the cardiovascular system and respiratory system. Badminton has an important value in entertainment, sports participation and fitness exercise. As a ball sport with a broad mass base, badminton is widely developed in colleges and universities. The increase of badminton clubs and sports venues is conducive to the further promotion of badminton. In the physical education courses in higher vocational colleges, badminton courses can not only promote the physical growth of college students, but also cultivate their confident, brave and decisive psychological quality, which also has a certain help to the future career development, and play an important role in the physical education teaching in colleges and universities. From the point of badminton teaching in colleges and universities, the traditional teacher-oriented teaching mode can no longer meet the learning needs of students. On the basis of the existing research results, optimizing the teaching mode and improving the curriculum design and better serving students have become the new research content and direction.

Related Research

Zan Chen Hui, Guo Li (2020), this paper mainly in STEAM education idea and under the guidance of the first teaching principle, starting from the actual life, from the common life phenomenon design problem, from the students' subject knowledge, in the STEAM education and first, on the basis of the relationship between the teaching principle, to explore the STEAM education and subject course effective fusion method, build a kind of STEAM learning model based on the primary teaching principle.

Liu Xiaoming (2022), based on the principle of "primary teaching" to carry out junior middle school mathematics teaching, teachers should have strong theoretical summary and practical application ability, and a deep understanding of the principle of "primary teaching", on the basis of previous teaching experience, to remove the wheat from the wrong. Teachers should pay enough attention to the principle of "primary teaching", so that it can play a great role in guiding students to learn mathematics knowledge and improving students' application ability to apply mathematics knowledge, and on this basis, create a new and efficient junior high school mathematics classroom.

Cheng Mei and Ouyang Boyi (2023), this paper proposes the privacy protection method of health and pension data based on blockchain technology. The system uses the identity authentication function of blockchain itself to verify the nodes connected to the system, and uses the homomorphic encryption technology to encrypt and protect the data uploaded by users. The system test results show the feasibility of this method in data privacy protection and data security storage. In the future, the system function will be further improved to consider the security reinforcement of the system from the network layer.

Wu Haiying (2023) believes in the article "Practice and Strategies of Online and offline Course Teaching Design in College Badminton" that there are some problems in the current college badminton teaching, such as misplaced teaching focus, poor learning effect and weakened education function. Based on this, the teaching design of badminton courses in colleges and universities should take "healthy body training" as the starting point, the learning effect as the goal, and the students' ability development as the guidance, put forward the teaching goal of "four in one", the teaching content of "four modules", the mixed teaching method, and the teaching design of formative evaluation method.

Liang Song (2023), Research on the Construction and Application of Intelligent Badminton Classroom in Higher Vocational Colleges, believes that the integration of modern technology and education is an inevitable trend in the development of education, and intelligent classroom is an important product of this development trend. At present, there are two different interpretations of the concept of intelligent classroom. One is to emphasize the development of the knowledge classroom that pays great attention to knowledge transmission to the intelligent classroom that focuses on the development of students' wisdom, and the other is to emphasize the development of the traditional classroom using traditional teaching means to the intelligent classroom constructed by using modern technical means.

Huang xi ru (2023), in the mixed teaching based on SPOC in higher vocational colleges in the application of the mixed teaching based on SPOC in higher vocational colleges, the teaching method and the students 'physical quality, badminton basic technology, theory of teaching effect and to explore the application in the teaching practice, to achieve rich badminton teaching method, improve the teaching quality, promote students' learning efficiency, accelerate the development of education informatization.

You Ming (2023), Research on the Application and Optimization of OMO Mode in Badminton Teaching in Colleges and Universities points out that with the continuous development of the Internet, information technology has become an indispensable part of physical education in colleges and universities. However, it is difficult for teachers to urge students in a single online teaching, and college students often slack off in the process of learning, which brings a certain negative impact on the teaching efficiency. In such a context, the OMO teaching mode integrating online and offline has emerged. This teaching mode has the dual advantages of network teaching and traditional teaching, and can effectively improve students' learning quality.

Wen-kai zhang (2023), in the mixed teaching based on BOPPPS model into university badminton experimental research in Shandong architecture university, for example, randomly selected in Shandong architecture university 2021100 undergraduate teaching reform experiment, randomly divided into experimental group 50 people, control group 50 people, experimental group based on BOPPPS model of mixed teaching teaching experiment, the results show that the mixed teaching based on BOPPPS model effectively improve the classroom influence, the change of the teaching mode to promote students to develop lifelong sports thought plays an indispensable key role.

Chapter 3
Research Methodology

Using First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance and Taxation. The experimental research method adopted in this study has the following procedures:

1. The Population and Sample Group
2. Research Design
3. Research Instruments
4. Data Collection
5. Data Analysis

The Population and Sample Group

Population

Vocational students of Zhengzhou Vocational College of Finance And Taxation, is second grade of 3 classes of 36 students each, a total of 108 students.

The Sample Group

Through a sampling cluster random method, a survey was conducted among 36 students from marketing major of second grade vocational students for 1 class. Each class consisted of badminton skills a mix of high, middle and low lever.

Research Instruments

The research tools used by the researchers include the First principles of instruction based instructional design and evaluation criteria for assessing badminton skills, as follows:

1. Teaching Plan Based on the First Principles of Instruction

1.1 This teaching plan is implemented based on First principles of instruction and the characteristics of sports for college students.

1.2 Complete the teaching content design according to the training objectives of marketing professionals and university physical education curriculum standards, combined with the teaching objectives, content and assessment standards of badminton courses.

1.3 Complete the experimental teaching design and implementation according to relevant theories and existing research.

Using First principles of instruction to promote badminton skills of vocational students Zhengzhou Vocational College of Finance and Taxation. There are six stages:

The first chapter (Basic knowledge of badminton): At this stage, First principles of instruction will be used to learn the theoretical knowledge of badminton. In the early stage of learning badminton, it is very important for students to master the correct grip and serve skills. Learning content: hand holding, backhand grip, emphasize flexible conversion; service preparation posture, serve movements, service points. In the process of practice, it can be divided into empty racket practice, multi-ball practice and pair practice serve. This will not only lay a solid foundation for them, but also improve their performance and confidence in their subsequent studies and competitions.2 hours in total.

The second chapter (Stance and Footwork): This is a very important foundation stage, which lays a solid foundation for the students' subsequent technical improvement and competition performance. Learning content: the importance of preparation posture, basic pace exercises (small steps, cross steps, parallel steps, side slip steps), combined with the sense of the ball to practice. Through the use of First principles of instruction for teaching, it lays a solid foundation for the subsequent technical improvement and competition performance.4 hours in total.

The third chapter (Batsmanship of net shots): There are many key techniques of net ball in badminton, such as putting the net ball, rubbing the ball, pushing the ball, pointing the ball, flapping the ball and picking the ball. We mainly need to master the net ball and picking the ball. These techniques require not only delicate movements, dexterity in the wrist and fingers, but also good judgment and reaction speed.4 hours in total.

The fourth chapter (Batsmanship of deep clears): Middle and back field hitting technology is a systematic and gradual improvement process, mainly including key technologies such as hitting high ball, hanging ball and killing ball. We mainly learn the technical characteristics, classification and movement essentials of hitting the high ball, pay attention to the explosive force of the wrist and the coordination of the whole body, especially the coordination of the ground, rotation and waist and abdomen.4 hours in total.

The fifth chapter (Receive service and rally): Learning the return and practical application of badminton is a comprehensive process, involving posture, preparation posture, technical movements and tactical strategy. The learning content

includes receiving position and preparation posture, singles receiving technology, doubles receiving technology, mixed doubles receiving technology, and practical application strategy. Through continuous training and competition, I can gradually improve my return and actual combat ability.2 hours in total.

A total of 16 class hours. Each lesson plan strictly follows the requirements of First principles of instruction, including

Step 1: Focus on problem-solving.

Step 2: Activate the existing knowledge.

Step 3: Show out the new knowledge.

Step 4: Try the application exercises.

Step 5: Complete the mastery.

The first step is the focus on problem-solving. Leaning is promoted when learners are engaged in solving real-world problems. show task: Learning is promoted when learners are shown the task that they will be able to do or the problem they will be able to solve as a result of completing a module or course. Task level: Learning is promoted when learners are engaged at the problem or task level, not just the operation or action level. Problem progression: Learning is promoted when learners solve a progression of problems that are explicitly compared to one another.

The second step is the activate the existing knowledge. Learning is promoted when relevant previous experience is activated. Previous experience: Learning is promoted when learners are directed to recall, relate, describe, or apply knowledge from relevant past experience that can be used as a foundation for the new knowledge. New experience: Learning is promoted when learners are provided relevant experience that can be used as a foundation for the new knowledge. Structure: Learning is promoted when learners are provided or encouraged to recall a structure that can be used to organize the new knowledge.

The third step is the show out the new knowledge. Learning is promoted when the instruction demonstrates what is to be learned rather than merely telling information about what is to be learned. Demonstration consistency: Learning is promoted when the demonstration is consistent with the learning goal: (a) examples and nonexamples for concepts, (b) demonstrations for procedures, (c) visualizations for processes, and (d)modeling for behavior. Learner guidance: Learning is promoted when learners are provided appropriate learner guidance including some of the following: (a) learners are directed to relevant information, (b) multiple representations are used for the demonstrations, or (c) multiple demonstrations are explicitly compared. Relevant media: Learning is promoted when media play a

relevant instructional role and multiple forms of media do not compete for the attention of the learner.

The fourth step is the try the application exercises. Learning is promoted when learners are required to use their new knowledge or skill to solve problems. Practice consistency: Learning is promoted when the application (practice) and the posttest are consistent with the stated or implied objectives: (a) information about practice recall or recognize information, (b) parts-of practice locate, and name or describe each part, (c) kinds of practice identify new examples of each kind, (d) how to practice do the procedure and, (e) what happens practice predict a consequence of a process given conditions, or find faulted conditions given an unexpected con sequence. Diminishing coaching: Learning is promoted when learners are guided in their problem solving by appropriate feedback and coaching, including error detection and correction, and when this coaching is gradually withdrawn. Varied problems: Learning is promoted when learners are required to solve a sequence of varied problems.

The fifth step is the complete the mastery. Learning is promoted when learners are encouraged to integrate (transfer) the new knowledge or skill into their everyday life. Watch me: Learning is promoted when learners are given an opportunity to publicly demonstrate their new knowledge or skill. Reflection: Learning is promoted when learners can reflect on, discuss, and defend their new knowledge or skill. Creation: Learning is promoted when learners can create, invent, and explore new and personal ways to use their new knowledge or skill.

Table 3.1 Detailed teaching contents

Teaching Process	Chapter 1: Basic knowledge of badminton	Chapter 2: Stance and Footwork	Chapter 3: Batsmanship of net shots	Chapter 4: Batsmanship of deep clears	Chapter 5: Receive service and rally
Focus on problem-solving	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.
Activate the existing knowledge	The history and cultural background of badminton, as well as the basic rules and field layout of the game.	Review the existing knowledge, the classification of badminton footwork.	Review the existing knowledge and understand the importance of Batsmanship of net shots.	Review the existing knowledge and understand the importance of deep clears in the game.	Review the existing knowledge and understand the importance of high quality reception
Show out the new knowledge	The teacher teaches the students the correct grip method and serve movements .	The teacher teaches the students the correct stance and footwork.	Teachers teach the students the correct Batsmanship of net shots.	The teacher explained the essentials of the forehand hitting the high ball.	The teacher conducts the field demonstration of receiving technology and decomposed the movements in detail.

Table 3.1 (Continue)

Teaching Process	Chapter 1: Basic knowledge of badminton	Chapter 2: Stance and Footwork	Chapter 3: Batsmanship of net shots	Chapter 4: Batsmanship of deep clears	Chapter 5: Receive service and rally
Try the application exercises	The students practice the grip and serve, and the teacher observes and instructs.	Students practice stance and footwork in groups.	Students practice the Batsmanship of net shots in stages.	Students practice the high ball in groups, and the teacher observes and instructs them.	Students conduct repeated exercises under the guidance of the teacher.
Complete the mastery	The students practice the grip and serve, and the teacher evaluates the students.	Students conduct combined exercises to simulate the movement mode in the competition.	Through the game, let the students use the Batsmanship of net shots in the actual combat.	Students conduct actual combat simulation practice, the teacher evaluates	The teacher arranges the students to have the simulation competition.
Eaching cycle	1 Week	2 Weeks	3 Weeks	4 Weeks	5 Weeks

1.4 The researchers submitted these plans to three experts for review to verify their accuracy. Experts have verified the effectiveness of the course plan development process. The consistency index of the test is between 0.67 and 1.00, and the following levels are considered:

The score is +1. There is a view that "meet the definition/measurement objectives"

The score is 0. There is a view that' whether it meets the definition/measurement goal is uncertain.'

The score is -1. There is a view that is inconsistent with the definition/measurement goal.

The consistency index is greater than or equal to 0.50, which is considered suitable for further study.

The researcher revised the teaching plan according to the expert's suggestion to prepare for the next experiential teaching.

2. Badminton Ability Test

2.1 The evaluation table contains five evaluation contents, as follows:

2.1.1 Badminton serve technology Is master the correct grip position and serve skills.

2.1.2 Quick pace of badminton Is master the correct direction of movement and body control essentials.

2.1.3 Ball hitting technique before the net Is master the correct hitting position and body control essentials

2.1.4 Middle-and back-field hitting skill Is master the correct order of power force and shot control essentials

2.1.5 Practical application Is master the correct technical connection and tactical application

2.2 Researchers have designed the badminton assessment and evaluation scale according to the theoretical knowledge and skills of badminton, combined with the learning skills evaluation tools. The assessment content includes five aspects, measure according to the measurement steps, and finally record the measured value. The measurement consistency criteria are as follows:

Table 3.2 Badminton skills assessment table

Evaluation on ltems		Badminton skills assessment table		
		3	2	1
Basic knowledge of badminton	**1. Grip the posture**	The grip has standard posture, stable movements, and can flexibly use various grip skills in the competition to adapt to the changes in different fields.	The grip position is relatively standard, the movement is natural and smooth, but in the high intensity of the confrontation.	You can basically hold the grip as required, but the grip position may not be natural enough, and sometimes there will be tension or too hard.
	2. Delivery of service	Serve technology is skilled, standard action, can perform different types of serve.	Master the basic skills of forehand and backhand serve, the action is more standard.	Ability to perform a basic forehand serve, but the action may not be standard.
	3. The location of the shuttlecock's landing point	Can flexibly use the service strategy, the serve landing point is accurate, can adjust the service direction and depth according to the game situation.	The stability of the serve has been improved, and the serve landing point can be controlled more accurately, with fewer mistakes.	Service stability is poor, the landing point is not accurate, there are mistakes.

Table 3.2 (Continue)

Evaluation on ltems		Badminton skills assessment table		
		3	2	1
Stance and Footwork	**1. The specification of stance**	Can flexibly adjust the preparation posture according to the situation of the game, smooth movement, stable center of gravity.	Be able to perform the preparation posture correctly, with your feet shoulder-width apart, touch the front foot on the ground, bend your elbow slightly, and pat your head back on your chest, but the movement may not be smooth enough.	Can do feet and shoulder width, slightly bent, hold hands slightly oblique, but the movement may not be standard, the body center of gravity is not stable.
	2. The number of steps to be used	Ability to complete the basic stride, pad step, and parallel steps.	Can complete the basic steps, pad steps.	Ability to complete the basic steps.
	3. Consistency of pace application	The footwork is more coherent, which can adapt to the simple field movement.	The basic footwork can be completed more coherently, but the speed and flexibility need to be improved.	Understand the basic badminton footwork, but the movement is not coherent, simple footwork.

Table 3.2 (Continue)

Evaluation on ltems		Badminton skills assessment table		
		3	**2**	**1**
Batsmanship of net shots	**1. Net front technical action specification Chengdu**	The technology before the net has been quite skilled, standard and smooth action.	Net front technical action began to become standard, can more stably complete a variety of network front technology.	Actions have been able to perform, but lack fluency and accuracy.
	2. The location of badminton	In the error rate of the game is low, the ball is very accurate.	In the game, the error rate is low, and the ball point is more accurate.	Frequent mistakes in the game, the control ability of the ball is weak, the landing point is not accurate enough.
	3. Practical application ability	According to the reaction of the opponent and the situation of the game, flexible use of tactics, have a certain ability to fight.	They are able to match the pace of the game and the position of their opponents, but the tactics may not be flexible enough.	In confrontation, students struggle to effectively use prenet technology to create scoring opportunities.

Table 3.2 (Continue)

Evaluation on ltems		Badminton skills assessment table		
		3	2	1
Batsmanship of deep clears	**1. Deep clears technical action standard degree**	The Deep clears has been quite skilled, standard and smooth action.	Deep clears action began to become standard, can more stably complete a variety of network front technology.	Actions have been able to perform, but lack fluency and accuracy.
	2. The location of badminton	In the error rate of the game is low, the ball is very accurate.	In the game, the error rate is low, and the ball point is more accurate.	Frequent mistakes in the game, the control ability of the ball is weak, the landing point is not accurate enough.
	3. Practical application ability	According to the reaction of the opponent and the situation of the game, flexible use of tactics, have a certain ability to fight.	They are able to match the pace of the game and the position of their opponents, but the tactics may not be flexible enough.	In confrontation, students struggle to effectively use prenet technology to create scoring opportunities.

Table 3.2 (Continue)

Evaluation on ltems		Badminton skills assessment table		
		3	2	1
Receive service and rally	**1. Standard degree of receiving service technical action**	Receiving serve posture standard, the strength control stability, can adjust the serve strategy according to the opponent's situation.	The return posture is more standard, and the strength control is improved.	The return posture is not standard, the action range is large, and the force control is unstable.
	2. Practical application ability	After receiving the serve, good consistency, can quickly start the next beat attack or defense.	After receiving a serve has a certain continuity, can be a simple technical combination.	Lack of consistency after receiving the serve, unable to start the next shot attack or defense in time.
	3. Overall merit of rally	Rich use of technology, can be flexible change, effective mobilization of opponents.	The technology has changes, can adjust the tactics according to the game.	Single application of technology, lack of change, easy to be controlled by opponents.

2.3 Modify the checklist according to the suggestions.

2.4 Submit the evaluation form. Check the accuracy with the thesis instructor and make corrections.

2.5 Submit the evaluation standard of hip flexibility to three measurement and inspection experts. Experts check the validity of the content and calculate the remuneration (objective consistency of indicators: IOC). Consistency index of project judgment criteria.

The measurement consistency is as follows:

The score is +1. Some people think that this is "confirming that the evaluation standard meets the specified measurement requirements"

The score is 0. Some people expressed the opinion that "I'm not sure whether the evaluation standard meets the specified measurement requirements.

The score is -1. Some people think that "the standard does not meet the prescribed measurement requirements."

The consistency index of each evaluation content is greater than or equal to 0.50, which is considered suitable for research. The objective consistency (IOC) value of each question is 1.00.

2.6 Measure the confidence by coefficient method, and check the badminton skill evaluation table. The confidence value is 0.75 which is suitable for research.

2.7 Check the reliability of measurement standards that can be used for research.

Data Collection

The data collection is as follows:

1. Invite 3 experts, issue official documents of experts of Bansomdejchaopraya Rajabhat University, and provide information on research content and research instruments: lesson plan sand assessment form, for consideration Index of Objective Consistency (IOC).

2. This research is an experimental research. Use First principles of instruction to guide the badminton teaching, and the control group uses the traditional badminton teaching to carry out a teaching experiment of 16 class hours. According to the evaluation form established by the investigator. The scores before and after the experiment were scored and evaluation data were collected. The experimental design is as follows:

Table 3.3 Experimental one-group pretest - posttest design

Group	Pretest	Experimental	Posttest
R	O_1	X	O_2

The meaning of the symbols used in the experimental design.

R means Random Sampling

X means Experimental

O_1 means Pretest

O_2 means Posttest

Data Analysis

The data analyzed as follows:

1. Analyze quantitative data through descriptive statistics; Mean and standard deviation.

2. Evaluate the skill of badminton before and after implementation First principles of instruction The experimental data are used to analyze the mean and standard deviation of and T-test for dependent statistical data.

Chapter 4
Results of Analysis

This study takes Vocational Students of Zhengzhou Vocational College of Finance and Taxation as the research object, and uses First Principles of Instruction to improve the students' badminton skills, and compares the changes of students' badminton skills. The data analysis results are as follows:

1. Symbols and abbreviations
2. Data analysis results

Details are as follows.

Symbols and Abbreviations

Represent data analysis results based on symbols and semantics. The details as follows.

$\bar{X}$ Means average value

SD. Means standard deviation n.

n Means number of students

D Means scores of difference between pre and post class

Df Means degree of freedom

t Means statistical data for t-test value t

** Means statistical significance at level .01

Data Analysis Results

First Principles of Instruction was used to improve the badminton skills of vocational students in Zhengzhou Vocational College of Finance and Taxation. The researchers conducted the research in the following order:

Part 1. The study process of 36 vocational students in Zhengzhou Vocational College of Finance and Taxation was analyzed by using First Principles of Instruction.

Part 2. First Principles of Instruction was used to implement pre-class teaching, and the badminton skills was tested after class.

Part 1. The study process of 36 vocational students in Zhengzhou Vocational College of Finance and Taxation was analyzed by using First Principles of Instruction.

First Principles of Instruction It is a teaching mode to improve the quality and effectiveness of teaching proposed by the famous educational design theorist Professor Merrill. It has incomparable advantages in cultivating students' interest in

learning and critical thinking. The teaching model based on "First Principles of Instruction" starts by focusing on solving problems, Help students connect old and new skills through multi-direction interaction and collaboration, And guide students to solve new problems with the knowledge and skills learned, A teaching mode of students' active learning under task-driven feedback from students, teachers and students, Applying First Principles of Instruction to public physical education courses in higher vocational colleges, Implement the application of hybrid learning, Integrating theory with practice organically, To improve the classroom efficiency, It is a beneficial attempt to enhance students' professional ability.

In this study, the researchers used First principles of instruction to teach. According to the working principle of First principles of instruction and the characteristics of college sports badminton course, a training scheme for the influence of First principles of instruction on vocational students' badminton skills was constructed. The scheme includes establishing teaching objectives, designing teaching content, determining teaching methods, dividing teaching process and evaluating teaching effect, so as to achieve better teaching effect of First principles of instruction.

Through the pre-evaluation process, the students' badminton skills is tested before class, so that students and teachers can understand the actual situation of badminton skills, and then strengthen learning, optimize students' motor skills, stimulate students' interest in learning and improve vocational students' badminton skills. After-class test improved the badminton skills.

This study takes 36 students from marketing major of second grade vocational students for Zhengzhou Vocational College of Finance And Taxation as the research object to carry out teaching practice. Pre-class test, group study and after-class test were conducted to compare and analyze the students' badminton skills before and after the First Principles of Instruction class, so as to understand the changes of students' badminton skills. Observe students' performance before and after teaching, adjust First Principles of Instruction scheme in time, and record students' changes and performance. From the performance of students in each class and the test results after class, it can be found that the students' badminton skills is constantly improving.

Specific observation results:

1. Learning Content: Basic knowledge of badminton

Step 1 Focus on problem-solving

At this stage, the teacher to create problem situation related to students, by watching a wonderful badminton game video, stimulate students' interest in

badminton and curiosity, but also to the students task list, help students clear learning tasks, replacement learning, make the students gradually master the way to solve the problem, improve the learning can.

Step 2 Activate the existing knowledge

At this stage, activate the old knowledge can help students to connect the old and new learning tasks, to the psychological pattern of learners adjustment and transformation, review the basic knowledge related to badminton, such as the structure of the racket, badminton rules, etc, lay the foundation for learning new skills, 20, strengthen the role of the weak link guidance.

Step 3 Show out the new knowledge

At this stage, teachers should carry out teaching closely around the teaching objectives, and teach students the correct grip method and serve movements. At the same time, they should carefully provide guidance in students' independent inquiry learning and cooperative learning, so as to teach students in accordance with their aptitude.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives to strengthen the practice. Students should try to grip and serve, and the teacher should observe and provide immediate guidance and feedback to help learners to clarify the degree of goal achievement.

Step 5 Complete the mastery

At this stage, students are required not to show their new knowledge they have mastered, the teacher evaluates students' grip and serve skills, points out the shortcomings, and instructs students how to correct, to further promote learning.

2. Learning Content: Stance and Footwork

Step 1 Focus on problem-solving

At this stage, teachers should create problem situations related to students, present task lists to students, help students clarify their learning tasks, and let students understand the importance of pace in badminton competition by showing the competition video of professional athletes. Explain the learning income, so that students gradually master the way to solve problems, improve the learning ability.

Step 2 Activate the existing knowledge

At this stage, the activation of old knowledge can help students smoothly connect the old and new learning tasks, adjust and transform the psychological mode of learners, review the pace related to badminton, lay a foundation for learning

new skills, play a role of checking the gaps, and strengthen the guidance of weak links.

Step 3 Show out the new knowledge

At this stage, teachers should implement teaching closely around the teaching objectives and teach students the correct basic steps of badminton. At the same time, teachers should provide careful guidance in students' independent inquiry learning and cooperative learning, so as to teach students in accordance with their aptitude.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives to strengthen the practice. Students should practice under the guidance of the teacher, and the teacher should provide immediate feedback. Help learners to know how far their goals are achieved.

Step 5 Complete the mastery

At this stage, students are required not only to show the new knowledge they have mastered, but also to question, communicate and expand their knowledge through mutual guidance and evaluation. Teachers can evaluate students' mastery through observation and testing, and provide specific feedback to further promote learning.

3. Learning Content: Batsmanship of Net Shots

Step 1 Focus on problem-solving

At this stage, teachers should create problem situations related to students to attract students' attention, and present task lists to students, so that students can master the basic techniques in front of the badminton net, flexible use of these techniques and tactical understanding. Make the students gradually master the way to solve the problem, improve the learning ability.

Step 2 Activate the existing knowledge

At this stage, before teaching begins, teachers conduct in-depth analysis of learning tasks and observe students' basic level to ensure that students can gradually master complex skills.

Step 3 Show out the new knowledge

At this stage, teachers should carry out teaching closely around the teaching objectives, and decompose the front technology into several small steps, such as grip mode, position, hitting action, follow-up action after hitting, etc. Each small step is the key for students to master the whole technology.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives and strengthen the practice during the practice process. Teachers should adopt phased teaching methods to ensure that students can master the network technology step by step. Teachers should provide corrective feedback and internal feedback to help students to clarify the degree of goal attainment.

Step 5 Complete the mastery

At this stage, teachers need to constantly adjust their teaching strategies according to students' progress and feedback to ensure that each student can achieve the predetermined teaching objectives and further promote learning.

4. Learning Content: Batsmanship of Deep Clears

Step 1 Focus on problem-solving

At this stage, teachers should create a problem situation related to students, attract students 'attention, mobilize students' desire to learn, but also present the task list to students, help students to clarify the learning tasks, account for the learning benefits, so that students gradually master the way to solve problems, improve the knowledge of learning.

Step 2 Activate the existing knowledge

At this stage, the activation of old knowledge can help learners to smoothly connect the old and new learning tasks, guide students to discuss and show the high ball technology, adjust and transform the psychological mode of learners, play a role of checking the gaps and filling in the gaps, and strengthening the guidance of weak links.

Step 3 Show out the new knowledge

At this stage, teachers should carry out teaching closely around the teaching objectives, explain the action essentials of the forehand hitting the high ball in detail, and teach students in accordance with their aptitude when students make independent inquiry and learning and cooperative learning.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives and conduct group practice. Teachers should provide corrective feedback and internal feedback to help learners clarify the extent to which their goals.

Step 5 Complete the mastery

At this stage, students are required not only to show their new knowledge they have mastered, but also to observe students' practice to help students make continuous progress in the learning process.

5. Learning Content: Receive service and rally

Step 1 Focus on problem-solving

At this stage, teachers should create problem situations related to students, attract students' attention, establish clear teaching objectives, help students clarify learning tasks, explain learning benefits, so that students can gradually master the way to solve problems and improve their ability in learning.

Step 2 Activate the existing knowledge

At this stage, teachers should stimulate students' memories through a series of warm-up activities and help them recall the basic knowledge and skills they have learned.

Step 3 Show out the new knowledge

At this stage, teachers should closely implement teaching closely around the teaching objectives, and teachers need to present new teaching content through intuitive demonstration. The teacher can stand on the side of the field and clearly show the position, posture and movement process of the reception service to ensure that every student can see it.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives to strengthen the practice during the practice process. When students try to practice new skills, the teacher should break down the receiving technology into small steps and teach them one by one. When students practice, teachers should provide corrective feedback and internal feedback to help learners to clarify the extent to which their goals are achieved.

Step 5 Complete the mastery

At this stage, students are required not only to show the new knowledge they have mastered, but also to question, communicate and expand their knowledge through mutual guidance and evaluation. Teachers should organize battle exercises, so that students can use the technology they have learned in actual combat. Further promote learning.

Part 2. First Principles of Instruction was used to implement pre-class teaching, and the badminton skills was tested after class.

The First Principles of Instruction is used in badminton course teaching, and the students' badminton skills before and after teaching is compared and analyzed. The results of the students' badminton skills test before and after the experiment are as follows:

Table 4.1 Students' Badminton Skills before and after First Principles of Instruction

Student ID	Pre-test Scores (Full Score=45)	Post-test Scores (Full Score=45)	Difference Scores(D)
1	18	30	12
2	35	42	7
3	24	35	11
4	17	30	13
5	38	43	5
6	26	36	10
7	20	35	15
8	30	40	10
9	18	29	11
10	32	38	6
11	31	39	8
12	30	37	7
13	22	32	10
14	24	36	12
15	19	28	9
16	18	28	10
17	20	29	9
18	15	25	10
19	24	32	8
20	25	35	10
21	18	29	11
22	18	31	13
23	19	35	16
24	26	39	13
25	20	37	17
26	18	33	15
27	27	40	13
28	27	34	7
29	18	28	10
30	22	36	14
31	18	27	9

Table 4.1 (Continue)

Student ID	Pre-test Scores (Full Score=45)	Post-test Scores (Full Score=45)	Difference Scores(D)
32	29	38	9
33	27	39	12
34	26	40	14
35	22	40	18
36	24	38	14
$\bar{X}$	23.47	34.53	11.06
SD.	5.57	4.78	3.11

As shown in Table 4.1, First Principles of Instruction can improve the badminton skills of vocational students. The average score of students' badminton skills before First Principles of Instruction is 23.47, and after teaching, the average score is 34.53, with an average difference of 11.06. It can be seen that the badminton skills after First Principles of Instruction is higher than that before teaching.

The researchers analyzed the data, and used the mean value, standard deviation and T-test as relevant samples to analyze the students' badminton skills before and after First Principles of Instruction. The data analysis results are shown in Table 4.2.

Table 4.2 Comparison of Badminton Skills

Badminton skills	n	Full score	$\bar{X}$	SD.	df	t	p
Pre-test	36	45	23.47	5.57	35	13.48**	.00
Post-test	36	45	34.53	4.78	35		

** Statistically significant at the level. 01 ($p < .01$)

Table 4.2 shows that the students' badminton skills after class is higher than the average before class by using First Principles of Instruction, which shows that First Principles of Instruction can effectively improve the students' badminton skills. There is statistical significance at the level of ($P < .01$), which is consistent with the research hypothesis.

Chapter 5
Conclusion Discussion and Recommendations

In this study, 36 vocational students in Zhengzhou Vocational College of Finance and Taxation were taken as the objects, and First Principles of Instruction was used to improve the badminton skills of vocational students. To compare and analyze the students' badminton skills before and after First Principles of Instruction, in order to understand the improvement of the students' badminton skills by First Principles of Instruction. The specific contents of this study are as follows:

1. Study the related information of First Principles of Instruction, including its definition, teaching steps, theoretical basis, teaching design, classroom practice and application. This study focuses on the students' badminton skills of Zhengzhou Vocational College of Finance and Taxation.

2. Study the information about the badminton skills, including the basic knowledge, stance and footwork, net shots, deep clears, receive service and rally of testing the badminton skills.

3. Create research tools. According to the First Principles of Instruction, the teaching scheme is made and studied, including five steps. The first step is focus on problem-solving, the second step is activate the existing knowledge, the third step is show out the new knowledge, the fourth step is try the application exercises, and the fifth step is complete the mastery.

4. The research tool was submitted to three experts for validity verification, teaching plan scoring standard and badminton skills scoring standard, and the reliability of the tool was tested by sampling test with consistency index as the consideration standard (IOC: Index of ltem Objective Congruence).

5. After the research tools are developed and passed, experts will investigate and adopt First Principles of Instruction teaching plan. Pre-test was conducted before teaching, and data of students' badminton skills were collected through the test.

6. Collect data for students, use experimental data, and analyze the average ($\bar{X}$) and standard deviation (SD). and t-test of related samples.

Conclusion

According to the research theme, the research on improving the badminton skills in vocational students by First Principles of Instruction is summarized as follows. According to the evaluation results of experts, the teaching plan and badminton skills test are made.

1. First Principles of Instruction, as an efficient teaching strategy, its core is to promote students' learning effectiveness through a series of carefully designed links. The application of First Principles of Instruction to badminton courses to realize the application of mixed learning, and the organic integration of theory and practice is a beneficial attempt to improve classroom efficiency, teaching effect and enhance students' professional ability.

The researcher studied a large number of documents related to First Principles of Instruction, and according to the characteristics of First Principles of Instruction, it was integrated into five steps to formulate the teaching plan for marketing major of second grade vocational students. The First Principles of Instruction teaching scheme of badminton course is mainly constructed from five aspects: teaching objectives, teaching contents, teaching methods, teaching process and effect evaluation. Among them, the teaching goal is the basic point, the teaching content is the core, the teaching method is the key, the teaching process is the guarantee and the effect evaluation is the result. Data analysis is to evaluate the quality of classroom teaching plan by three experts according to First Principles of Instruction, and the evaluation results reflect the quality of classroom teaching plan by experts. Generally speaking, the suitability of research objectives is the most appropriate.

2. First Principles of Instruction is used in teaching. Before teaching, the average score of students' badminton skills is 23.47, and after teaching, the average score is 34.53, with an average difference of 11.06. The students' badminton skills after teaching is higher than that before teaching. The results showed that students' badminton skills after First Principles of Instruction teaching was higher than that before teaching, with statistical significance at the level of ($P < .01$).

Therefore, First Principles of Instruction can be used as a teaching method of vocational students badminton skills, which is suitable for badminton courses teaching and has certain advantages.

Discussion

Using First Principles of Instruction, the research results of improving the badminton skills of 36 students from marketing major of second grade vocational students for 1 class are discussed as follows:

1. First Principles of Instruction The application of university badminton courses has many advantages. At present, public physical education teaching generally follows the traditional physical education teaching mode as the main body and students imitate and practice. The long-term teaching inertia leads to the solidification of most teachers' teaching concepts and the lack of internal motivation to update the teaching mode. Based on the characteristics of badminton, First Principles of Instruction is somewhat better than the traditional teaching methods. First of all, it can help students to establish correct concepts of sports and improve their badminton skills through scientific training methods. Secondly, it emphasizes students 'active participation and inquiry learning, which can stimulate students' interest in learning and independent learning ability. In addition, through stratified teaching, teachers can provide individualized guidance according to students' different levels and needs of students, so as to improve the teaching effectiveness. Finally, the primary teaching principle focuses on the combination of theory and practice, which helps students to understand the tactics and strategies of badminton while mastering the skills, and lays a solid foundation for becoming an all-round athlete.

2. The researcher studied a large number of documents related to First Principles of Instruction, and according to the characteristics of First Principles of Instruction, it was integrated into five steps to formulate the teaching plan for vocational students students. The First Principles of Instruction scheme of badminton course is mainly constructed from five aspects: teaching objectives, teaching contents, teaching methods, teaching process and effect evaluation. Among them, the teaching goal is the basic point, the teaching content is the core, the teaching method is the key, the teaching process is the guarantee and the effect evaluation is the result. Data analysis is to evaluate the quality of classroom teaching plan by three experts according to First Principles of Instruction, and the evaluation results reflect the quality of classroom teaching plan by experts; Generally speaking, the suitability of research objectives is the most appropriate. This is because the learning plan is consistent with the concept of First Principles of Instruction, and the curriculum plan contains the key elements of the curriculum plan. First Principles of Instruction can better improve the students' badminton skills. In 2018, Fang Ting made a theoretical elaboration on the design principles, principles and design cases in combination with

the teaching of aerobics professional courses. Through experiments, she verified the positive effect of First principles of instruction on students' technical level, learning attitude and independent learning ability(Fang Ting,2018).In 2019, Xiao Ting used First principles of instruction to conduct a teaching comparison experiment, which verified its feasibility and effectiveness in improving the teaching effect(Xiao Ting,2019). In 2020, Liu Yujia used this mode to take "wheel skipping rope" as an example to carry out micro-class design practice, and the conclusion shows that it can effectively improve students' ability to solve practical problems and flexible application ability(Liu Yujia,2020).

3. After using First Principles of Instruction, the average score of students' badminton skills before teaching is 23.47, and after teaching it is 34.53, with an average difference of 11.06. The badminton skills after teaching is higher than that before teaching. The results showed that the badminton skills after First Principles of Instruction teaching was significantly higher than that before teaching, which was statistically significant at the level of ($P<.01$), which was consistent with the hypothesis. This is because the First Principles of Instruction emphasizes the key factors in the learning process. First, clear learning goals help students understand the specific skill levels they need to achieve. Second, by breaking down movements and teaching step by step, students can gradually master complex skills to avoid feeling overwhelmed. In addition, providing appropriate feedback allows students to timely understand their own progress and the need for improvement. In addition, repeated practice and consolidation skills are indispensable to improving badminton skills, which helps students to form muscle memory. Finally, through simulated competitions and practical applications, students can use the skills they have learned in real situations, so as to improve their competitive level and actual combat ability. The comprehensive application of these principles makes badminton courses more systematic and efficient, so as to effectively improve students' badminton skills.

At present, a large number of studies at home and abroad have confirmed that First Principles of Instruction is an important training means to College physical education courses. Previous studies have mainly focused on the teaching of non-physical education subjects and some physical education subjects. There is not much research on First Principles of Instruction in badminton course. Jiang feixia (2020) through 16 weeks of experimental research confirmed that: First Principles of Instruction can effectively improve the students' cheerleading technology level, sports independent learning ability and sports learning interest level. Most of the students are positive about the First Principles of Instruction. Liu Yujia (2019) In order

to improve the standardization of physical education teaching, studied the teaching design of physical education based on First principles of instruction, and took "wheel skipping" as an example to practice First principles of instruction guide physical education teaching. The practice shows that the five-star teaching design mode can make the fragmented knowledge of micro-courses form a complete learning circle, effectively improve the learners' ability to solve practical problems and flexible application, and provide direction and guidance for the teaching design of high-quality micro-courses.Reading domestic First principles of instruction related literature can see the breadth of research.

In conclusion, First Principles of Instruction can effectively improve the badminton skills of vocational college students. By using these teaching principles, teachers can better design the courses, so that students can not only master the basic skills and skills in the process of learning badminton, but also develop their love for the sport and their interest in continuous participation. At the same time, teachers adopt diversified teaching methods, which can stimulate students' learning motivation and improve their participation and practical ability. In addition, reasonable feedback and evaluation mechanism can help students understand their progress and shortcomings in time, so as to adjust their learning strategies and make continuous progress. Through these scientific teaching principles, vocational school students can not only improve badminton skills, but also cultivate teamwork and competitive spirit in physical exercise, laying a solid foundation for their future career.

Recommendations

Suggestions on the Application of Research Results

1. In order to better promote the badminton teaching method based on First Principles of Instruction and change the traditional physical education teaching mode of students 'learning and imitation practice, it is suggested to update teachers' teaching concept and enhance the internal motivation of teachers to accept the new teaching mode. It is suggested that teachers should modularize the teaching process, deepen their understanding of First Principles of Instruction, change the high-intensity output mode of teachers, and guide students to explore, discover and improve independently. Combine First Principles of Instruction in teaching practice, give full play to its advantages, and apply new teaching methods to more sports teaching.

2. The badminton teaching practice based on First Principles of Instruction is a new attempt of physical education teaching. Compared with the traditional teaching methods, it is very different. Its advantages lie in that it can stimulate the

enthusiasm for sports, fully display their skills, expand the learning vision of badminton sports skills, and provide a learning method in line with the personality development of contemporary college students. Therefore, in the daily physical education course teaching, we should give full play to the advantages of First Principles of Instruction course design, improve the course design before, during and after class, so that students can better realize independent attempt and cooperative exploration in the process of teaching implementation, promote efficient learning at various levels, and enhance students' interest in learning.

3. Studies have proved that the implementation of teaching design based on First Principles of Instruction can effectively improve the learning effect of students. It is a modular teaching design on the basis of traditional teaching methods, highlighting the advantages of guiding students to actively show and teach closely according to the goal, and improving the teaching efficiency. Therefore, in the teaching practice of other sports projects, the teaching mode based on First Principles of Instruction should be actively promoted and applied, and try to carry out systematic improvement in curriculum design, teaching objective determination, teaching method selection, teaching evaluation and other aspects.

4. Due to the use of First Principles of Instruction in badminton teaching practice, there will be a lot of data statistics and collection in the five teaching links, such as focusing on solving problems, starting original knowledge, displaying and demonstrating new knowledge, trying application practice, and integrating mastery, and the quantity and quality of teaching venues are relatively high. Therefore, in order to better realize the teaching effect, it is very important to strengthen the data-based assessment and evaluation, and pay attention to the material guarantee of teaching equipment and data collection system. In terms of teaching venues, there need to be enough standard venues to ensure the teaching effect. Some schools do not have an indoor teaching environment, so it is difficult to complete the badminton courses with high technical requirements outdoors, and it is also more affected by the weather, which is not conducive to the development of teaching.

5. At present, dominated by physical education teachers, with skills transmission as the main goal of traditional teaching method is still dominant, in practical teaching, similar based on First Principles of Instruction teaching design of innovative teaching practice is less, so should increase the innovative physical education teaching reform propaganda and promotion, improve social attention, improve PE teachers' teaching design ability at the same time enrich and develop the theory of school sports teaching mode system.

Recommendations for Future Research

1. Further promote the First Principles of Instruction in badminton course teaching, and at the same time, fully consider the differences of students, teach students in accordance with their aptitude, and make a reasonable First Principles of Instruction teaching plan according to the different conditions of students.

2. In the future, First Principles of Instruction can be combined with other College physical education courses (such as basketball course teaching and football courses teaching) to explore the role of First Principles of Instruction on students' physical skills in the physical education course in vocational colleges.

3. In the process of carrying out the innovative mode teaching experiment, the research group found that the students' personalities have a significant impact on the teaching effect. Usually, extroverted students are easier to complete team cooperation projects, and the introverted consciousness of actively exploring their own potential is weak. Through further investigation found that due to the influence of traditional sports teaching, many students have adapted to the passive listening learning habits, most of the students to innovation mode based on First Principles of Instruction, welcomed the classroom with the theme of the student teaching design, but can through the change of teaching mode, to explore, self improvement learning habits change, also need PE teachers for long-term observation and tracking.

4. Because this study is short, it is suggested that a long-term follow-up study can be conducted in the future to observe the long-term changes of badminton skills of vocational students after using First Principles of Instruction. It can be designed as a long-term experiment for several months or one year to evaluate the lasting effect of First Principles of Instruction on badminton skills more comprehensively.

5. In terms of teaching venues, skills teaching project to the scale and quantity of teaching requirements is higher, in badminton project, for example, to achieve skills teaching requirements, need to have enough standard field to ensure the teaching effect, part of the school does not have indoor teaching environment, in the outdoor technical requirements higher badminton course difficult, affected by the weather is more.

6. Analyze the factors that affect the effect of First Principles of Instruction, such as training frequency, duration and tensile strength. By systematically investigating the influence of these factors on the improvement of badminton skills, it can provide basis for the design of future training programs.

7. In the teaching process, there are some limitations in the integration of task target setting and specialty. Too much attention is paid to the combination of marketing theory, and the practical content is insufficient. In the process of future course design and lesson preparation, the principals of the marketing major and the core course teachers will be included in the physical education course teaching team, and the interdisciplinary collective lesson preparation mechanism will be established, and the content of professional integration will be deeply explored, so that the subject integration will be more professional, closer and deeper.

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Appendixes

Appendix A
List of Specialists and Letters of Specialists Invitation for IOC Verification

List of Specialists and Letters of Specialists Invitation for IOC Verification

1. Fangkamol Pethkliang	Assistant Professor Faculty of Education Bansomdejchaopraya Rajabhat University
2. Sasikanchana Yenaeng	Assistant Professor Dr. Faculty of Education Bansomdejchaopraya Rajabhat University
3. Zhang Xueling	Professor Dr. Henan Sport University

Appendix B
Official Letter

Ref.No. MHESI 0643.14/2665

Bansomdejchaopraya
Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

2 September 2024

RE: Invitation to validate research instrument

Dear Assistant Professor Fangkamol Pethkliang

Miss Li Qian is a graduate student in Master of Education Program in Curriculum and Instruction of Bansomdejchaopraya Rajabhat University. She is undertaking research entitled "Using First Principles of Instruction to Promote Badminton Skills of Vocational Students Zhengzhou Vocational College of Finance and Taxation"

The thesis adversity committee has considered that you are an expert in this topic. Your recommendations would be useful for further improvement of this research instrument.

We respectfully request your assistance in validating a research instrument that is attached to this message. We would be grateful for any help you can provide in this matter. We would like to express our sincere appreciation for your time Miss Li Qian at 370144483@qq.com

Thank you for considering our request

Sincerely,

(Assistant Professor Dr.Tanaput Chancharoen)
Vice Dean, For Dean of the Graduate School

Bansomdejchaopraya Rajabhat University
Tel.+662-473-7000 ext. 1814
www.bsru.ac.th

Ref.No. MHESI 0643.14/2666

Bansomdejchaopraya
Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

2 September 2024

RE: Invitation to validate research instrument

Dear Assistant Professor Dr.Sasikanchana Yenaeng

Miss Li Qian is a graduate student in Master of Education Program in Curriculum and Instruction of Bansomdejchaopraya Rajabhat University. She is undertaking research entitled "Using First Principles of Instruction to Promote Badminton Skills of Vocational Students Zhengzhou Vocational College of Finance and Taxation"

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(Assistant Professor Dr.Tanaput Chancharoen)
Vice Dean, For Dean of the Graduate School

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Tel.+662-473-7000 ext. 1814
www.bsru.ac.th

Ref.No. MHESI 0643.14/2667

Bansomdejchaopraya
Rajabhat University
1061 Itsaraparb Hirunrujee
Thonburi Bangkok 10600

2 September 2024

RE: Invitation to validate research instrument

Dear Professor Dr.Zhang Xueling

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Appendix C
Research Instruments

Lesson Plan 1

Content

Basic knowledge of badminton (2hours)

Objective of Leaning

1. Understand the origin and development of badminton, project characteristics and main events. Master the correct grip and serve method.

2. Master the correct way of badminton racket grip and serving.

3. Cultivate students' willpower and the quality of not being afraid of hard work.

Concept

Grip

Badminton grip refers to how to hold the racket correctly to play the best shot when playing badminton. There are usually three basic types of grip: front hand, backhand and super hand.

Serve

Badminton serve is the legal action of playing badminton from the service area at the beginning of the game or each game, and when one party has the right to serve.

The serve must be played after the referee's "serve" command or signal is issued, and the badminton must be sent to the opponent's diagonal serve area. When serving, the badminton must be sent from a height below the waist, and when the badminton leaves the server, the racket face must face down. After the serve is completed, the badminton must first fall in the opponent's serve area, otherwise it will be regarded as a serve error.

Learning Activity

First principles of instruction is divided into five stages: 1) Focus on problem-solving, 2)Activate the existing knowledge, 3)Show out the new knowledge, 4)Try the application exercises, 5)Complete the mastery, including the following five steps:

Step 1 Focus on problem-solving

At this stage, the teacher to create problem situation related to students, by watching a wonderful badminton game video, stimulate students' interest in

badminton and curiosity, but also to the students task list, help students clear learning tasks, replacement learning, make the students gradually master the way to solve the problem, improve the learning can.

1.1 The teacher organizes the students to gather, arranges the formation and conducts the class attendance.

1.2 Tell the students clearly about the learning objectives of this lesson, including understanding the basic rules of badminton, mastering the correct grip method and learning the basic serve skills.

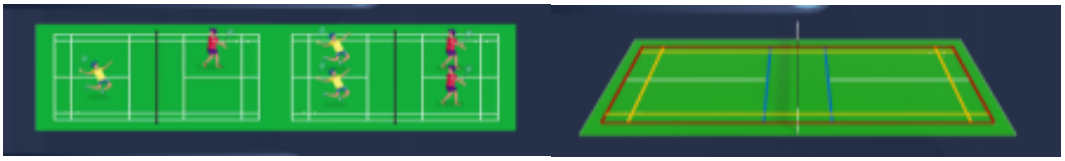
1.3 The teacher organized the students to watch the badminton game video (5minutes) to stimulate their interest and curiosity in badminton.

Step 2 Activate the existing knowledge

At this stage, activate the old knowledge can help students to connect the old and new learning tasks, to the psychological pattern of learners adjustment and transformation, review the basic knowledge related to badminton, such as the structure of the racket, badminton rules, etc., lay the foundation for learning new skills, 20, strengthen the role of the weak link guidance.

2.1 The teacher discusses the key techniques and tactics in the competition to make the students realize the importance of learning badminton.

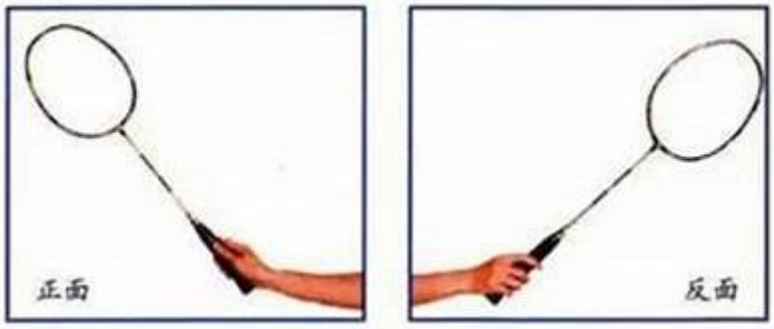
2.2 The teacher explained the history and cultural background of badminton in detail, as well as the basic rules of the game and the layout of the field.



Step 3 Show out the new knowledge

At this stage, teachers should carry out teaching closely around the teaching objectives, and teach students the correct grip method and serve movements. At the same time, they should carefully provide guidance in students' independent inquiry learning and cooperative learning, so as to teach students in accordance with their aptitude.

3.1 The teacher explained the basic principles of the grip, including the posture, the strength and the adaptability of the grip.



3.2 The teacher demonstrated the correct grip method, and asked the students to observe and imitate it.

3.3 The teacher explains the basic rules of serve and different types of serve methods, such as forehand serve and backhand serve.

3.4 The teacher demonstrated various service skills, and let the students observe and understand the essentials of the movement.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives to strengthen the practice. Students should try to grip and serve, and the teacher should observe and provide immediate guidance and feedback to help learners to clarify the degree of goal achievement.

4.1 Let the students imitate the correct grip position, and practice the grip under the guidance of the teacher.

4.2 The coach demonstrates the serve action, the students follow the practice, and the teacher provides individual guidance and corrects the mistakes in time.

4.3 Through group exercises, ask the students to observe each other and provide feedback.

Step 5 Complete the mastery

At this stage, students are required not to show their new knowledge they have mastered, the teacher evaluates students' grip and serve skills, points out the shortcomings, and instructs students how to correct, to further promote learning.

5.1 Teachers assessed student mastery of grip and serve skills by observing student practice and performing simple skill tests.

5.2 Teachers give positive feedback and encouragement to students who have good mastery, and provide specific improvement suggestions to students who need improvement.

Measurement and evaluation

1.Pre-test of Badminton skills test Basic knowledge of badminton.

2.Post-test of Badminton skills test Basic knowledge of badminton.

Resource equipment

1. The PPT of the Basic knowledge of badminton
2. Badminton competition video

Assessment form for the validity of Lesson Plan

Research Title: Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation

Research Objectives:

1. To use First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

2. To compare vocational students' Badminton skills before and after the implementation of First principles of instruction.

Directions:

Please assess the congruence between components of the lesson plan based on First principles of instruction theory by putting ✓ in the box according to the following criteria.

Rating is +1. There is an opinion that is "consistent to relevant. "

Rating is 0. There is an opinion that "Not sure it consistent to relevant. "

Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	The teaching content conforms to the learning objectives.				
2	The learning objectives are consistent with the subject matter.				
3	The Learning Processes are related to teaching.				
4	Learning activities are related to First principles of instruction.				
5	Show the actions related to the study subjects.				
6	There are various assessments related with learning objectives.				
7	The measurement and evaluation related with Learning objectives.				

Sign.....Assessor

(.....)

Date...../...../.....

Badminton Skills test for Pretest-Posttest for Basic knowledge of badminton

Basic knowledge of badminton	Score and criterion		
	3	2	1
1.Grip the posture	The grip has standard posture, stable movements, and can flexibly use various grip skills in the competition to adapt to the changes in different fields.	The grip position is relatively standard, the movement is natural and smooth, but in the high intensity of the confrontation.	You can basically hold the grip as required, but the grip position may not be natural enough, and sometimes there will be tension or too hard.
2.delivery of service	Serve technology is skilled, standard action, can perform different types of serve.	Master the basic skills of forehand and backhand serve, the action is more standard.	Ability to perform a basic forehand serve, but the action may not be standard.
3.The location of the shuttlecock's landing point	Can flexibly use the service strategy, the serve landing point is accurate, can adjust the service direction and depth according to the game situation.	The stability of the serve has been improved, and the serve landing point can be controlled more accurately, with fewer mistakes.	Service stability is poor, the landing point is not accurate, there are mistakes.

Assessment form for the validity of Badminton Skills test for Pretest-Posttest for Basic knowledge of badminton

Research Title: Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation

Research Objectives:

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Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	Grip the posture				
2	delivery of service				
3	The location of the shuttlecock's landing point				

Sign.....Assessor

(.....)

Date...../...../.....

Leson Plan 2

Content

Stance and Footwork (4hours)

Objective of Leaning

1. Understand the classification of badminton special pace.
2. Master the essentials of Stance and Footwork.
3. Have the ability to explore and solve problems independently.

Concept

Stance

Badminton stance is the body posture taken by the athlete to be able to respond quickly and effectively before the game or training begins. It usually includes the following key points:

Position: the feet are shoulder width, the center of gravity slightly decreased, the knee slightly bent, the body slightly forward.

Hold the clapping hands: hold the clapping hands to droop naturally, pat the head to the back, and unhold it can be placed in front of the body or near the racket hands to maintain balance.

Vision: Look at the opponent and the ball, and be highly alert.

Body direction: The side of the body is facing against the net for rapid movement.

Preparation: Keep relaxed but ready to start, ready to move forward, backward, left or right.

Footwork

Footwork Refers to the opponent hit the moment, the feet slightly jump off the ground, so that the body bounce up from the ground, the landing instant quickly move out, this step in the movement to accelerate the effect, can make you move faster.

Learning Activity

First principles of instruction is divided into five stages: 1) Focus on problem-solving, 2)Activate the existing knowledge, 3)Show out the new knowledge, 4)Try the application exercises, 5)Complete the mastery, including the following five steps:

Step 1 Focus on problem-solving

At this stage, teachers should create problem situations related to students, present task lists to students, help students clarify their learning tasks, and let students understand the importance of pace in badminton competition by showing the competition video of professional athletes. Explain the learning income, so that students gradually master the way to solve problems, improve the learning ability.

1.1 The teacher organizes the students to gather, arranges the formation and conducts the class attendance.

1.2 Tell the students clearly about the learning objectives of this lesson, understand and skillfully use the basic pace of badminton, including starting pace, stepping, stepping, stepping, cross step and footwork in the front and backcourt.

1.3 The teacher organized the students to watch the badminton game video (5 minutes) to let the students understand the importance of pace in the badminton game.

Step 2 Activate the existing knowledge

At this stage, the activation of old knowledge can help students smoothly connect the old and new learning tasks, adjust and transform the psychological mode of learners, review the pace related to badminton, lay a foundation for learning new skills, play a role of checking the gaps, and strengthen the guidance of weak links.

2.1 The teacher discusses with the students about the pace movement in the competition, making the students realize the importance of learning the pace of badminton.

2.2 Through the games, let the students experience the importance of the pace in the activities.

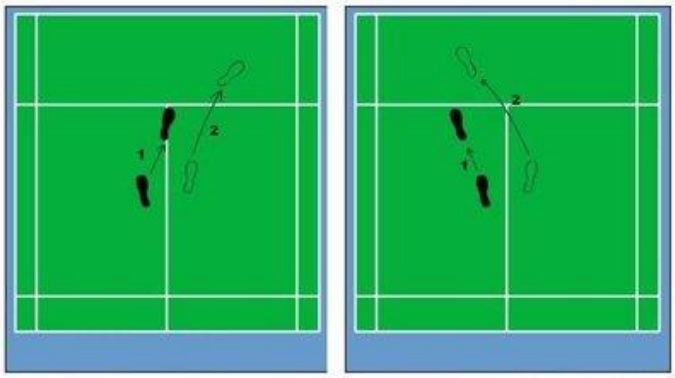
2.3 The teacher explained the classification of badminton pace to the students in detail.

Step 3 Show out the new knowledge

At this stage, teachers should implement teaching closely around the teaching objectives and teach students the correct basic steps of badminton. At the same time, teachers should provide careful guidance in students' independent inquiry learning and cooperative learning, so as to teach students in accordance with their aptitude.

3.1 Teachers need to show the students the correct preparation posture and the basic pace of badminton. This includes front and back, left and right movement, cross steps, side slips, etc.

3.2 The teacher needs to explain in detail the key points of the preparation posture and each step. For example, explain the shift of gravity back and forth, the order of steps, and how to keep your balance. For example, explain the shift of gravity back and forth, the order of steps, and how to keep your balance.



3.3 Teachers need to explain the application scenarios of these steps in actual competitions.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives to strengthen the practice. Students should practice under the guidance of the teacher, and the teacher should provide immediate feedback. Help learners to know how far their goals are achieved.

4.1 Students begin to practice the pace they have learned under the guidance of the teacher.

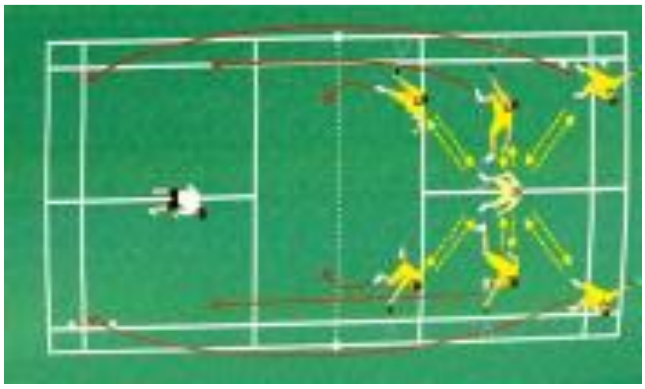
4.2 Students first perform decomposition exercises, focusing on the accuracy of a single pace.

4.3 During the practice of students, teachers need to observe and provide immediate feedback. Point out the students' mistakes in the pace of execution, and give suggestions for improvement.

Step 5 Complete the mastery

At this stage, students are required not only to show the new knowledge they have mastered, but also to question, communicate and expand their knowledge through mutual guidance and evaluation. Teachers can evaluate students' mastery through observation and testing, and provide specific feedback to further promote learning.

5.1 Students can practice together, simulate the movement mode in the game, and simulate the confrontation combined with the badminton net.



5.2 Students are encouraged to observe each other and provide feedback to facilitate learning.

5.3 Teachers arrange regular reviews and skill improvement exercises to strengthen students' learning outcomes.

Measurement and evaluation

1. Pretest of Badminton skills test Basic knowledge of badminton.
2. Posttest of Badminton skills test Basic knowledge of badminton.

Resource equipment

1. The PPT of the Basic knowledge of badminton
2. Badminton competition video

Assessment form for the validity of Lesson Plan

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5	Show the actions related to the study subjects.				
6	There are various assessments related with learning objectives.				
7	The measurement and evaluation related with Learning objectives.				

Sign.....Assessor

(.....)

Date...../...../.....

Badminton Skills test for Pretest-Posttest for Stance and Footwork

Stance and Footwork	Score and criterion		
	3	2	1
1.The specification of stance	Can flexibly adjust the preparation posture according to the situation of the game, smooth movement, stable center of gravity.	Be able to perform the preparation posture correctly, with your feet shoulder-width apart, touch the front foot on the ground, bend your elbow slightly, and pat your head back on your chest, but the movement may not be smooth enough.	Can do feet and shoulder width, slightly bent, hold hands slightly oblique, but the movement may not be standard, the body center of gravity is not stable.
2.The number of steps to be used	Ability to complete the basic stride, pad step, and parallel steps.	Can complete the basic steps, pad steps.	Ability to complete the basic steps.
3.Consistency of pace application	The footwork is more coherent, which can adapt to the simple field movement.	The basic footwork can be completed more coherently, but the speed and flexibility need to be improved.	Understand the basic badminton footwork, but the movement is not coherent, simple footwork.

Assessment form for the validity of Badminton Skills test for Pretest-Posttest for Stance and Footwork

Research Title: Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation

Research Objectives:

1. To use First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

2. To compare vocational students' Badminton skills before and after the implementation of First principles of instruction .

Directions:

Please assess the congruence between components of the lesson plan based on First principles of instruction theory by putting ✓ in the box according to the following criteria.

Rating is +1. There is an opinion that is "consistent to relevant. "

Rating is 0. There is an opinion that "Not sure it consistent to relevant. "

Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	The specification of stance				
2	The number of steps to be used				
3	Consistency of pace application				

Sign.....Assessor

(.....)

Date...../...../.....

Leson Plan 3

Content

Batsmanship of net shots (4hours)

Objective of Leaning

1. Master the classification of the net shots technology.
2. Master the technical action essentials of the front block net.
3. Have the ability to hit the front of the net with the pace of the front.
4. Cultivate students' hard work and enterprising, courageous will quality.

Concept

Net shots

The net shots is a ball hit when a player plays in the front area, near the net. This type of ball usually crosses the net in a low-level or drop way to force the ball in the backcourt to create offensive opportunities or direct scoring. The front of the net requires players to have good ball control skills and accurate judgment of the ball.

Front block net

Badminton front block net to the player using a light shot in front of the net, the ball gently over the net, so that the ball falls in the close net area of the opposing field, the purpose is to control the rhythm of the game, limit the opponent's offensive space, or to fight for the opportunity to return the ball in defense. This technique requires players to have a good touch and precise control of the drop points.

Learning Activity

First principles of instruction is divided into five stages: 1) Focus on problem-solving, 2)Activate the existing knowledge, 3)Show out the new knowledge, 4)Try the application exercises, 5)Complete the mastery, including the following five steps:

Step 1 Focus on problem-solving

At this stage, teachers should create problem situations related to students to attract students' attention, and present task lists to students, so that students can master the basic techniques in front of the badminton net, flexible use of these techniques and tactical understanding. Make the students gradually master the way to solve the problem, improve the learning ability.

1.1 The teacher organizes the students to gather, arranges the formation and conducts the class attendance.

1.2 Tell the students the learning objectives of this lesson: to master the basic skills in front of the badminton net, the flexible application of these techniques and the understanding of tactics.

1.3 The teacher organized the students to watch the badminton game video (5 minutes) to let the students understand the importance of the net technology in the badminton game.

Step 2 Activate the existing knowledge

At this stage, before teaching begins, teachers conduct in-depth analysis of learning tasks and observe students' basic level to ensure that students can gradually master complex skills.

2.1 Teachers guide students to show their skills and define the focus of learning.

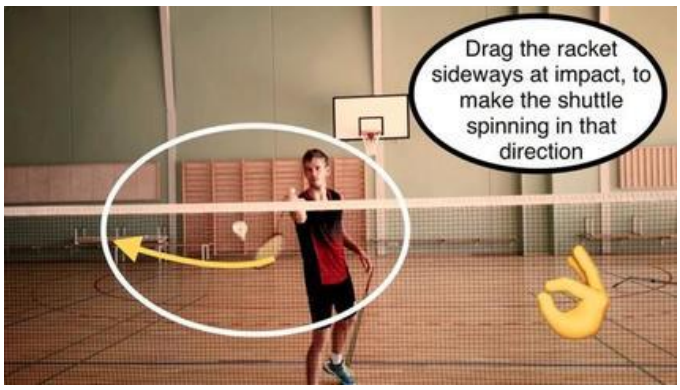
2.2 The teacher observes the students' technology and explains the importance of mastering the technology in the competition.

2.3 Teachers and students discuss the application and advantages of the net technology in the competition.

Step 3 Show out the new knowledge

At this stage, teachers should carry out teaching closely around the teaching objectives, and decompose the front technology into several small steps, such as grip mode, position, hitting action, follow-up action after hitting, etc. Each small step is the key for students to master the whole technology.

3.1 The teacher explains in detail the basic principle and action essentials of the technology in front of the net.



3.2 The teacher shows the correct technical movements in front of the net, including grip, standing, swing, etc.

3.3 Teachers use graphic assistance illustrations to ensure that students understand the details of each movement.

3.4 Students try to imitate the movements, and the teacher provides individual instruction.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives and strengthen the practice during the practice process. Teachers should adopt phased teaching methods to ensure that students can master the network technology step by step. Teachers should provide corrective feedback and internal feedback to help students to clarify the degree of goal attainment.

4.1 Teachers organize students to practice in groups, so that students can learn and improve in practice.

4.2 Teachers need to emphasize safe and correct technical actions to prevent sports injuries.

4.3 The teacher carefully observes the students' practice and evaluates their technical mastery.

4.4 Teachers need to provide immediate feedback, pointing out the students' strengths and areas to improve.

Step 5 Complete the mastery

At this stage, teachers need to constantly adjust their teaching strategies according to students' progress and feedback to ensure that each student can achieve the predetermined teaching objectives and further promote learning.

5.1 Through simulation competitions or games, let the students use the net technology in actual combat.

5.2 Encourage students to constantly challenge themselves and improve the accuracy and speed of the network technology.

5.3 Encourage students to self-evaluate and develop their self-reflection ability.

Measurement and evaluation

1. Pretest of Badminton skills test Basic knowledge of badminton.
2. Posttest of Badminton skills test Basic knowledge of badminton.

Resource equipment

1. The PPT of the Basic knowledge of badminton
2. Badminton competition video

Assessment form for the validity of Lesson Plan

Research Title: Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation

Research Objectives:

1. To use First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

2. To compare vocational students' Badminton skills before and after the implementation of First principles of instruction .

Directions:

Please assess the congruence between components of the lesson plan based on First principles of instruction theory by putting ✓ in the box according to the following criteria.

Rating is +1. There is an opinion that is "consistent to relevant. "

Rating is 0. There is an opinion that "Not sure it consistent to relevant. "

Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	The teaching content conforms to the learning objectives.				
2	The learning objectives are consistent with the subject matter.				
3	The Learning Processes are related to teaching.				
4	Learning activities are related to First principles of instruction.				
5	Show the actions related to the study subjects.				
6	There are various assessments related with learning objectives.				
7	The measurement and evaluation related with Learning objectives.				

Sign.....Assessor

(.....)

Date...../...../.....

Badminton Skills test for Pretest-Posttest for Batsmanship of net shots

Batsmanship of net shots	Score and criterion		
	3	2	1
1.Net front technical action specification Chengdu	The technology before the net has been quite skilled, standard and smooth action.	Net front technical action began to become standard, can more stably complete a variety of network front technology.	Actions have been able to perform, but lack fluency and accuracy.
2.The location of badminton	In the error rate of the game is low, the ball is very accurate.	In the game, the error rate is low, and the ball point is more accurate.	Frequent mistakes in the game, the control ability of the ball is weak, the landing point is not accurate enough.
3.Practical application ability	According to the reaction of the opponent and the situation of the game, flexible use of tactics, have a certain ability to fight.	They are able to match the pace of the game and the position of their opponents, but the tactics may not be flexible enough.	In confrontation, students struggle to effectively use prenet technology to create scoring opportunities.

Assessment form for the validity of Badminton Skills test for Pretest-Posttest for Batsmanship of net shots

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Research Objectives:

1. To use First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

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Directions:

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Rating is 0. There is an opinion that "Not sure it consistent to relevant. "

Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	Net front technical action specification Chengdu				
2	The location of badminton				
3	Practical application ability				

Sign.....Assessor

(.....)

Date...../...../.....

Leson Plan 4

Content

Batsmanship of deep clears (4 hours)

Objective of Leaning

1. Students should be familiar with the technical classification of badminton middle and back court.

2. Students need to master the movement essentials of badminton deep clears technology.

3. Cultivate students' sense of responsibility in group cooperation.

Concept

Deep clears

Badminton deep clears refers to the player hitting the badminton through the correct strike to the high position in the back area of the other court, so that the ball can reach a certain height and distance in the air, so as to limit the opponent's opportunity to attack, and create the opportunity to defend or counterattack for themselves. High technique requires good strength, coordination and timing.

badminton middle and back court

Badminton middle and back court refers to the hitting technique played in the back half of the badminton field.

These techniques usually include high ball, hanging ball, killing ball and so on. The high ball is to hit the ball near the baseline; lifting the ball is to strike the ball to the front area of the net, usually used to mobilize the opponent or create an attacking opportunity; killing the ball is to hit the ball to the field to score directly, or suppress the opponent. Mastering these backcourt skills is crucial for attack and defensive conversion in badminton.

Learning Activity

First principles of instruction is divided into five stages: 1) Focus on problem-solving, 2)Activate the existing knowledge, 3)Show out the new knowledge, 4)Try the application exercises, 5)Complete the mastery, including the following five steps:

Step 1 Focus on problem-solving

At this stage, teachers should create a problem situation related to students, attract students 'attention, mobilize students' desire to learn, but also present the task list to students, help students to clarify the learning tasks, account for the learning benefits, so that students gradually master the way to solve problems, improve the knowledge of learning.

1.1 The teacher organizes the students to gather, arranges the formation and conducts the class attendance.

1.2 Clearly tell the students the learning goal of this lesson: let the students need to master the technical action of the forehand hitting the high ball, so that they are able to accurately and effectively hit the ball to the back area of the opposing field in the actual game.

1.3The teacher organized the students to watch the badminton game video (5 minutes) to let the students understand the importance of high ball skills in badminton games.

Step 2 Activate the existing knowledge

At this stage, the activation of old knowledge can help learners to smoothly connect the old and new learning tasks, guide students to discuss and show the high ball technology, adjust and transform the psychological mode of learners, play a role of checking the gaps and filling in the gaps, and strengthening the guidance of weak links.

2.1 Students discuss in groups why high ball is crucial in the game, and let students share their understanding and observation of high ball technology.

2.2 Teachers guide students to show their skills and define the focus of learning.

2.3 The teacher leads students to think about the tactical role of the high ball in games, such as how it helps players control the field, create scoring

opportunities, and its importance in defense and offense.

Step 3 Show out the new knowledge

At this stage, teachers should carry out teaching closely around the teaching objectives, explain the action essentials of the forehand hitting the high ball in detail, and teach students in accordance with their aptitude when students make independent inquiry and learning and cooperative learning.

3.1 The teacher demonstrates the correct technical movements of the high ball, including the key links of the grip, standing, swing and hitting point.

3.2 Students carefully observe and record the key movements and skills.

3.3 During the demonstration, the teacher needs to emphasize the fluency and coordination of the movements and explain the principle behind each movement.

3.4 Under the guidance of the teacher, students try to imitate the technique of high ball. Teachers provide feedback to help students correct mistakes and emphasize the consistency and accuracy of movements.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives and conduct group practice. Teachers should provide corrective feedback and internal feedback to help learners clarify the extent to which their goals.

4.1 In the group exercise session, the students will be divided into small groups to practice.

4.2 During the ball-free practice session, students will focus on the swing movements, and teachers will tour the groups to provide immediate feedback and correction.

4.3 During the ball practice phase, students will try to hit the ball to the designated area, and the teacher will continue to provide feedback and encourage students to observe and learn from each other.

4.4 In the process of practice, the teacher will continue to patrol, to observe and guide the students' movements.

Step 5 Complete the mastery

At this stage, students are required not only to show their new knowledge they have mastered, but also to observe students' practice to help students make continuous progress in the learning process.

5.1 After mastering the basic skills, the students try to use the high-range ball skills in the competition.

5.2 Students are encouraged to explore personal style and innovative play on the basis of ensuring correct technology.

5.3 Students conduct actual combat simulation practice, let students use the high ball technology in the simulation competition environment.

5.4 Students are encouraged to try different hitting angles and strengths on the premise of obeying the rules to improve their adaptability in the game.

Measurement and evaluation

1. Pretest of Badminton skills test Basic knowledge of badminton.
2. Posttest of Badminton skills test Basic knowledge of badminton.

Resource equipment

1. The PPT of the Basic knowledge of badminton
2. Badminton competition video

Assessment form for the validity of Lesson Plan

Research Title: Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation

Research Objectives:

1. To use First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

2. To compare vocational students' Badminton skills before and after the implementation of First principles of instruction .

Directions:

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Rating is +1. There is an opinion that is "consistent to relevant. "

Rating is 0. There is an opinion that "Not sure it consistent to relevant. "

Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	The teaching content conforms to the learning objectives.				
2	The learning objectives are consistent with the subject matter.				
3	The Learning Processes are related to teaching.				
4	Learning activities are related to First principles of instruction.				
5	Show the actions related to the study subjects.				
6	There are various assessments related with learning objectives.				
7	The measurement and evaluation related with Learning objectives.				

Sign.....Assessor

(.....)

Date...../...../.....

Badminton Skills test for Pretest-Posttest for Batsmanship of deep clears

Batsmanship of deep clears	Score and criterion		
	3	2	1
1.Deep clears technical action standard degree	The Deep clears has been quite skilled, standard and smooth action.	Deep clears action began to become standard, can more stably complete a variety of network front technology.	Actions have been able to perform, but lack fluency and accuracy.
2.The location of badminton	In the error rate of the game is low, the ball is very accurate.	In the game, the error rate is low, and the ball point is more accurate.	Frequent mistakes in the game, the control ability of the ball is weak, the landing point is not accurate enough.
3.Practical application ability	According to the reaction of the opponent and the situation of the game, flexible use of tactics, have a certain ability to fight.	They are able to match the pace of the game and the position of their opponents, but the tactics may not be flexible enough.	In confrontation, students struggle to effectively use prenet technology to create scoring opportunities.

Assessment form for the validity of Badminton Skills test for Pretest-Posttest for Batsmanship of deep clears

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Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	Deep clears technical action standard degree				
2	The location of badminton				
3	Practical application ability				

Sign.....Assessor

(.....)

Date...../...../.....

Leson Plan 5

Content

Receive service and rally (2hours)

Objective of Leaning

1.Master the essentials of service preparation posture and movement.

2.Be familiar with the receiving service positions in different halves.

3.Cultivate the fighting spirit in the technical practice and practice.

Concept

Receive service

Badminton receive service is the first shot played by one side after the other side serves in a badminton match. The purpose of receiving the service is to play the ball back to the opposing court legally in preparation for the next round. The return must be completed before the ball lands and is not allowed to land on its own field, otherwise it will be judged as a mistake. The rules and technical requirements of receiving the service have an important impact on the course and outcome of the match.

Rally

The rally of badminton technology refers to the process of applying the basic technical movements and strategies of badminton to the actual competition. This includes but is not limited to serving, receiving, hitting, footwork, net front skills, midfield skills, back court skills and tactical layout. In actual combat, athletes need to flexibly use various techniques according to the opponent's play, game rhythm and their own state, in order to control the pace of the game, create scoring opportunities and win the game.

Learning Activity

First principles of instruction is divided into five stages: 1) Focus on problem-solving, 2)Activate the existing knowledge, 3)Show out the new knowledge, 4)Try the application exercises, 5)Complete the mastery, including the following five steps:

Step 1 Focus on problem-solving

At this stage, teachers should create problem situations related to students, attract students' attention, establish clear teaching objectives, help students clarify learning tasks, explain learning benefits, so that students can gradually master the

way to solve problems and improve their ability in learning.

1.1 The teacher organizes the students to gather, arranges the formation and conducts the class attendance.

1.2 Clearly tell the students the learning goal of this lesson: students should be able to skillfully complete the forehand and backhand serve, as well as the corresponding receiving action, and be able to use the tactics in the game.

Step 2 Activate the existing knowledge

At this stage, teachers should stimulate students' memories through a series of warm-up activities and help them recall the basic knowledge and skills they have learned.

2.1 Through a brief warm-up and review of the content of the last lesson, help students to recall the basic knowledge and skills of badminton.

2.2 Link the new teaching content to the students' existing knowledge, such as by comparing the similarities and differences between the forehand and the backhand serve.

Step 3 Show out the new knowledge

At this stage, teachers should closely implement teaching closely around the teaching objectives, and teachers need to present new teaching content through intuitive demonstration. The teacher can stand on the side of the field and clearly show the position, posture and movement process of the reception service to ensure that every student can see it.

3.1 The teacher explains the basic concepts of receiving the serve, including the serving rules, the receiving position, the grip mode and the basic movements.

3.2 The teacher conducts on-site demonstration of receiving service technology. And a detailed decomposition of the action, so that the students can clearly see every detail.

3.3 After the explanation, the teacher invited the students to come forward and try to imitate the action personally, while the teacher gave individual guidance nearby.

Step 4 Try the application exercises

At this stage, students should closely follow the learning objectives to strengthen the practice during the practice process. When students try to practice new skills, the teacher should break down the receiving technology into small steps and teach them one by one. When students practice, teachers should provide corrective feedback and internal feedback to help learners to clarify the extent to which their goals are achieved.

4.1 The teacher will divide the receiving technology into small steps, teach it one by one, and let the students master it step by step.

4.2 Under the guidance of the teacher, the students should conduct repeated exercises, such as repeatedly practicing the forehand serve, until they are skilled.

4.3 Students practice in groups, observe each other and make suggestions for improvement.

4.4 Students show their receiving skills, and the coach and peers provide feedback.

Step 5 Complete the mastery

At this stage, students are required not only to show the new knowledge they have mastered, but also to question, communicate and expand their knowledge through mutual guidance and evaluation. Teachers should organize battle exercises, so that students can use the technology they have learned in actual combat. Further promote learning.

5.1 The teacher arranges the students to have the simulation competition, and lets the students apply the receiving technology in the actual combat.

5.2 Students will discuss the strategy choice in groups and how to adjust the receiving mode according to the characteristics of the opponent and the match situation.

5.3 The teacher evaluates the students' performance and gives suggestions for further improvement.

5.4 The teacher guides the students to analyze the serving habits and weaknesses of different opponents, and teaches how to develop the corresponding receiving strategies, so as to make the students more active and confident in the competition.

Measurement and evaluation

1. Pretest of Badminton skills test Basic knowledge of badminton.
2. Posttest of Badminton skills test Basic knowledge of badminton.

Resource equipment

1. The PPT of the Basic knowledge of badminton
2. Badminton competition video
3. Against the scoring table

Assessment form for the validity of Lesson Plan

Research Title: Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation

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1. To use First principles of instruction to improve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

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Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	The teaching content conforms to the learning objectives.				
2	The learning objectives are consistent with the subject matter.				
3	The Learning Processes are related to teaching.				
4	Learning activities are related to First principles of instruction.				
5	Show the actions related to the study subjects.				
6	There are various assessments related with learning objectives.				
7	The measurement and evaluation related with Learning objectives.				

Sign.....Assessor

(.....)

Date...../...../.....

Badminton Skills test for Pretest-Posttest for Receive service and rally

Receive service and rally	Score and criterion		
	3	2	1
1.Standard degree of receiving service technical action	Receiving serve posture standard, the strength control stability, can adjust the serve strategy according to the opponent's situation.	The return posture is more standard, and the strength control is improved.	The return posture is not standard, the action range is large, and the force control is unstable.
2.Practical application ability	After receiving the serve, good consistency, can quickly start the next beat attack or defense.	After receiving a serve has a certain continuity, can be a simple technical combination.	Lack of consistency after receiving the serve, unable to start the next shot attack or defense in time.
3.Overall merit of rally	Rich use of technology, can be flexible change, effective mobilization of opponents.	The technology has changes, can adjust the tactics according to the game.	Single application of technology, lack of change, easy to be controlled by opponents.

Assessment form for the validity of Badminton Skills test for Pretest-Posttest for Receive service and rally

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Rating is 0. There is an opinion that "Not sure it consistent to relevant. "

Rating is -1. There is an opinion that "Inconsistent with relevant. "

No.	Questions	Assessment Results			Suggestion
		+1	0	- 1	
1	Standard degree of receiving service technical action				
2	Practical application ability				
3	Overall merit of rally				

Sign.....Assessor

(.....)

Date...../...../.....

Appendix D
Certificate of English

BANSOMDEJCHAOPRAYA
RAJABHAT UNIVERSITY

This is to certify that

Ms. Li Qian

Achieved BSRU English Proficiency Test (BSRU-TEP) level

C1

Given on 25th January 2021

(Assistant Professor Dr Kulsirin Aphiratvoradej)

Director

Appendix E
Turnitin Plagiarism Check Report

BADMINTION SKILLS IMPROVEMENTS THROUGH FIRST PRINCIPLES OF INSTRUCTION OF VOCATIONAL STUDENTS OF ZHENGZHOU VOCATIONALCOLLEGE OF FINANCE AND TAXATION.docx

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4	"International Conference on Applications and Techniques in Cyber Intelligence ATCI 2019", Springer Science and Business Media LLC, 2020 Publication	1%
5	M. David Merrill. "Chapter 56-2 First Principles of Instruction Revisited", Springer Science and Business Media LLC, 2022 Publication	1%

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3	M. David Merrill. "Chapter 56-2 First Principles of Instruction Revisited", Springer Science and Business Media LLC, 2022 Publication	2%
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5	Cheung, Wing Sum, and Khe Foon Hew. "Applying "First Principles of Instruction" In a Blended Learning Course", Communications in Computer and Information Science, 2015. Publication	3%
6	www-emerald-com-443.webvpn.sxu.edu.cn Internet Source	3%
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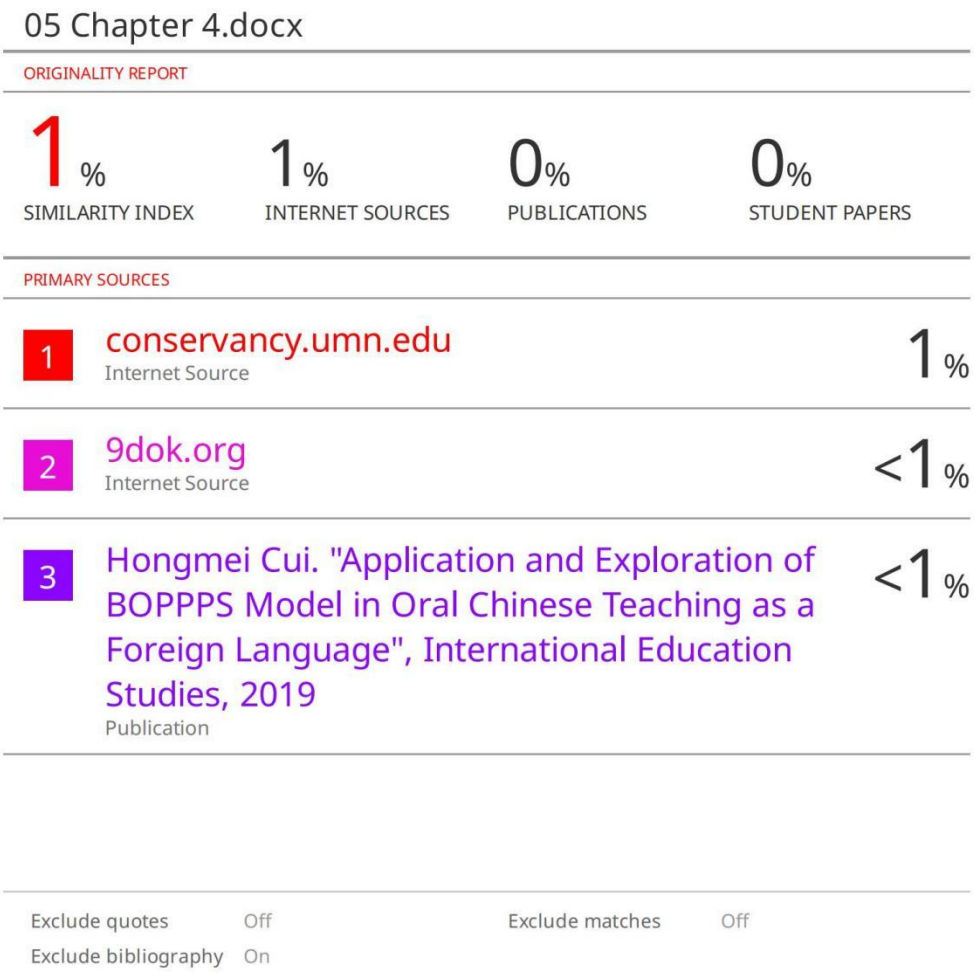

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Appendix F

The Document for Accept Research/ Full Paper

MHESI 0643.05/0170

Bansomdejchaopraya
Rajabhat University
1061 Soi Itsaraphap 15,
Itsaraphap Road, Hiranruchi,
Thonburi, Bangkok, Thailand 10600

25th November 2024

Subject: Acceptance Letter

Dear Li Qian

We are pleased to acknowledge the submission of your article to The 1st Bansomdejchaopraya National and International Conference (BS2C 2025) under the theme "Synergy of Innovation, Technology and Creativity for Sustainable Prosperity". Following a thorough review process, the anonymous reviewers have highlighted that your paper is highly relevant to the conference theme and is expected to foster meaningful discussions and insights. Based on their recommendations, the Organizing Committee is delighted to inform you that your paper ID: **170-EN-EDU** in the title **"Badminton skills improvements through first principles of instruction of vocational students of Zhengzhou vocational college of finance and taxation"** has been **accepted for oral presentation** on January 17th, 2025 at The 1st Bansomdejchaopraya National and International Conference (BS2C 2025). Additionally, **your work will be published in the BS2C 2025 Proceedings**.

We look forward to your insightful presentation and your active participation in making the conference a success. For more details, please visit the conference website at https://bs2c.bsru.ac.th. If you require any assistance or additional information, do not hesitate to contact the conference secretariat at research@bsru.ac.th.

Yours faithfully,

(Assistant Professor Dr. Kiatikhon Sobhanabhorn)
Director of Research and Development Institute
Bansomdejchaopraya Rajabhat University

I

Template for the 1st Bansomdejchaopraya National and International Conference (BS2C 2025) on "Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation"

Li Qian*, Phenporn Thongkamsuk [2], and Jittawisut Wimuttipanya[3]

[1]Department of Curriculum and Instruction, Faculty of Education,
Bansomdejchaopraya Rajabhat University, Bangkok 10600, Thailand.
[2]Department Curriculum and Instruction
[3]Department Curriculum and Instruction
*drphenpornbsru@gmail.com

Abstract

The purpose of this study is: 1) To improve Badminton skills of vocational students Zhengzhou Vocational College of Finance and Taxation by using First principles of instruction; 2) To compare vocational students' Badminton skills before and after the implementation of First principles of instruction. The sample group Zhengzhou Vocational College of Finance and Taxation of 36 students. from a random sample of a specific group.

The research tools include 1) teaching plans based on First principles of instruction; 2) Badminton ability test. The data were statistically analyzed, and the standard deviation and t test were dependent samples.

The results show that:

1) First principles of instruction can effectively improve the vocational students' Badminton skills.

2) After First principles of instruction, the vocational students' badminton skills is significantly higher than that before teaching.

Keywords: First principles of instruction, vocational students, badminton skills.

1. Introduction

School physical education is the most representative part of the national fitness campaign. As a public basic curriculum project chosen by more and more college students, badminton has been warmly sought after. In recent years, with the development of The Times, physical education teaching, more and more college students participate in extracurricular sports, more and more colleges and universities are gradually equipped with badminton courts, and have opened badminton options classes, more and more badminton competitions. In higher vocational education, the university physical education course, as a public basic course, is to complete the integration with the major, realize the professional physical development, cultivate students' vocational sports planning ability, and commit to cultivate technical and skilled talents who can meet the needs of the society and jobs. In the face of the growing demand of contemporary college students to improve badminton technology, the traditional university physical education teaching mode has been unable, and it has become an urgent need to change the teaching mode timely and enrich the teaching means (Long Gui 2023, China Conference).

First principles of instruction is a teaching mode to improve the teaching quality and teaching effectiveness proposed by Professor Merrill. It has incomparable advantages in cultivating students' interest in learning and critical thinking(Rong Zhenghui 2021). Since Professor Sheng Qunli introduced First principles of instruction to China in 2003, it has attracted the attention of scholars and conducted research and practical exploration. From the curriculum teaching of primary and secondary schools to the curriculum teaching, it has shown good results in his teaching. In 2018, Fang Ting made a theoretical elaboration on the design principles, principles and design cases in combination with the teaching of aerobics professional courses. Through experiments, she verified the positive effect of First principles of instruction on students' technical level, learning attitude and independent learning ability (Fang Ting,2018). In 2019, Xiao Ting used First principles of instruction to conduct a teaching comparison experiment, which verified its feasibility and effectiveness in improving the teaching effect (Xiao Ting,2019). In 2020, Liu Yujia used this mode to take "wheel skipping rope" as an example to carry out micro-class design practice, and the conclusion shows that it can effectively improve students' ability to solve practical problems and flexible application ability (Liu Yujia,2020).

In public sports courses in colleges and universities, more and more college students choose badminton courses, badminton entertainment and ornamental is not only beneficial

to promote students 'physical and mental health, in badminton can cultivate its self-confidence, brave, decisive and other excellent psychological quality, sublimation of contemporary college students' moral, intellectual, physical and technical level. Introduce First principles of instruction university public sports badminton courses, badminton course, for example, through the design of sports course content, standardize the teaching implementation process, cultivate students' ability to independent analysis and solve problems, reflection optimization teaching design content in teaching practice, put forward Suggestions and countermeasures, provide reference for higher vocational public sports teaching reform. This study is to promote the reform and development of public physical education curriculum in higher vocational colleges in the general environment of education and teaching reform in the new era. Badminton basic technology in public sports courses, for example, using the First principles of instruction, adhere to the development of students' development as the fundamental guiding ideology, focusing on basic skills training learning, with the fusion post demand oriented, response to the national policy, the implementation of the university physical education curriculum standards, adhering to the "enjoy the fun, enhance physique, sound personality, temper will" education concept, the implementation of the "church, practice, often play" documentation requirements, from knowledge teaching to innovative talent training.

This study uses First principles of instruction to complete the teaching of badminton basic Technology of university physical education in the public basic courses of higher vocational colleges, That First principles of instruction is recognized as a prescriptive instructional design principle, The stage of effective teaching is based on the work task as the core, Activation stage (activating the old knowledge), Display stage (demonstrating new knowledge), The application stage (application of new knowledge) and the integration stage (integration) are consistent with the "structure, guidance, guidance and reflection" cycle in the process done in the work task. Will First principles of instruction into the public sports course teaching process, first to learners to solve the problem, for specific task teaching, not only focus on the teaching process, pay more attention to the process of students do, especially the process of sports practice, pay more attention to students' independent inquiry, autonomous error correction, self growth process, through the application of First principles of instruction teaching mode, effectively improve the level of students Badminton. We select samples in the process of physical education teaching, according to the students' sports level, professional needs, professional physical fitness reserve, vocational development planning,

etc., according to the needs of professional work tasks, to achieve the coordinated and integrated development of public physical education education and professional education, to provide a new reference for vocational education theory.

To sum up, First principles of instruction can not only fully meet the needs of badminton basic technology classroom teaching practice, but also help students cultivate the ability of independent inquiry, error correction and self-growth, this research makes full use of First principles of instruction to complete the course teaching practice research, explore a new teaching mode to improve students' knowledge and skills of badminton.

2. Research Objectives

1. To use First principles of instruction to imporve Badminton skills of vocational students Zhengzhou Vocational College of Finance And Taxation.

2. To compare vocational students' Badminton skills before and after the implementation of First principles of instruction .

3. Research Hypotheses (if any)

After the implementation of the First principles of instruction, the students' improve Badminton skills has been obviously.

4. Research Methodology

4.1 Research Design

Population

Vocational students of Zhengzhou Vocational College of Finance And Taxation, is second grade of 3 classes of 36 students each, a total of 108 students.

The Sample Group

Through a sampling cluster random method, a survey was conducted among 36 students from marketing major of second grade vocational students for 1 class. Each class consisted of Badminton skills a mix of high, middle and low lever.

The Variable

Independent Variable: First Principles of Instruction

Dependent Variable: Badminton skills

Content

Badminton Skills improvements through First Principles of Instruction of Vocational Students of Zhengzhou Vocational College of Finance and Taxation.There are physical education courses (badminton events) of five chapter, 16 hours in total:

Chapter 1: Basic knowledge of badminton	(2 hours)
Chapter 2: Stance and Footwork	(4 hours)
Chapter 3: Batsmanship of net shots	(4 hours)
Chapter 4: Batsmanship of deep clears	(4 hours)
Chapter 5: Receive service and rally	(2 hours)

Definition of Terms

First principles of instruction is a student-centered teaching method. It refers to the basic principles and guiding ideology summarized based on learning theory and teaching practice in the process of education and teaching. These principles are designed to guide teachers in how to effectively organize teaching activities and promote students' learning and development. This principle is an important reference basis for educators when designing and implementing teaching plans. It usually includes five step,as follows:

Step 1: Focus on problem-solving. Emphasis on problem-centered and promoting learning by solving practical problems. This includes assigning tasks, task levels and problem sequence, designed to promote learning by solving a range of problems.

Step 2: Activate the existing knowledge. Design the teaching content. It involves the activation of old knowledge, that is, using the existing knowledge and experience of learners as the basis of new knowledge, to promote learning through the recall, connection and application of knowledge.

Step 3: Show out the new knowledge. Fully display new knowledge to ensure that the teaching display is consistent with the learning objectives, including providing positive and counterexamples of concepts, progressive logic of display procedures, etc., to show the "process" in an intuitive way.

Step 4: Try the application exercises. Learners are required to apply knowledge or skills to solve problems and promote learning through practice and post-tests.

Step 5: Complete the mastery. The skilled use of knowledge, to achieve the transfer, application and creation of knowledge, truly achieve the purpose of drawing inferences from one example, mastery.

Badminton skills refers to the various hitting methods and strategies used in badminton. These include a single technique, including serving, receiving, killing, picking, rubbing, and net diagonal, and how to combine them to form a tactical combination, such as creating scoring opportunities by mobilizing an opponent to move.Skills of badminton also includes physical training such as physical strength, flexibility, and explosive boost to enhance skills in the game.

In college badminton class, the tools to measure badminton technology mainly include professional stopwatch, starting whistle, ruler, badminton buckets and score record table. These tools are used to document the students' technical performance, ensuring the accuracy and objectivity of the evaluation. Each course will be tested on three observation points, with a total of 45 after six consecutive sessions.

4.2 Research Instrument

The research tools used by the researchers include the First principles of instruction based instructional design and evaluation criteria for assessing badminton skills, as follows:

1. Teaching plan based on the First principles of instruction

1.1 This teaching plan is implemented based on First principles of instruction and the characteristics of sports for college students.

1.2 Complete the teaching content design according to the training objectives of marketing professionals and university physical education curriculum standards, combined with the teaching objectives, content and assessment standards of badminton courses.

1.3 Complete the experimental teaching design and implementation according to relevant theories and existing research.

Table Detailed teaching contents

Teaching Process	Chapter 1: Basic knowledge of badminton	Chapter 2: Stance and Footwork	Chapter 3: Batsmanship of net shots	Chapter 4: Batsmanship of deep clears	Chapter 5: Receive service and rally
Focus on problem-solving	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.	Present task lists to students and stimulate their interest.

Teaching Process	Chapter 1: Basic knowledge of badminton	Chapter 2: Stance and Footwork	Chapter 3: Batsmanship of net shots	Chapter 4: Batsmanship of deep clears	Chapter 5: Receive service and rally
Activate the existing knowledge	The history and cultural background of badminton, as well as the basic rules and field layout of the game.	Review the existing knowledge, the classification of badminton footwork.	Review the existing knowledge and understand the importance of Batsmanship of net shots.	Review the existing knowledge and understand the importance of deep clears in the game.	Review the existing knowledge and understand the importance of high quality reception
Show out the new knowledge	The teacher teaches the students the correct grip method and serve movements.	The teacher teaches the students the correct stance and footwork.	Teachers teach the students the correct Batsmanship of net shots.	The teacher explained the essentials of the forehand hitting the high ball.	The teacher conducts the field demonstration of receiving technology and decomposed the movements in detail.
Try the application exercises	The students practice the grip and serve, and the teacher observes and instructs.	Students practice stance and footwork in groups.	Students practice the Batsmanship of net shots in stages.	Students practice the high ball in groups, and the teacher observes and instructs them.	Students conduct repeated exercises under the guidance of the teacher.
Complete the mastery	The students practice the grip and serve, and	Students conduct combined exercises to simulate the	Through the game, let the students use the Batsmanship	Students conduct actual combat simulation	The teacher arranges the students to have the

Teaching Process	Chapter 1: Basic knowledge of badminton	Chapter 2: Stance and Footwork	Chapter 3: Batsmanship of net shots	Chapter 4: Batsmanship of deep clears	Chapter 5: Receive service and rally
	the teacher evaluates the students.	movement mode in the competition.	of net shots in the actual combat.	practice, the teacher evaluates	simulation competition.
Eaching cycle	1 Week	2 Weeks	3 Weeks	4 Weeks	5 Weeks

1.4 The researchers submitted these plans to three experts for review to verify their accuracy. Experts have verified the effectiveness of the course plan development process. The consistency index of the test is between 0.67 and 1.00, and the following levels are considered:

2. Badminton ability test

2.1 The evaluation table contains five evaluation contents, as follows:

1) Badminton serve technology Is master the correct grip position and serve skills.

2) Quick pace of badminton Is master the correct direction of movement and body control essentials.

3) Ball hitting technique before the net Is master the correct hitting position and body control essentials

4) Middle-and back-field hitting skill Is master the correct order of power force and shot control essentials

5) Practical application Is master the correct technical connection and tactical application

2.2 Researchers have designed the badminton assessment and evaluation scale according to the theoretical knowledge and skills of badminton, combined with the learning skills evaluation tools.

2.3 Measure the confidence by coefficient method, and check the badminton skill evaluation table. The confidence value is 0.75 which is suitable for research.

Data Collection

The data collection was as follows:

(1) Coordinate with 3 professional scholars experts dispense official document from Bansomdejchaopraya Rajabhat University professional scholar experts and give information about data collection process and research tools: instructional model and checklist form about quality of instructional model for consideration (Index of Objective Consistency: IOC).

(2) Collect data from 3 professional scholar experts and analysis data for consideration (Index of Objective Consistency: IOC).

Table 2 Experimental one-group pretest - posttest design

Group	Pretest	Experimental	Posttest
R	O_1	X	O_2

The meaning of the symbols used in the experimental design

R means Random Sampling

X means Experimental

O_1 means Pretest

O_2 means Posttest

Data Analysis

1. Analyze quantitative data through descriptive statistics; Mean and standard deviation.

2. Evaluate the skill of badminton before and after implementation First principles of instruction The experimental data are used to analyze the mean and standard deviation of and T-test for dependent statistical data.

Table 4.1 Students' Badminton Skills before and after First Principles of Instruction

Student lD	Pre-test Scores (Full Score=45)	Post-test Scores (Full Score=45)	Difference Scores (D)
1	18	30	12
2	35	42	7
3	24	35	11
4	17	30	13
5	38	43	5
6	26	36	10

Student lD	Pre-test Scores (Full Score=45)	Post-test Scores (Full Score=45)	Difference Scores (D)
7	20	35	15
8	30	40	10
9	18	29	11
10	32	38	6
11	31	39	8
12	30	37	7
13	22	32	10
14	24	36	12
15	19	28	9
16	18	28	10
17	20	29	9
18	15	25	10
19	24	32	8
20	25	35	10
21	18	29	11
22	18	31	13
23	19	35	16
24	26	39	13
25	20	37	17
26	18	33	15
27	27	40	13
28	27	34	7
29	18	28	10
30	22	36	14
31	18	27	9
32	29	38	9
33	27	39	12
34	26	40	14
35	22	40	18
36	24	38	14

Student ID	Pre-test Scores (Full Score=45)	Post-test Scores (Full Score=45)	Difference Scores (D)
$\bar{X}$	23.47	34.53	11.06
SD.	5.57	4.78	3.11

As shown in Table 4.1, First Principles of Instruction can improve the badminton skills of vocational students. The average score of students' badminton skills before First Principles of Instruction is 23.47, and after teaching, the average score is 34.53, with an average difference of 11.06. It can be seen that the badminton skills after First Principles of Instruction is higher than that before teaching.

Table 4.2 shows that the students' badminton skills after class is higher than the average before class by using First Principles of Instruction, which shows that First Principles of Instruction can effectively improve the students' badminton skills. There is statistical significance at the level of ($P < 0.01$), which is consistent with the research hypothesis.

The researchers analyzed the data, and used the mean value, standard deviation and T test as relevant samples to analyze the students' badminton skills before and after First Principles of Instruction. The data analysis results are shown in Table 4.2.

Table 4.2 Comparison of Badminton Skills

Badminton Skills	n	full score	$\bar{X}$	SD.	df	t	p
Pre-test	36	45	23.47	5.57	35	13.48**	.00
Post-test	36	45	34.53	4.78	35		

** Statistically significant at the level. 01 (p <.01)

Table 4.2 shows that the students' badminton skills after class is higher than the average before class by using First Principles of Instruction, which shows that First Principles of Instruction can effectively improve the students' badminton skills. There is statistical significance at the level of ($P < .01$), which is consistent with the research hypothesis.

5. Research Results and Discussion

According to the research theme, the research on improving the badminton skills in vocational students by First Principles of Instruction is summarized as follows. According to the evaluation results of experts, the teaching plan and badminton skills test are made.

1. First Principles of Instruction, As an efficient teaching strategy, its core is to promote students' learning effectiveness through a series of carefully designed links. The application of First Principles of Instruction to badminton courses to realize the application of mixed learning, and the organic integration of theory and practice is a beneficial attempt to improve classroom efficiency, teaching effect and enhance students' professional ability.

2. First Principles of Instruction is used in teaching. Before teaching, the average score of students' badminton skills is 23.47, and after teaching, the average score is 34.53, with an average difference of 11.06. The students' badminton skills after teaching is higher than that before teaching. The results showed that students' badminton skills after First Principles of Instruction teaching was higher than that before teaching, with statistical significance at the level of ($P < .01$).

Therefore, First Principles of Instruction can be used as a teaching method of vocational students badminton skills, which is suitable for badminton courses teaching and has certain advantages.

Discussion

Using First Principles of Instruction, the research results of improving the badminton skills of 36 students from marketing major of second grade vocational students for 1 class are discussed as follows:

1.First Principles of Instruction The application of university badminton courses has many advantages. At present, public physical education teaching generally follows the traditional physical education teaching mode as the main body and students imitate and practice. The long-term teaching inertia leads to the solidification of most teachers' teaching concepts and the lack of internal motivation to update the teaching mode. Based on the characteristics of badminton, First Principles of Instruction is somewhat better than the traditional teaching methods. First of all, it can help students to establish correct concepts of sports and improve their badminton skills through scientific training methods. Secondly, it emphasizes students 'active participation and inquiry learning, which can stimulate students' interest in learning and independent learning ability. In addition, through stratified teaching, teachers can provide individualized guidance according to students' different levels and needs of students, so as to improve the teaching effectiveness. Finally, the primary teaching principle focuses on the combination of theory and practice, which helps students to understand the tactics and strategies of badminton while mastering the skills, and lays a solid foundation for becoming an all-round athlete.

2.The researcher studied a large number of documents related to First Principles of Instruction, and according to the characteristics of First Principles of Instruction, it was integrated into five steps to formulate the teaching plan for vocational students. The First Principles of Instruction scheme of badminton course is mainly constructed from five aspects: teaching objectives, teaching contents, teaching methods, teaching process and effect evaluation. Among them, the teaching goal is the basic point, the teaching content is the core, the teaching method is the key, the teaching process is the guarantee and the effect evaluation is the result. Data analysis is to evaluate the quality of classroom teaching plan by three experts according to First Principles of Instruction, and the evaluation results reflect the quality of classroom teaching plan by experts; Generally speaking, the suitability of research objectives is the most appropriate. This is because the learning plan is consistent with the concept of First Principles of Instruction, and the curriculum plan contains the key elements of the curriculum plan. First Principles of Instruction can better improve the students' badminton skills. In 2018, Fang Ting made a theoretical elaboration on the design principles, principles and design cases in combination with the teaching of aerobics professional courses. Through experiments, she verified the positive effect of First principles of instruction on students' technical level, learning attitude and independent learning ability (Fang Ting,2018). In 2019, Xiao Ting used First principles of instruction to conduct a teaching comparison experiment, which verified its feasibility and effectiveness in improving the teaching effect (Xiao Ting,2019). In 2020, Liu Yujia used this mode to take "wheel skipping rope" as an example to carry out micro-class design practice, and the conclusion shows that it can effectively improve students' ability to solve practical problems and flexible application ability (Liu Yujia,2020).

3.After using First Principles of Instruction, the average score of students' badminton skills before teaching is 23.47, and after teaching it is 34.53, with an average difference of 11.06. The badminton skills after teaching is higher than that before teaching. The results showed that the badminton skills after First Principles of Instruction teaching was significantly higher than that before teaching, which was statistically significant at the level of ($P<.01$), which was consistent with the hypothesis. This is because the First Principles of Instruction emphasizes the key factors in the learning process. First, clear learning goals help students understand the specific skill levels they need to achieve. Second, by breaking down movements and teaching step by step, students can gradually master complex skills to avoid feeling overwhelmed. In addition, providing appropriate feedback allows students to timely

understand their own progress and the need for improvement. In addition, repeated practice and consolidation skills are indispensable to improving badminton skills, which helps students to form muscle memory. Finally, through simulated competitions and practical applications, students can use the skills they have learned in real situations, so as to improve their competitive level and actual combat ability. The comprehensive application of these principles makes badminton courses more systematic and efficient, so as to effectively improve students' badminton skills.

7. Acknowledgments (If Applicable)

The pursuit of knowledge is perpetual, and my dedication to advancing education and crafting a splendid life will persist. I wish all teachers, students and friends, in Bansomdejchaopraya Rajabhat University, health and happiness in this blossoming day of spring! Learning is never-ending, and I will also continue to strive in the future and write a beautiful life!

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Research Profile

Name-Surname: Li Qian
Birthday: November 23, 1989
Place of Birth: Zhengzhou City, Henan Province, China

Educational Background:

- Master of coursesal Program in Curriculum and Instruction, Bansomdejchaopraya Rajabhat University, in 2021
- She received a Bachelor of Arts degree from Xi'an Sport University in 2013.

Work Experience:

- Teacher, Zhengzhou Vocational College of Finance and Taxation, from 2014 to the present.

Office Location:

- No.18, Zhengwei Road, Guancheng Hui District, Zhengzhou City, Henan Province, China.

Current Contact Location:

- No.1, Eighth Street, Zhengzhou Economic and Technological Development Zone, Henan Province, China