USING MICROTEACHING METHOD TO IMPROVE BASKETBALL TECHNOLOGY ABILITY FOR UNDERGRADUATE STUDENTS

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Abstract

The objectives of this research were 1) to use microteaching method to improve basketball technology ability, and 2) to compare students' basketball technology ability before and after the implementation based on microteaching method. The sample group consists of 30 undergraduate students, at Qingdao Agricultural University in China, through cluster random sampling. The research instruments were 1) lesson plans by using microteaching method, and 2) basketball technology ability achievement test. The assessment questions aimed to assess two sub-variables within the dependent variable, including: (1) multiple choice test of concept basketball knowledge and (2) performance assessment. The research was analyzed by mean, standard deviation and T-test for dependent sample. The results were as followings:

1. Using microteaching methods to improve basketball technology ability of undergraduate students. The researcher has studied the documents, and research related the microteaching method and synthesized into 5 steps: 1) Preparing teaching materials in advance, 2) Conducting role simulation, 3) Recording by camera, 4) Replaying and observing, and 5) Feedback and evaluation. The data analyzed the quality of the lesson plan by 3 experts, the results are shown overall, the suitability of the research objectives is the most suitable. After 30 students have learned in 5 steps the average score before learning was 27.77, the average score after learning was 45.40. The after learning score was found to be higher than the before learning score. Therefore, using microteaching method, the students' basketball technology ability was improved obviously.

2. The comparison of students' basketball technology ability before and after implementation based on microteaching method. The results found that, the results found that basketball technology ability score of students after learning higher than before learning is statistically significant at the .01 level. When considering the results of data analysis classified by contents: 1) basketball dribbling ability, 2) basketball passing ability, and 3) basketball shooting ability. The results found that the basketball technology ability score of students after learning higher than before learning statistically significant at the level .01 for all contents. Therefore, using microteaching methods could improve students' basketball technology ability.

Keywords: Microteaching Method, Basketball Technology Ability, Undergraduate Students

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Introduction

The Ministry of Education (2002) issued Notice of the Ministry of Education on the Issuance of the National Physical Education Teaching Guidelines for Colleges and Universities. The evaluation of physical education curriculum covered three areas: students' learning experience, teachers' teaching methods and the overall construction of the curriculum. Among them, students' learning evaluation was an important link, which ran through the whole physical education activities. Students' learning assessment should be a comprehensive evaluation of their learning outcomes and processes, which mainly covered physical and athletic skills, cognitive ability, learning attitude and behavior, interpersonal communication and cooperative spirit, as well as emotional expression, etc. In the specific evaluation, universities or colleges should adhere to the "three-dimensional" objective as the basis, pay attention to the combination of formative assessment and final test, evaluate peacetime training effect and extracurricular practice activities, and integrate other educational means for comprehensive evaluation. The main content of teacher teaching evaluation covered the professional quality of teachers and classroom teaching (The Ministry of Education, 2002).

The sport of basketball, basketball is the fastest-growing sport in the world. Basketball is a tremendously popular spectator sport, particularly on television. The televising of NBA games worldwide and of men's and women's college games nationally has influenced many young athletes to participate in the sport. The international growth of basketball has created even more excitement and participation. Currently, over 200 countries have basketball federations. And basketball is for everyone (Hal Wissel, 2012). Xiong Lei (2014) pointed out that basketball skills and abilities played an indispensable role in teamwork. The outcome of a basketball match often depended on the tacit understanding between the players and the skill level. Basketball was a sport that required teamwork. Each player must work closely with his teammates on the court to face each other's challenges. The application of technical ability would not only affect the individual performance of players, but also directly affect the combat effectiveness of the whole team. Gao Huafeng (2015) emphasized the constituent elements of basketball technology ability, and deeply discussed and studied the three key indexes of dribbling ability, passing ability and shooting ability in the competitive ability system.

Performance in high-level basketball is a very complex process to understand, mainly due to its dependency on a substantial number of dynamical interactions between technical, tactical, fitness and anthropometric characteristics of players. Chai Zhiming (2017) stated that basketball could also strengthen their determination, self-confidence and team spirit. Basketball could also provide a good physical foundation for athletes. Basketball was not only a physical activity, but also an excellent body shape and fitness method, because during the game, the players needed to constantly move, jump and compete, which were effective ways to exercise the muscles of the whole body. Sampaio J., et al. (2018) pointed out that basketball was a team sport where box-score statistics were often used to help identify the reasons that explained the game's outcome. However, the box scores only contained information that described the frequency of actions performed by players of both teams in a game. Player-tracking technology was one of the most recent technological advances in basketball. In all professional and developmental basketball leagues, the data-gathering process was standardized and regulated by the operational definitions and criteria published in the Basketball Statisticians Manual. Liu Pengfei (2019) pointed out the effectiveness of basketball technology could also be influenced by the employment of diverse technological instruments. He carried out studies to assess how technology influenced the lesson planning process. It was found that applying basketball technology enhanced the planning process's overall quality and simultaneously boosted effectiveness.

The teaching method is important for basketball technique. The microteaching method, with the emphasis on controlled practice, audio-visual technology, and peer observation, is an effective tool for teaching development. It improves teaching skills and

fosters a collaborative and reflective teaching community. Kolb, D. A. (1984) stated that microteaching provided teachers with the opportunity to experiment with different teaching strategies and received feedback from their peers and mentors. This, in turn, helped them to improve their teaching skills and become more effective educators. Kolb's statement underscored the value of microteaching as a professional development tool for teachers. By providing a controlled environment in which teachers could experiment with various teaching strategies, microteaching offered a unique opportunity for teachers to gain practical experience and refine their techniques. Microteaching method offered teachers a controlled environment to experiment, learn from feedback, and refine their teaching practices, ultimately leading to better outcomes for students and the teachers. Which is consistent with Stiggins, R. J. (2004) pointed out that as a modern teaching mode, microteaching method emphasized on achieving the best teaching effects within a limited time. In this process, planned teaching was particularly important. Firstly, set up clear teaching objectives, teachers could clearly determine the specific goals and expected effects of each lesson, and make the teaching more targeted and directional. This not only helped teachers to prepare teaching contents in a targeted way, but also clarify their learning direction and improve their learning efficiency. Secondly, improve teaching efficiency. With the reasonable arrangement of teaching contents and time management, teachers could ensure that teaching tasks were completed in limited time and avoided the waste of class time. Thirdly, ensure the quality of teaching. By carefully designing and planning the teaching process, planned teaching could also promote teachers to reflect on and optimize the teaching methods and strategies in order to continuously improve the teaching quality. Fourthly, optimize teaching methods. Teachers needed to constantly try and explore new teaching methods and strategies to adapt to different teaching contents and students' needs. Through practice and summary, teachers could gradually optimize the teaching method, improve the teaching effect and students' learning experience. This process of continuous exploration and optimization helped to promote teaching innovation and development.

To sum up, the success of basketball technology ability is influenced by multiple elements, such as variations in personal learning and teaching approaches, environmental conditions, and technological usage can influence the efficiency of basketball training techniques. This research is based on microteaching method to improve basketball technology ability for undergraduate students, the application of microteaching method could significantly improve students' skills in dribbling, passing and shooting are the basic skills that basketball players must master. The proficiency of these skills directly affects the performance of the players on the field and the overall strength of the team. And this teaching can help them better understand the key points and difficulties of movement, so as to grasp and understand faster the teaching contents in class.

Research Objective

1. To use microteaching method to improve basketball technology ability for undergraduate students.
2. To compare students’ basketball technology ability before and after the implementation based on microteaching method.

Research Hypotheses

After implementing microteaching method, the students’ basketball technology ability was improved obviously.

Literature review

This research was to use microteaching method to improve achievement of basic basketball skill course of undergraduate students. The researcher has reviewed the literature and proposed related theories and research as follows:

1. The significance of microteaching method

The importance of microteaching method in teacher training has been emphasized by many scholars and educators.

Kolb, D. A. (1984) stated that microteaching provided teachers with the opportunity to experiment with different teaching strategies and received feedback from their peers and mentors. This, in turn, helped them to improve their teaching skills and become more effective educators. Kolb's statement underscored the value of microteaching method as a professional development tool for teachers. By providing a controlled environment in which teachers could experiment with various teaching strategies, microteaching method offered a unique opportunity for teachers to gain practical experience and refine their techniques. This experimental phase was crucial, as it allowed teachers to test new approaches and identify which strategies were most effective in engaging students and achieving educational objectives. The feedback mechanism within microteaching was equally important. By receiving feedback from peers, mentors provided teachers with valuable insights into their performance. This feedback often highlighted strengths and weaknesses in teaching styles, enabled teachers to identify areas for improvement. Moreover, the iterative nature of microteaching—trying out new strategies, receiving feedback, and then adjusting approach—promoted continuous professional growth and development. Microteaching offered teachers a controlled environment to experiment, learn from feedback, and refine their teaching practices, ultimately leading to better outcomes for students and the teachers.

Harris, J. & Jones, M. (2014) highlighted that microteaching could help teachers to plan and prepare their lessons more effectively by identifying potential challenges and areas for improvement. The microteaching process typically involved several stages, including planning, teaching, and reflection. During the planning stage, teachers prepared a lesson plan and identified the specific teaching skills they want to practice. In the teaching stage, they delivered the lesson to a small group of students in a simulated class setting, while being observed by their peers or mentors. After the teaching session, they received feedback on their performance and reflected on their teaching practice to identify areas for improvement. During the planning stage of microteaching, teachers prepared a lesson plan and identified the specific teaching skills they wanted to focus on. This planning process was crucial because it allowed teachers to anticipate potential challenges and areas for improvement in their teaching practice. By planning and preparing lessons effectively, microteaching method could also help teachers to become more confident in their abilities. As teachers gained experience with microteaching, they developed a deeper understanding of their own teaching style and strengths. Additionally, the reflection stage of microteaching was an important component of the process. After teaching a lesson, teachers were encouraged to reflect on their performance by considering areas where they succeeded and where they could have improved. This reflection helped teachers to gain valuable insights into their teaching practice and to identify areas for future professional development.

2. The elements of Simpson Instructional Model

Hamad, A. Q. & Saud, L. M. (2015) pointed out that the five steps of microteaching method included: 1) Preparing relevant teaching knowledge in advance. Before conducting microteaching, teachers should learn basic theories, teaching objectives, teaching skills, teaching design and other relevant knowledge of microteaching, so as to form a certain cognitive structure and improve the perceptibility and transmission efficiency of teaching skills. 2) Performing a role. The teacher should clarify the training objectives and requirements of the teaching skills, as well as the types, functions, roles and methods of teaching skills, so that students had a clear understanding of the training objectives. 3) Filming. In order to enhance students' perception of teaching skills, they could watch vivid microteaching

demonstration films or on-site demonstrations by teachers to help students form a preliminary understanding of teaching skills. 4) Playing back and watching. According to the teaching objectives, teaching contents, teaching methods, teaching steps, etc., to guide microteaching practice. 5) Response and evaluation. Teachers performed role playing and micro-practice according to the written teaching plan, simulated real teaching scenes, applied the teaching skills, and received evaluation and feedback from other participants.

Huang Zhihong (2017) mentioned that the five important aspects of microteaching methods were interrelated, which together constituted a complete teaching system. These five areas included: 1) Organizing teaching materials in advance. Clear, specific and measurable teaching objectives were the cornerstone of microteaching method, which provided clear direction and expected outcomes for teachers and students. 2) Staging a role. Choosing appropriate teaching contents and organizing it in a logical order according to students' cognitive characteristics and students' understanding. 3) Capturing on camera. Use a variety of teaching methods and skills, such as explanation, demonstration, discussion, practice, etc., to meet the learning needs from different students by camera. 4) Repeating and observing. Timely acquisition of student feedback and evaluation of teaching process would help teachers adjust teaching strategies and improve teaching effects. 5) Feedback and estimation. Teachers constantly reflected on their own teaching practice in the process of microteaching method, summed up experiences and lessons, and improved their teaching ability and professional quality.

Chen Song & Chen Feng (2018) stated that microteaching was a teaching method aimed at training teachers to practice and reflect on their teaching skills by simulating a real class environment: 1) Preparing teaching aids in advance. Objectives should be set in line with the overall objectives of the course by considering the actual situation and needs of the students. Clear teaching objectives helped to ensure the pertinence and effectiveness of the teaching process. 2) Enacting role modeling. The core of microteaching was to cultivate teachers' teaching skills. In this process, teachers need to learn and master a series of teaching skills, such as explaining skills, questioning skills, and so on. 3) Recording footage. In microteaching method, teaching behavior analysis was an important link. By videotaping and playing back teachers' teaching behaviors, teachers could observe their own performance in class. 4) Reliving and monitoring. Teaching feedback mechanism was an indispensable part of microteaching. By collecting feedback from students, colleagues, mentors and other aspects, teachers could understand their own strengths and weaknesses in teaching. 5) Response and estimation. In microteaching, teaching evaluation was a continuous process. Through the comprehensive evaluation of teaching objectives, teaching skills, teaching behavior and teaching feedback, teachers could understand their own teaching effectiveness and students' learning outcomes. Based on these evaluation results, teachers could make targeted improvement plans to improve their teaching level and effect.

Ji Rongrong (2020) pointed out the five important aspects of microteaching methods: 1) Preparing instructional materials in advance. Microteaching method emphasized the clarity and specificity of teaching objectives. 2) Facilitating simulated roles. The content of microteaching method was usually selected, so that students could grasp the key points more quickly. 3) Videotaping. Microteaching methods encouraged students to actively participate, including questions, discussions and practice activities to enhance students' learning effect. 4) Playing back and watching. In microteaching method, teachers would give timely feedback to students, which helped students understand their learning progress. 5) Feedback and evaluation. Microteaching method was a process of continuous improvement. Teachers would adjust teaching strategies according to students' feedback and teaching results to optimize teaching results.

Wang Hao (2022) stated that microteaching method was a kind of teaching method for the purpose of teacher training, which was usually used to cultivate and improve teachers' teaching skills. Microteaching method consisted of the following five main components: 1) Organizing relevant materials in advance. In the first stage of microteaching, teachers needed

to receive relevant theoretical learning. This included the basic principles and theories of pedagogy, psychology, and pedagogy, as well as concepts, principles, and methods of microteaching. 2) Orchestrating a role. In this stage, teachers would learn and master various teaching skills, such as introduction skills, questioning skills, explaining skills, presentation skills, closing skills, etc. Through training and practice, teachers could gradually get familiar with and master these skills and lay a solid foundation for the subsequent practical operation. 3) Capturing on camera, teachers would use the theories and skills they have learned to carry out practical teaching. This included designing teaching programs, preparing teaching materials, organizing teaching activities, and managing classroom discipline. Practical operation aimed to enable teachers to transform theoretical learning and skill training into practical teaching ability and improve teaching effect. 4) Repeating and observing. In the microteaching process, teaching feedback was a very important part. After teaching practice, teachers needed to accept feedback from colleagues, tutors or students. The feedback could help teachers understand their own advantages and disadvantages in teaching and provide a basis for the subsequent teaching improvement. 5) Response and evaluation. According to the teaching feedback, teachers needed to reflect on and improve their own teaching. This might involve the adjustment of teaching programs, the improvement of teaching methods, the optimization of classroom management and so on.

In conclusion, the microteaching method's dimensions were crucial components that affected the efficiency of the methodology in enhancing teachers' teaching abilities. Teachers could design a complete and effective microteaching plan that helped them perfect their teaching skills and become more effective teachers by examining each of these factors. The researcher had synthesized from many academics and synthesized for 5 steps to improve basketball technology ability: 1) Preparing teaching materials in advance, 2) Conducting role simulation, 3) Recording by camera, 4) Replaying and observing, and 5) Feedback and evaluation.

3. Basketball technology ability course

The basketball technology ability of the players is regarded as the core element of winning. Basketball is a high technology. Therefore, it is vital for basketball players to continuously improve their technical strength.

3.1 Basketball dribbling ability

Introducing the learning objectives of basketball dribbling. The teacher first introduces this lesson's teaching contents and learning objectives to the students and explains the content and importance of the teaching objectives in detail. Students can clearly understand the teaching objectives to achieve the expected teaching effect. (1) Basic dribbling posture and skills; (2) Basic movements of dribbling; (3) Dribble changes and combinations; (4) Dribble with offense and defense

3.2 Basketball passing ability

Basketball passing ability is an indispensable key skill in basketball games. It can not only create offensive opportunities, mobilize the offensive enthusiasm of teammates, but also effectively kill the opponent's defensive will and improve the game's enjoyment. Accurate passing not only shows the individual ability of the players, but also reflects the teamwork and wisdom of the whole team, which plays a crucial role in determining the outcome of the game. Therefore, students should pay attention to the practice and improvement of passing skills. (1) Basketball direct pass skill; (2) Basketball slant pass skill; (3) Basketball backhand pass skill.

3.3 Basketball shooting ability

Basketball shooting ability plays a very important role in basketball games. Whether it is from the point of view of scoring means, tactical core, confidence building, game rhythm, teamwork, confrontation advantage or skill improvement, shooting ability is one of the necessary core skills for players. Therefore, players need to improve their shooting ability through continuous training and practice to achieve better results in the game. (1) Basic shooting skills; (2) Shooting posture and power control; (3) Jump shot and layup technique.

Research Methodology

The Population

There are 60 freshmen students, majoring in civil engineering at Qingdao Agricultural University, in the second semester of the academic year 2023. There were 30 students in each class. (There was mixed ability in each class: high level, medium level and low level.)

The Sample groups

Through a random cluster sampling method, there were 30 freshmen students, majoring in civil engineering at Qingdao Agricultural University, with class 1 in the second semester of the academic year 2023.

Research Instrument

Using microteaching method to enhance basketball skill of undergraduate students. The research instruments are as follows:

1. Lesson plan based on microteaching method

1.1 Study guidelines for microteaching method from many academics: Hamad, A. Q. & Saud, L. M. (2015); Huang Zhihong (2017); Chen Song & Chen Feng (2018); Ji Rongrong (2020); and Wang Hao (2022) design detail in the course.

1.2 Create 3 lesson plans on dribbling ability, passing ability and shooting ability, totaling 18 hours. By designing lesson plan using microteaching method, each lesson plan specifies the following aspects: 1) Preparing teaching materials in advance, 2) Conducting role simulation, 3) Recording by camera, 4) Replaying and observing, and 5) Feedback and evaluation.

1.3 The finished lesson plan was submitted to the thesis advisor to verify the suitability and consistency of the content. Then improve the teaching effect according to the suggestion. After revising lesson plans, the researcher took them to 3 experts to detect the accuracy of the content and completeness of the lesson plan and calculate the Index of Item Objective Congruence (IOC). The result of lesson plan had an IOC=1.00 for all contents.

1.4 The finished lesson plan was presented to the expert to verify the suitability and consistency of the content. Alignment of objectives with learning activities and the possibility of activities. Then enhance the method according to the suggestion.

2. Achievement of basketball course test

Basketball technology ability by using microteaching method to improve basketball skill of undergraduate students: 1) Basketball dribbling; 2) Basketball passing; and 3) Basketball shooting. The steps in creating and determining the quality of achievement test are as follows:

2.1 Basketball technology ability performance assessment

2.1.1 The procedures for creating the performance assessment, which is a practical test 3 contents, 10 items, with steps to create and find quality as follows: Content analysis, competence and learning objectives consistent with the lesson plan on basketball dribbling ability: 1) Dribbling posture and skills, 2) Movements of dribbling, 3) Dribble changes and combination, and 4) Dribble with offense and defense. Basketball passing ability: 1) Direct pass, 2) Slant pass, and 3) Backhand pass. And basketball shooting ability: 1) Basic shooting skills, 2) Shooting posture and power control, and 3) Jump shot and layup technique.

2.1.2 Submit basketball technology ability performance assessment criteria created by three experts for measurement and inspection. The Experts check the content validity and calculate the Index of Item Objective Congruence (IOC). The consistency indicator of each evaluation content is greater than or equal to 0.50 and is considered suitable for research. The result of the IOC at 1.00 for all assessment items. After that, try out with students who were non-sample for 30 students to analyze the quality of confidence values in performance assessment by analysis the reliability by Cronbach's Coefficient Alpha method at 0.74.

2.2 Multiple-choice

2.2.1 Study the theory about how to create multiple choice questions test and created multiple choice questions test for 3 lesson plans about the basic knowledge of each content were 1) basketball dribbling ability; 2) basketball passing ability; and 3) basketball shooting ability were totally 26 items to measure the achievement of basketball technology ability. The scoring criteria 1 point for correct answer and 0 point for wrong answer.

2.2.2 Improve and revise items test that have been verified by experts. Then took it to try out with students who were not a sample group for 30 students to calculate the quality of the test. The results of the quality analysis of the questions found that there were 26 questions, difficulty value (p), discrimination power (r), and reliability: 1) Basketball dribbling ability, there were 9 questions (p=0.27-0.77, r=0.20-0.47), 2) Basketball passing ability, there were 8 questions (p=0.37-0.77, r=0.20-0.47), and 3) Basketball shooting ability, there were 9 questions (p= 0.57-0.80, r= 0.27-0.67). And checking the quality of basketball technology ability, which was determined by Kuder Richardson's method, the reliability (KR-20) at 0.78.

Data Collection

1. Data collection and verification for test instrument:

1) Collaborate with three expert scholars to distribute an official paper from Bansomdejchaopraya Rajabhat University's professionals, providing details on the data gathering procedure and research instruments, including an instructional model and a checklist for evaluating its quality (Index of Objective Consistency: IOC).

2) Gather information and analytical data from three expert scholars for evaluation (Index of Objective Consistency: IOC).

2. Data collection and validation for research work.

1) Pertinent scholarly investigation: Accumulate data pertinent to the literature to ascertain the duration of the research: the official study was scheduled in June 2024, with data gathering occurring post the conclusion of the experimental research.

2) Pre-teaching and post-teaching examination: This research was experimental research according to One Group Pretest Posttest Design

Research Results

1. Using microteaching method to improve basketball technology ability for undergraduate students, the researcher has studied guidelines for microteaching method from many academics and synthesized for 5 steps to improve basketball technology ability: 1) Preparing teaching materials in advance, 2) Conducting role simulation, 3) Recording by camera, 4) Replaying and observing, and 5) Feedback and evaluation. The quality of the lesson plan by 3 experts, and the results are shown overall, the suitability of the research objectives is the most suitable. After 30 students have learned in 5 steps the average score before learning was 27.77, the average score after learning was 45.40. The after learning score was found to be higher than the before learning score. Therefore, using microteaching method, the students' basketball technology ability was improved obviously.

2. The comparison of students' basketball technology ability before and after the implementation based on microteaching method. The researcher implemented basketball technology ability based on microteaching method with 30 students. The comparison of students' basketball technology ability before and after learning to analyze the data using average statistics, standard deviation, and t-test for dependent samples which the data analysis results are shown in table 1.

Table 1 The comparison of students' basketball skill score before and after the learning by using microteaching method

Basketball skill	Testing	n	Full score	$\bar{X}$	SD	df	t	p
Dribbling skill	pretest	30	21	11.07	3.37	29	16.60**	0.00
	posttest	30	21	17.10	1.99			
Passing skill	pretest	30	17	8.73	2.49	29	17.77**	0.00
	posttest	30	17	14.17	1.42			
Shooting skill	pretest	30	18	7.97	1.38	29	32.07**	0.00
	posttest	30	18	14.13	1.14			
Total	pretest	30	56	27.77	5.16	29	34.99**	0.00
	posttest	30	56	45.40	3.34			

**p<.01

From Table 1, the comparison of students' basketball skill score before and after learning by using microteaching method the result found that basketball skill score of students after learning higher than before learning statistically significant at the level .01. When considering the results of data analysis classified by content: dribbling skill, passing skill, and shooting skill. The result found that basketball skill score of students after learning higher than before learning statistically significant at the level .01 for all contents. Therefore, learning by using microteaching methods could improve students' basketball skill.

Research Discussion

Using microteaching method to improve basketball technology ability for undergraduate students and compare students' basketball technology ability before and after the implementation based on microteaching method. The research could be discussed as follows:

1.Using microteaching method to improve basketball technology ability before and after learning, the average score before learning was 27.77 and the average score after learning was 45.40. The after learning score was found to be higher than the before learning score. Therefore, using microteaching method, the students' basketball technology ability was improved obviously. It's because microteaching method was regarded as an efficient and practical way to train teachers in their teaching skills. Microteaching skills training system was a complete and flexible teaching system platform based on human-machine interactive model. The researcher has taken the views of the academic importance of many academics and integrated them to develop 3 lesson plans clearer and synthesize for learning 5 steps: 1) Preparing teaching materials in advance, 2) Conducting role simulation, 3) Recording by camera, 4) Replaying and observing, and 5) Feedback and evaluation. Harris, J. & Jones, M. (2014) said that, microteaching could help teachers to plan and prepare their lessons more effectively by identifying potential challenges and areas for improvement. The microteaching process typically involved several stages, including planning, teaching, and reflection. During the planning stage, teachers prepared a lesson plan and identified the specific teaching skills they want to practice. In the teaching stage, they delivered the lesson to a small group of students in a simulated class setting, while being observed by their peers or mentors. As teachers gained experience with microteaching, they developed a deeper understanding of their own teaching style and strengths. After teaching a lesson, teachers were encouraged to reflect on students' performance by considering areas where they succeeded and where they could have improved. Consistent with Tan Chenhong & Tan Gonghao (2017) said that, microteaching method were use of modern audiovisual technology and recording equipment. These tools allowed teachers to record and review their own teaching practices and student skills development, and allowed for critical reflection and analysis. Teachers and students could identify areas for improvement accordingly. Huang Zhihong (2017) stated that microteaching method could classify complex teaching skills into simple and tiny single skills according to teaching objectives, so that the teaching objectives were more clear and more

specific, and the training was more targeted, which was conducive to students' learning and mastering. For example, in basketball teaching, the basic technical movements such as dribbling, shooting, defensive turning, and fast movement could be broken down and taught to make it easier for students to grasp and understand the gist of each movement. And consistent with Chen Song & Chen Feng (2018) mentioned, the microteaching method focused on specific teaching skills through short teaching segments and recording by means of video. Participants could observe, analyze and improve themselves, which was an effective way to improve teaching ability and helped teachers to accurately improve teaching level. Moreover, Zhao Shaoren (2019) pointed out that microteaching also paid attention to students' self-evaluation and reflection and helped students better understand their shortcomings and progress so as to study and practice harder. Xia Yu (2021) said that microteaching paid attention to students' practice and feedback, and teachers could find problems and correct them in time by observing students' practice process. This could help students to correct mistakes faster and improve the accuracy and standardization of technical movements. Lin Peiquan (2021) commented that using video or multimedia demonstration, coupled with detailed explanation and explanation, would become a vivid teaching example. In this way, students could see the execution process of each action more clearly so as to better understand and master. Especially after the decomposition of motor skills, the teaching content was simple and easy, and the theme was concentrated, which was conducive to students' repeated practice, in-depth understanding and mastery of the essentials of movement.

2. The comparison of students' basketball technology ability before and after implementation based on microteaching method. The results found that, the results found that basketball technology ability score of students was statistically significant at the .01 level. When considering the results of data analysis classified by contents: 1) basketball dribbling ability, 2) basketball passing ability, and 3) basketball shooting ability. Basketball technology ability score of students after learning higher than before learning statistically significant at the level .01 for all contents. Therefore, using microteaching method could improve students' basketball technology ability. Gao Huafeng (2015) aimed to explore the effectiveness of microteaching method in improving junior high school students' basketball skills, this studied 20 students in the experimental group and 20 students in the control group. The experimental group received microteaching, and the key movement exercises were strengthened through subdivision skills, repeated video playback and immediate feedback. The control group followed the traditional teaching method. The results showed that the students in the experimental group had significant improvement in the mastery of basketball skills, movement norms and practical application, which provided a new and effective way for junior high school basketball teaching. Li Fei (2015) researched on competitive performance of China University Basketball Super League, this study set up an experimental group and a control group, with 15 college students in each group. The experimental group adopted the microteaching method to teach basketball dribbling techniques. This method helped students to deeply understand and master the essence of dribbling through subdivision of dribbling skills, real-time video analysis, personalized guidance and repeated practice. The experimental results showed that the students in the experimental class had made remarkable progress in the practical application of basketball dribbling technology. The technical movements were more proficient, the stability and creativity of dribbling in the game were greatly improved. Lai Feng & Chen Gong (2016) an empirical study on the influence of microteaching method on basketball dribbling ability. The experimental group and the control group, each group of 20 middle school students with similar basketball foundation, with an average age of 15 and a balanced male-female ratio to ensure that there were no significant differences between the two groups under the initial conditions. After using microteaching training, students in the experimental group significantly improved their basketball dribbling ability and significantly improved their performance compared with the pre-test. Although students in the control group have improved to a certain extent, the improvement may not be as significant as that in the experimental group due to the lack of key links such as video playback, self-reflection and

peer feedback in the microteaching method. Hao Yuerong (2018) researched on the model of Chinese national competitive basketball team. Starting in this experiment, 10 primary school fifth grade students were selected from the experimental class and the same number of students from the control class. The experimental class used microteaching method to conduct detailed decomposition and intensive training for basketball shooting techniques, and effectively improved the accuracy of shooting through instant feedback and repeated practice. In contrast, the control class continued to use the usual pedagogy throughout the experiment. After 4 weeks of special training, the evaluation results showed that the students' basketball shooting ability had been significantly improved, which confirmed the positive role of microteaching method in improving the students' basketball shooting skills. And Xia Yu (2021) verified the effectiveness of microteaching in improving students' learning effect by comparing the learning initiative and basketball skill level of students in the experimental group and the control group after using microteaching method in the process of basketball learning. It was assumed that students in the experimental group using microteaching method would significantly improve their initiative and basketball skills in learning basketball compared with students in the control group using traditional teaching methods. Experimental group: 30 students from different classes of the same grade were randomly selected to ensure that the students in the experimental group had the same basic level of basketball.

In summary, the microteaching method can effectively improve students' basketball skills in the mastery of basketball skills, movement norms and practical application, which provided a new and effective way. This method helped students to deeply understand and master the essence of basketball skills by real-time video analysis, personalized guidance and repeated practice. Teachers can divide basketball skill tasks into several small tasks, such as dribbling, passing, shooting, so that students can gradually achieve their learning goals. Teachers can organize small tasks into an organic whole, so that students can constantly explore, find and solve problems in practice. Teachers give students feedback in time to help them correct mistakes, evaluate students' skill level, understand students' learning situation and skill level, and provide basis for further teaching. Through the application of microteaching method, students can gain more rich and comprehensive learning experience in basketball skills class and improve their learning effect and skill level.

Research Suggestion

Microteaching method is a teaching method that uses modern audiovisual technology and recording devices to play an important role, allowing teachers to record and monitor their own teaching methods and the development of students' basketball skills. Researchers presented recommendations as follows:

General recommendation

1. Teachers should prepare supplementary teaching plans for students who lack skills in various areas, such as students who are not stable in dribbling. They can be given special dribbling exercises and have them practice dribbling with different speeds and directions, changing directions, etc. Through targeted training, students can improve their technical level more quickly.

2. Divide students into small groups. Teachers should encourage each group of students to help each other strictly and participate in suggesting ways to develop students' basketball skills.

3. Teachers should encourage students to practice several times after class, and provide students with enough practice time and opportunities in the process of applying microteaching method.

4. Video analysis can help students understand technical movements. Teachers should observe and analyze students' technical movements, so that students can get the shortcomings of their technical movements more clearly.

Suggestions for future research

1. Combine microteaching method and virtual reality (VR) technology to improve students' basketball technology ability and compare with traditional teaching methods

2. Combine big data and artificial intelligence technology to analyze and evaluate basketball movements of students.

3. Foster students' competitive awareness and ability to withstand pressure through simulated competition scenarios and adversarial training.

4. Develop comprehensive basketball technology ability evaluation criteria, including the accuracy, fluency, and practical application of technical movements.

5. Use microteaching methods to improve achievement in other practical skills for students at all levels.

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