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The Power of Peers: A Practical Probe of Teaching in Physical Education Psychology Based on Peer Instruction

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Abstract: *To improve the teaching effectiveness of physical education psychology courses and solve the problems such as the exam results are poor, lack of effective interaction and difficult to obtain feedback etc. existing in Physical Education Psychology teaching, the Peer Instruction was utilized in the pre-class preview stage, classroom teaching stage, and after-class evaluation stage of physical education psychology courses. The results show that, through communication, discussion, cooperation, competition, and evaluation among peers, the students mastered the learning content more effectively of physical education psychology. The mutual teaching among peers effectively improves teaching effectiveness. Peer Instruction is an efficient teaching method worthy of teaching research and promotion.*

Keywords: *Sports Psychology, Teaching Reform, Interaction, Participation*

1. Introduction

Physical education psychology is an interdisciplinary field formed by the integration of the science of physical education and psychology, with both fundamental and applied characteristics [1]. For students majoring in universities, whether they are engaged in physical education teaching, guiding sports team training and competitions, or guiding fitness exercises in the future, they will encounter psychological problems. Being able to learn and master the psychological phenomena and laws in physical education teaching and sports training competitions, and apply the theories and methods of physical education psychology to physical education practice work, undoubtedly has important significance and role in improving work efficiency [2]. Therefore, physical education majors in various universities have offered the course of physical education psychology. However, based on the years of teaching experience of our researcher, there are many problems in the teaching of physical education psychology, and further teaching reform and verification are still necessary.

2. Problems in the Teaching of Physical Education Psychology

2.1. The classroom atmosphere is lively, but the exam results are poor

The physical education psychology course for physical education major in our college is offered in the second semester of sophomore year. After trying to use methods such as “inquiry learning method” and “presentation-assimilation-discussion (PAD) “, students still generally exhibit a contradictory state of “understanding when listening, making mistakes when doing, and being confused when practicing” in this course. The first impression to students in learning this course is generally that “it is very interesting” because they have taken psychology and education courses before, and many of the topics discussed in this course are also familiar to them. For example, the phenomenon of “afraid of getting into the water when learning to swim” was actively discussed by students. Students also thought “it is easy to understand” the corresponding psychological concepts and principles, such as the causes and effects of anxiety, methods and principles of psychological skill training, etc. However, the final exam results show that the class average score is hovering around 60 points (out of 100 points). Among all, the accuracy of discrimination questions and comprehensive application questions are the lowest, just around 30-40%. These showed subpar teaching quality.

Then what is the crux of the problem? Analyzing the reasons, discrimination questions and

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comprehensive application questions require students to master solid psychological concepts and theoretical logic. The relatively low accuracy of these two types of questions indicates that students only have a superficial knowing of psychological concepts and theories, and have not a profound understanding and knowledge. Obviously, in course learning, if students only interested in the "interesting" surface phenomena, they will difficult to have genuine insights, and when encountering practical problems, they can only rely on limited experience. Just like how to deal with afraid of getting into the water, many students still only know the "step-by-step".

2.2. Lack of effective interaction, difficult to obtain feedback

As is well known, "lack of effective interaction" and "difficult to obtain feedback" are common problems in large class classrooms[3]. Physical Education Psychology also adopts a large class system, with a large number of students ranging from as few as 30 to as many as nearly 60. Therefore, these two issues are also very prominent in teaching. For example, regarding the issue of "lack of effective interaction", when it comes to personal life experience topics, students generally speak up actively and discuss enthusiastically. However, when it comes to psychological principles and laws, such as why this is the case and how to solve it, students fall silent. If students are asked "Are there any questions？", they will all say "No". However, if they are asked separately, they will be entirely ignorant. Moreover, due to the large number of students, teachers and students are unable to communicate individually during limited classroom time. Moreover, due to the large number of students, teachers and students are unable to communicate individually within limited classroom time. As a result, large classes may appear to have an "active classroom atmosphere" but lack effective interaction, and it is impossible to understand students' true mastery of knowledge.

Therefore, how to truly stimulate students' learning initiative and proactivity, improve the teaching effectiveness of Physical Education Psychology, and enable students to gain knowledge has become one of the important research topics for teachers.

2.3. Weak research on the teaching of Physical Education Psychology courses

With the continuous advancement of educational reform, more and more innovative teaching models and methods have been proposed and applied in teaching research and practice of various disciplines, such as task-driven method, mind mapping method, experiential teaching, peer instruction method, and so on. In recent years, researchers have gradually attempted to apply teaching models and methods such as "flipped classroom" [4], "PAD" [5], and "problem-based teaching method" [6] to the teaching of Physical Education Psychology. With the development of information technology, some researchers have also applied the "blended learning mode of online and offline" [7] to the teaching of Physical Education Psychology courses. By reviewing these teaching research and practices, it can be concluded that the application of new teaching methods and models can indeed improve teaching effectiveness to a certain extent and play a certain role in promoting the reform of physical education courses. However, overall, the research on physical education psychology courses in China is still not rich enough, and the innovative teaching models and methods adopted are relatively limited. Further exploration and verification are needed for the reform of physical education psychology courses. Therefore, in order to better achieve the teaching goals and tasks of Physical Education Psychology and solve the problems existing in Physical Education Psychology teaching, this study adopted the Peer Instruction method to reform and practice the teaching of Physical Education Psychology.

3. Characteristics and effects of peer teaching method

Peer Instruction (PI) is a student-centered teaching method that utilizes various forms such as self-directed learning, inquiry-based learning, teacher-student interaction, and student-student interaction. It was proposed by Eric Mazur, a physics professor at Harvard University, in the 1990s when teaching undergraduate physics courses [8]. It is a classroom teaching strategy used to test whether students can fully grasp and analyze the teaching content among themselves, and has distinct characteristics [9-10]and effects.

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3.1. Characteristics of Peer Instruction method

3.1.1. Problem and Task Oriented

Unlike traditional teaching methods, PI teaching adopts a flipped classroom teaching format, with problem centered teaching, discussion assisted teaching, and knowledge and skills as the two main lines of instruction. Under the guidance of teachers, students are problem oriented, inspire each other, and achieve self-directed and inquiry-based learning.

3.1.2. Learn from Each Other

In PI teaching, students have an equal status as learning partners, and they engage in equal dialogue and debate on course content during the teaching and learning process, sharing their knowledge and experience and achieving mutual benefits.

3.1.3. Mutual Evaluation

In traditional teaching evaluation, the teacher's summary evaluation is generally the main approach. PI teaching, on the other hand, pays more attention to students' subjective initiative, truly embodying the belief of “students are the masters of learning”. Students are not only the subjects of learning, but also the subjects of evaluation. Peer evaluation not only allows students to learn from each other, but also facilitates students to summarize learning methods and change their learning styles when evaluating others, thereby improving learning outcomes.

3.2. Effects of PI Method

Classroom interaction is a holistic and dynamic process that focuses on achieving educational and teaching goals, fully mobilizing the enthusiasm of various components of the teaching system, and forming a positive interaction between teachers and students, students, and teachers and students and the environment. Classroom interactive teaching advocates student-centered, activity centered, and experience centered approaches. The flow of teaching information is not only about teachers transmitting information to students, but should also be multi-directional teaching, that is, multi-directional or multi-dimensional information exchange occurs between teachers, students, environment, and other elements, thus achieving multi-directional information interaction between teachers and students, students, and teachers and students and the environment. Effective interaction in teaching activities is a prerequisite for optimizing teaching effectiveness [11]. Compared with traditional classroom direct teaching, PI is more student-centered, forming a classroom form of teacher-student interaction and student-student interaction. Although simple, it can effectively promote student participation. At present, PI is widely used in the teaching of various disciplines such as physics, biology, engineering, and healthcare etc. The use of PI can help students focus on the essence of learning, and has a good effect on cultivating students' batch learning ability, practical ability, and critical thinking ability [12-16].

4. The Application of PI in Physical Education Psychology Teaching

Based on the principles and characteristics of PI method, we have changed the single teaching method of “student self-learning teacher teaching student listening group discussion”, optimized the teaching plan of pre class mobilization and preview, classroom discussion and feedback, homework and peer evaluation in Physical Education Psychology course, fully utilized the power of peers, and developed and implemented various forms of “student-student interaction” such as “effective attendance”, “mutual teaching and learning”, “mutual questioning and answering”, “self-evaluation and peer-evaluation”.

4.1. Physical Education Psychology Teaching mode with PI

The Physical Education Psychology course is taught using a blended online and offline teaching method on the Learning Platform. The teaching process with PI mainly includes three parts: pre class preparation, classroom teaching, and after class evaluation as shown in Figure 1.

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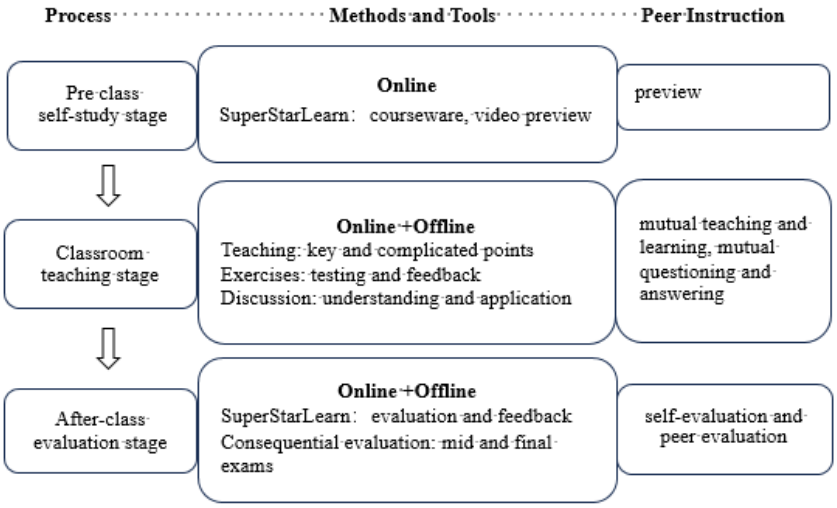

Figure 1: Physical Education Psychology Teaching mode with PI.

4.1.1. Pre-class Preparation Stage

Before class, teachers use the SuperStarLearn to publish chapter courseware and teaching videos, reminding students to actively preview and self-study online resources, so that students can have a certain understanding of the knowledge points involved in subsequent courses and be well prepared for class. This is not only related to the initiative of learning, but also to the depth and efficiency of learning.

4.1.2. Classroom Teaching Stage

This stage mainly consists of course activities such as the teacher emphasizing important knowledge points, releasing in class exercises and tests, student group discussions, and teacher summaries. These activities are adjusted appropriately according to the teaching content of each part.

Students engage in mutual questioning, answering, teaching, and learning during in class testing and discussion activities. The power of companions is fully stimulated. Each class is designed with 3-8 practice questions based on the teaching content. After the teacher emphasizes the corresponding knowledge points, the exercises are immediately posted on the SuperStarLearn. After each question is completed, the answer situation will be immediately announced, and the questions with a correct rate of less than 70% will be discussed in detail. The correct students will answer the questions of the wrong students. By conducting in class exercises, students can improve their focus and assess their mastery of knowledge. At the same time, learning tasks for certain chapters are assigned to each group of students, who teach the knowledge points that their group is responsible for and also are responsible for answering questions from other groups of students. In this way, students' sense of participation is enhanced, and through mutual teaching and learning, questioning and answering, and teacher guidance and supplementation, students' thinking and expression are promoted.

In the classroom teaching stage, it is emphasized that students not only just show in class, but also participate in the whole process of class through “mutual teaching and learning” and “mutual questioning and answering”. That is the truly “take part in effectively” which triggering peer teaching effects, and deepening students' memory and understanding of key knowledge. Starting from the three aspects of “value guidance, knowledge imparting, and ability enhancement”, we comprehensively implemented them throughout the entire learning process, timely promote ideological and political education, and cultivate students' awareness and spirit of unity, mutual assistance, and fair competition.

4.1.3. After-class Evaluation Stage

The after-class evaluation stage adopts a combination of self-evaluation and peer evaluation, process evaluation, and outcome evaluation. During the process, feedback on students' performance is provided after each class based on the SuperStarLearn statistical report. During the semester, 2 discussion topics are posted on the SuperStarLearn, and then students answered and conduct self-evaluation and peer evaluation. After conducting an online mid-term test, the teacher promptly summarizes and provides feedback on the exam results, preview of the first half of the semester, attendance, discussions, testing, and other related information. Students who actively participate receive praise and encouragement, while

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those with low participation receive reminders or warnings. At the end of the course, comprehensive offline classroom and online learning data will be collected and analyzed, and student performance will be quantitatively analyzed and comprehensively evaluated from various aspects such as preview, attendance, discussion, testing, mid-term and final exams.

By combining self-evaluation with peer evaluation, process evaluation with outcome evaluation, we aim to improve the objectivity and accuracy of evaluation, and enhance students' awareness and ability for self-directed learning.

4.2. Physical Education Psychology Teaching Effectiveness with PI

4.2.1. Overall Improvement in Students' Learning Enthusiasm and Initiative

In class, students actively raise and answer questions, and the discussion atmosphere is quite lively. Most students have made great progress in participating in the second experiment and writing the experiment report; After learning about the gap between themselves and their classmates, some students actively took remedial measures.

4.2.2. Promotes Students' Thinking and Expression

The method of assigning learning tasks to students and allowing them to introduce and answer questions from other classmates has been well received by students. While enhancing students' sense of participation, it also promotes their ability to condense problems and express their own ideas.

4.2.3. Promotes Student Reflection and Adjustment

Feedback such as in class exercises and a summary of learning progress during each class reminded students of their understanding of their own learning status and the gap between themselves and other classmates. This directly promotes students' reflection and adjustment of their learning attitudes, learning methods, and learning outcomes.

4.2.4. Improved Students' Awareness and Ability to Practice

After learning, many students have applied the theories of motor skill learning and psychological skill training methods in their specialized studies, and actively discussed and shared their application effects with classmates.

5. Conclusion

The blended learning based on peer teaching method has changed the problems of low student learning initiative and insufficient participation in traditional Physical Education Psychology classrooms. The Peer Instruction method enables students to master learning content more effectively through communication, discussion, cooperation, competition, and evaluation among peers. Applying the Peer Instruction method in the classroom of blended Physical Education Psychology teaching can achieve the best results. Mutual teaching among peers helps to understand the learned content and effectively improves teaching effectiveness, making it an efficient teaching method worth researching and promoting.

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