

The Significance, Main Problem and Promotion Strategies of Interdisciplinary Subject Learning of Sports and Health

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Abstract

“China Compulsory Education Physical Education and Health Curriculum Standards (2022 Edition)” adds interdisciplinary thematic learning to the curriculum content. This is an inevitable choice for the physical education and health discipline to move from a single knowledge to a deep integration of comprehensive knowledge. It is also the only way for its teaching reform to move towards high-quality development. By using the methods of literature review, this paper studies the significance, main problems and implementation strategies of the interdisciplinary theme learning of sports and health. It is found that the interdisciplinary theme learning of sports and health is an important way to promote the development of students, solve comprehensive problems and promote academic performance, which is of great significance to the implementation of moral education and core literacy. However, there are still some problems, such as the difficulty of integrating subject knowledge, the inherentization of teachers’ traditional thinking, the superposition and combination of subject knowledge, the neglect of knowledge transfer in mixed teaching, and the lack of standards leading to the fuzziness of evaluation. Based on this, in order to further promote the implementation of interdisciplinary thematic learning of sports and health, the following solutions are proposed: 1) construct three breakthrough points to integrate the knowledge related to other disciplines; 2) Teachers should change their teaching thinking and methods to improve interdisciplinary literacy; 3) Adhere to the dominant position of the subject to enhance the internal relations of subject knowledge; 4) Prevent shallow and mixed teaching to achieve knowledge transfer; 5) Design scientific evaluation criteria to help interdisciplinary learning to carry out long-term and orderly.

Keywords

Physical Education and Health Curriculum Standards, Interdisciplinary

Theme Learning, Meaning, Main Issues, Promotion Strategy, Chinese Government

1. Introduction

Interdisciplinary thematic learning refers to “a comprehensive learning method that integrates the learning content of various disciplines in the form of themes and combines knowledge with students’ subjective experience on the basis of emphasizing the subject curriculum” (Guo, 2022a). The “China Compulsory Education Curriculum Program (2022 Edition)” (hereinafter referred to as the “Program”) proposes to “set up interdisciplinary thematic learning activities to strengthen the interconnection between disciplines...” Carry out interdisciplinary theme teaching, strengthen the new deployment of curriculum collaborative education function (Ministry of Education of the People’s Republic of China, 2022a), and stipulate that no less than 10% of each course in principle should be used to design interdisciplinary theme learning, so as to give full play to the function of curriculum comprehensive education and promote the development of students’ core literacy. Based on the requirements of the “program,” the “Chinese Compulsory Education Physical Education and Health Curriculum Standards (2022 Edition)” (hereinafter referred to as the “Physical Education Curriculum Standards”) first proposed interdisciplinary thematic learning, emphasizing throughout the compulsory education stage and as one of the contents of the physical education and health curriculum (Ministry of Education of the People’s Republic of China, 2022b). At the same time, as an important part of the content of physical education and health curriculum, it not only shoulders the important task of students’ physical and mental health and physical fitness, but also carries the important mission of combining sports people, sports virtue, physical fitness, labor and intelligence and beauty. With the promotion of teaching reform to develop students’ core literacy and the influence of the rise of international STEM model (science, technology, engineering, mathematics comprehensive education model) and PBL model (problem-based learning education model), it is changing the way of cultivating students’ core literacy and knowledge learning. Therefore, how to understand the implementation requirements of the interdisciplinary theme learning of physical education and health in the new round of basic education reform has become an important practical problem that needs to be solved and considered in the new development stage to promote the reform of basic education and explore innovative physical education teaching ideas and methods.

Interdisciplinary thematic learning has been studied recently. Some scholars have carried out multi-dimensional analysis of interdisciplinary learning in physical education and health courses (Shang, Yu, Wang, & Cheng, 2022), and combined with cases to study the value (Wang & Yang, 2022), dilemma and im-

plementation strategies (Hu, 2017), activity design path (Chen, Zhang, & Liu, 2023), and the characteristics and strategies of interdisciplinary thematic learning from a spatial perspective (Zhang, Xuan, Chen, & Wang, 2023). It can be seen that interdisciplinary thematic learning is not only a hot and difficult issue in the future academic circles, but also the trend of teaching in various disciplines in the future and an important way to cultivate students' problem-solving ability in real situations and comprehensive education. However, the above research is mostly limited to the analysis of the theoretical level, and the research on the interdisciplinary theme learning of sports and health from practice is relatively insufficient. Based on this, this paper studies the basic characteristics, main problems and promotion strategies of interdisciplinary subject learning in physical education curriculum standards, in order to provide theoretical reference and reference for promoting the implementation and innovation of interdisciplinary subject learning in physical education and health.

2. The Concept and Significance of Interdisciplinary Subject Learning of Sports and Health

Interdisciplinary thematic learning is composed of three nouns: "interdisciplinary, theme, learning". Stember pointed out that "interdisciplinary" means between, integration or multiple, "the subject is the scope or specialization of a specific research, and the starting point of interdisciplinary is between two or more research fields" (Repko, 2016). The active crossover of the association or integration between courses is based on a certain subject. In order to achieve active cross-border and organic integration between disciplines, it is necessary to take the "theme as a bridge" to achieve. The theme is the main content that students can actively participate in complex problems with situations. Interdisciplinary thematic learning is aimed at solving problems in real situations, which requires students to learn and apply different subject knowledge comprehensively. What is interdisciplinary thematic learning? Guo Hua believes that interdisciplinary thematic learning is to promote the integration of the overall construction of the education system of various courses and school courses through the interdisciplinary association of teaching content and the practice of teaching methods under the background of subject-specific courses (Guo, 2022b). In short, interdisciplinary thematic learning is a comprehensive education method that designs and constructs courses with a certain subject as the theme, and uses interdisciplinary thinking, knowledge and methods to integrate 2 or more subject knowledge to solve practical problems. It is also the only way to practice the requirements of China's curriculum reform and the necessary solution to realize the cultivation of students' core literacy (Yu & Chen, 2022). Understanding its concept is helpful to the in-depth analysis of the interdisciplinary subject learning of sports and health. The interdisciplinary subject learning of physical education and health is based on the subject of physical education and health, aiming at cultivating students' core literacy, and under the guidance of teachers,

students are allowed to integrate two or more subject knowledge in the form of theme in combination with existing knowledge and experience to answer, solve or deal with problems in real situations, so as to promote students' core literacy and all-round development.

In fact, the interdisciplinary subject learning of sports and health promotes the comprehensive and healthy development of students, so that students can understand the knowledge of physical exercise, diet and mental health through interdisciplinary subject learning, learn to develop a healthy lifestyle, and then comprehensively promote the development of physical health. At the same time, it can also cultivate the spirit of teamwork. Many activities or contents in sports activities often require close cooperation and tacit cooperation among team members in order to succeed. This process not only cultivates students' team consciousness, cooperation ability and leadership quality, but also makes students understand the role of the team, which is more conducive to promoting students' unity and cooperation. Secondly, it can effectively improve students' academic performance and interest in learning. The effective integration of sports and health and other subject knowledge can increase students' interest and participation in learning content and further improve their academic performance. Finally, cultivate students' self-confidence and adaptability, sports and health interdisciplinary can effectively help students overcome the difficulties in life, constantly challenge themselves, let students gain self-confidence and the ability to adapt to social development, learn to face difficulties and solve problems. For teachers, sports and health interdisciplinary theme learning expands teachers' teaching ideas, increases teaching fun and improves teaching effect. At the same time, it also implements the fundamental task of LideShuren and the educational concept of health first, and helps to use interdisciplinary knowledge and skills to solve the real problems encountered in this discipline (Ji, 2022).

3. The Main Problems of Interdisciplinary Subject Learning of Sports and Health

3.1. Subject Knowledge Is Difficult to Integrate

At present, in the educational context of subject-based curriculum setting, it is conducive to the systematic teaching of teaching knowledge and the improvement of teaching efficiency. However, it will lead to the difficulty of integrating subject knowledge. The characteristics of fragmentation and barrier hinder the cooperation and knowledge integration between different subject organizations (Yang & Bi, 2020), which makes the subject knowledge single and educational resources difficult to enter the comprehensive curriculum. From the perspective of sports and health knowledge, it mainly uses teachers to teach sports skills to promote students' physical and mental health. In the process of implementation, based on the knowledge of physical education and health, according to the theme of teaching design, how teachers combine other subject knowledge and curriculum resources to develop and teach is one of the problems presented in

the interdisciplinary subject learning of physical education and health (Yu & Cao, 2017). From the perspective of physical education teachers, generally speaking, physical education teachers lack the level of educational theory, lack of cultural knowledge, single teaching ability (He, Tang, & Tian, 2022), and narrow knowledge of other disciplines. This makes physical education teachers have difficulties in other subject knowledge or resources, which makes it difficult for physical education and health interdisciplinary subject learning and other subject knowledge, education and teaching resources to be effectively integrated, developed and utilized, and then makes physical education teachers in self-developed physical education and health interdisciplinary subject learning and curriculum design. There are problems such as chaos, insufficient resource utilization, unclear purpose and low efficiency. From the perspective of students, the knowledge and knowledge reserves learned by students at different stages are different. Some students have better interdisciplinary knowledge, and some students are slightly insufficient. There is a polarization phenomenon, which may lead to the design of teachers. Some of the knowledge of interdisciplinary subject learning of physical education and health is difficult to be accepted by students, making it difficult to integrate subject knowledge and have low effects.

3.2. Teachers' Inherent Traditional Thinking

Since the promulgation of the "Physical Education Curriculum Standards", although the concept of interdisciplinary thematic learning has been recognized by primary and secondary school teachers, it is urgent to strengthen the strategy in the practice of the curriculum (Hao & Yang, 2022). As PasiSilander said, although we have made changes in the concept, there is still a dilemma for teachers to implement the concept in practice. Teachers do not know how to take the first step (He, Tang, & Tian, 2022). Specifically, under the influence of subject teaching, the teaching methods, thinking methods and evaluation methods of different disciplines are different, and they are more independent than comprehensive courses. Physical education teachers are accustomed to integrating the inherent traditional teaching concepts, thinking and methods into teaching practice. In practice, there are still many difficult problems such as how to cross, how to integrate and what to integrate with other subject knowledge. Secondly, with physical education teachers as the main body of the "one-word or full-time" traditional teaching methods, the phenomenon of physical education teachers keeping their own teaching "responsibility field" and the field of physical education curriculum teaching have appeared many times in the field of "flash in the pan" Teaching methods change, so that physical education teachers feel that this teaching innovation method adopted today may be abandoned, and other new methods will appear. This kind of teaching method, which is too fast to change, makes physical education teachers adopt the traditional teaching strategy of "responding to change with immutability" in concept (Shi, 1996). Finally, under the influence of "subject first and double base", some school physical education

teachers in the concept of interdisciplinary theme learning weakens the status of the main subject, ignores the mastery of basic knowledge, so that students can not grasp the structured and gridded subject knowledge. This may lead to no difference in the curriculum theme, activities and subject teaching designed by physical education teachers, resulting in a formal “interdisciplinary integration”, which is difficult to achieve the desired effect (Huang, 2018). At the same time, physical education teachers adhere to the traditional examination and evaluation system, weakening the students’ innovation, emotional expression and so on.

3.3. Subject Knowledge Superposition Patchwork

Interdisciplinary thematic learning is not the content of multi-disciplinary knowledge, nor is it the process of understanding and knowing multi-disciplinary knowledge (Zhang & An, 2021), but a comprehensive learning method. Simply superimposing and piecing together the knowledge of various disciplines may lead to misunderstandings in the teaching of interdisciplinary subject learning in physical education and health. At the same time, it also destroys the logical nature of the original discipline, and does not create better “interdisciplinary subject learning” content and meet the development needs of students’ subject understanding and life understanding (Zhang, 2017). It also deviates from the basic criteria of the subject theme, which hinders the overall development of students. Specifically, the interdisciplinary theme learning of sports and health is separated from the theme activity in the implementation or generally lacks a clear understanding of the interdisciplinary theme teaching (Ren, 2022), which deviates from the educational purpose of the theme activity. For example, the password of labor education or warm-up exercise is replaced by English language with the help of back and forth handling equipment. Although these interdisciplinary subject teaching contents are formally related and contain correct values and emotional attitudes, they only superimpose and piece together other interdisciplinary knowledge and knowledge related to interdisciplinary subject learning of sports and health. In addition, from the perspective of the broad connotation of interdisciplinary, interdisciplinary courses, interdisciplinary courses, integrated courses and comprehensive courses can be regarded as interdisciplinary courses (Chen & Zhang, 2022). However, there are many so-called interdisciplinary courses that neither contain the broad connotation, nor belong to interdisciplinary courses or integrated courses, but the “fruit salad” mixed state of the content of the subject curriculum. There is no real interdisciplinary knowledge or interdisciplinary theme integration, and the knowledge of each subject still presents an isolated state. These problems will make students unable to deeply understand interdisciplinary knowledge, and then make physical education teachers randomly pile up and split interdisciplinary knowledge.

3.4. Hybrid Teaching Ignores Knowledge Transfer

In teaching practice, in order to complete the task of interdisciplinary subject

learning, physical education teachers forcibly carry out the “bridging” between disciplines and the balanced efforts of various disciplines, resulting in plausible interdisciplinary, leading to the “hybrid” teaching form (Tian & Sun, 2019), ignore the importance of knowledge transfer. This kind of hybrid teaching only stays in the interdisciplinary teaching at the formal level, which may lead to the phenomenon of “crossing for crossing” when physical education teachers fall into the teaching curriculum design in teaching. At the same time, physical education teachers pursue the comprehensive application of interdisciplinary knowledge in teaching practice. The “equal strength” of multidisciplinary knowledge leads to the disadvantages of “equal division of autumn” in various subject knowledge, which can not deeply reflect the real theme of sports and health interdisciplinary, forming a hybrid teaching, missing the problem of exploring interdisciplinary subject learning based on subject knowledge, ignoring the transfer and correlation between subject knowledge. The application of subject knowledge transfer and physical fitness, the promotion of skill development and the cultivation of core literacy are the two major roles of interdisciplinary subject learning of physical education and health. However, although this hybrid teaching has the shadow and knowledge characteristics of multiple disciplines, it is only a specific knowledge answer to a single question or a shallow teaching. The specific performance is to form a simple accumulation of multi-disciplinary knowledge or the expansion of knowledge. It does not allow students to experience and learn cooperative inquiry, multi-disciplinary knowledge integration, form an overall cognitive structure and the ability to solve problems in real situations in this process. It has not formed an interdisciplinary teaching model with the characteristics of this discipline, and it is difficult to realize the transfer and application of subject knowledge and the comprehensive development of students and the ability to cultivate core literacy.

3.5. The Lack of Standards Leads to Fuzzy Evaluation

The lack of standards will lead to evaluation ambiguity, project complexity and difficulty in operation, and the inability to focus on key issues, which will affect the effectiveness of the activities (Ma, 2022). As an important subject, the interdisciplinary subject learning of sports and health has strong comprehensive and practical characteristics. It is difficult to form an inherent evaluation model. There is a phenomenon of single evaluation subject and object, traditional way, simple content, little effect and “far away from moral education, partial intelligence, weak body, suppression of beauty and lack of work”. The specific performance is that the evaluation subject is single, mainly by physical education teachers to evaluate students’ learning (Ji, 2020), ignoring the evaluation group evaluation suggestions such as students’ mutual evaluation, self-evaluation, multidisciplinary teacher evaluation and parents, as well as the performance, innovation and cooperation of students in the learning process. At the same time, due to the lack of comprehensive evaluation standards and requirements in oth-

er disciplines, it is difficult for physical education teachers to evaluate and focus on the key elements in the process of interdisciplinary thematic learning. From the perspective of evaluation content, physical education teachers mainly focus on students' sports skills and physical fitness evaluation, ignoring students' habits of healthy behavior, learning attitude, sports morality and learning progress. From the perspective of evaluation items, the evaluation items are too complicated. Some physical education teachers divide the students' projects in the interdisciplinary subject learning of physical education and health into more than 20 small items for evaluation, which leads to the content of the evaluation, is too detailed and complicated. From the perspective of evaluation methods, physical education teachers used to pay more attention to ultimate evaluation and evaluation based on teaching experience, and did not combine process evaluation with result evaluation, relative evaluation with absolute evaluation, and qualitative and quantitative evaluation well, thus affecting the effect of interdisciplinary subject learning of physical education and health.

4. Conclusion

The interdisciplinary theme learning of physical education and health can promote students' all-round development, teamwork, academic performance improvement, learning interest enhancement, self-confidence and adaptability, and change the teaching methods of physical education teachers. It is of great significance to promote the teaching reform of interdisciplinary theme learning of physical education and health.

In fact, things are contradictory, both interrelated and influenced by each other. The interdisciplinary subject learning of physical education and health is a comprehensive and complex problem. It cannot simply pile up subject knowledge at will, nor can it catch up with the times. It should be based on the core literacy, interdisciplinary purpose and significance to promote students' ability to enhance physical fitness, improve health and improve students' ability to solve real situation problems. However, the current traditional subject-specific courses have caused barriers between physical education and health disciplines and other disciplines, so that students lack a holistic understanding of objective things. The differentiation of subject knowledge makes it difficult to integrate the interdisciplinary knowledge of physical education and health, the inherent concepts and thinking of teachers are difficult to adapt to the changes of the new curriculum standard, the random patchwork of subject knowledge makes it difficult to integrate knowledge, and to realize the integration of interdisciplinary subject learning knowledge of physical education and health. The hybrid teaching of "bridging" ignores the problem of fuzzy evaluation caused by knowledge transfer and the lack of interdisciplinary standards of physical education and health, as well as the lack of students' ability to solve real-life problems, which restricts the achievement of students' core literacy. However, this does not mean the demise or replacement of traditional subject-based courses, nor does it mean

that these problems will not be resolved. Therefore, in order to complete this arduous task and solve these problems, it is necessary to continuously explore, study, reflect and improve in practice, so as to realize the deep integration of interdisciplinary knowledge and promote the landing and high-quality development of interdisciplinary subject learning of sports and health.

5. The Promotion Strategy of Interdisciplinary Subject Learning of Sports and Health

5.1. Constructing Three Breakthrough Points to Integrate Knowledge Related to Other Disciplines

The integration of disciplines is a development trend of basic education curriculum reform. Integrating other subject knowledge and educational resources in the interdisciplinary subject learning of physical education and health needs to build three breakthrough points of “breaking through subject curriculum, breaking through teaching materials and breaking through classroom” to provide useful paths for students’ development ability, comprehensive quality and core literacy. From the perspective of breakthrough subject curriculum, a comprehensive curriculum is constructed based on sports and health disciplines. Specifically, subject curriculum and comprehensive curriculum are related rather than opposite, and project-based learning is an effective way to promote subject curriculum to comprehensive curriculum. Project-based learning emphasizes the starting point of real problems and students’ participation in practice. By organizing teachers of different subject courses to give full play to their professional knowledge and ability to form a curriculum resource library to build a comprehensive project course in a real situation, teachers of different disciplines can help students to help each other, guide students to break through the learning thinking and learning methods of different subject courses, and let students deeply experience and participate in these comprehensive project courses closely related to real life and society. At the same time, interdisciplinary knowledge, skills and methods are comprehensively used to solve the problems in project courses, so as to promote the transformation of subject courses to comprehensive courses. Make the theme of interdisciplinary subject learning of sports and health more distinct and the learning content more abundant.

From the perspective of breakthrough textbooks, there is no special textbook for the interdisciplinary theme learning of physical education and health in the compulsory education stage, which requires relevant experts and scholars to compile textbooks according to different school ages. In the learning module of self-compiled textbooks, living textbooks should be presented. This kind of textbook is guided by life education, which is, based on students’ experience, life and society-centered textbook concept to construct interdisciplinary knowledge integration in the learning module of self-compiled textbooks, so that the content of textbooks is more interesting, vivid, vivid and situational.

From the perspective of breaking through the classroom, the theme situational

learning task strategy is constructed based on the real situation. According to the spatial distribution of the school, the environment, the regional and interdisciplinary knowledge, the students' knowledge and the characteristics of learning, the learning tasks in a certain situation are constructed, and the traditional classroom teaching mode of "one teacher, one classroom and traditional teaching" is broken. The classroom content is taught by an interdisciplinary teaching team composed of multidisciplinary teachers, so that the classroom presents a diversified way of teaching, students' independent inquiry and cooperation, so that interdisciplinary knowledge and educational resources are integrated into the physical education and health classroom, breaking through the simplification of the classroom. For example, let physical education teachers, history and geography teachers combine the "long march history", and build a learning task in the context of "reproducing the long march" around the walking, running, jumping, games and history and geography in the basic sports skills of level one. First of all, after selecting 10 famous locations, the teacher lets the students intuitively understand the story of the selected location through the cut video projection. Then, the teacher combines the school's teaching building, football field, basketball court, garden and other spaces to draw the marching route map according to the order of the 10 locations in the long march history, and places the selected locations in different time and space of the school, so that the students can carry out outdoor marching search according to the map drawn by the geography teacher. At the same time, the storyline of the specific event is set at each point, so that the students can cooperate to explore and perform the events in each location in the real situation by recalling the storyline of the video projection. It includes the explanation of historical figures, the rescue of the wounded, the transmission of information and so on to learn interdisciplinary knowledge. Finally, let the students draw the most impressive scene in this process, and vividly show the theme situation of "Reappearing the Long March". In order to change the traditional classroom teaching mode that combines fixed teaching space and narrow space with social space, and then integrate the deep integration of other subject knowledge, educational resources and interdisciplinary subject learning of sports and health.

5.2. Teachers Should Change Their Teaching Thinking and Methods to Improve Interdisciplinary Literacy

Any kind of teaching thinking is a cognitive concept formed under a specific historical background, which cannot avoid being attached to the imprint of different times, thus showing different forms and contents. The transformation of teaching thinking is the realistic need of basic teaching reform and the inherent requirement of promoting the development of students' core literacy. In the face of a new round of reform of physical education curriculum standards, physical education teachers have not been able to adapt to or change the traditional concept, such as the concept of doing a good job in technical courses. Based on this, it is particularly important for physical education teachers to change their teach-

ing thinking and methods to improve their cross-learning literacy. First of all, as a reformer and promoter of changing the teaching thinking of physical education and health disciplines, physical education teachers must break the traditional teaching thinking set to change the teaching thinking of physical education and health disciplines, constantly improve the sensitivity, comprehension and response ability of their own thinking, and abandon the traditional teaching ideas and teaching methods that are not conducive to the development of students, so as to further promote the transformation of traditional teaching thinking to improve interdisciplinary literacy.

Secondly, physical education teachers should pay attention to the cultivation of interdisciplinary knowledge and actively participate in the learning and training of teaching thinking. The transformation of teaching thinking is a long-term process, which needs to go through the process of “learning to know, learning to know, using to use to be able, doing to be far”. This requires physical education teachers to use the Internet and other ways to learn new interdisciplinary knowledge, teaching concepts and methods at home and abroad, and to explore the problems and solutions encountered in the process. At the same time, actively carry out teaching, practice, reflection and summary in teaching. On this basis, the school combines the knowledge of students and the reality of physical education teachers, and invites relevant experts or scholars to come to the school for theoretical training and teaching practice guidance, so as to improve the thinking and interdisciplinary literacy of physical education teachers. For example, relying on local universities, university professors are invited to enter primary and secondary schools to carry out lectures or training related to teaching thinking and interdisciplinary literacy, and physical education teachers are encouraged to go to universities to listen to relevant teaching activities related to interdisciplinary theme learning of sports and health to improve interdisciplinary literacy.

Finally, in order to solve real problems to stimulate the vitality of the school, physical education teachers and teachers of other disciplines to form an interdisciplinary teaching team for collaborative teaching. Team cooperation is an important channel to promote the exchange and learning between teachers of different disciplines, and also an important way to promote the development of physical education teachers' thinking and enhance interdisciplinary literacy. Specifically, team teachers focus on a certain theme learning activity in physical education and health disciplines and actively communicate, cooperate, and discuss with teachers in other disciplines in combination with students' knowledge and experience to create teaching activities in real situations, and in the teaching process. Teachers of other disciplines provide teaching aids to improve the thinking and interdisciplinary literacy of physical education teachers.

5.3. Adhering to the Dominant Position of the Subject and Enhancing the Internal Connection of Subject Knowledge

There are disciplines to have interdisciplinary; each discipline has its own unique value and knowledge system. In the interdisciplinary theme learning of

sports and health, the theme plays a leading and driving role (Liu, 2016). It is the “intermediary and bridge” of interdisciplinary subject learning of sports and health. It leads the whole discipline, is the pillar to realize the deep integration of interdisciplinary knowledge, and also contains the tasks to be completed in the learning process. However, at present, there is still a lack of subject status, deviation and lack of internal connection with other subject knowledge in this discipline. Based on this, in the teaching process of interdisciplinary subject learning of sports and health, we should highlight the main position of sports and health disciplines and enhance the internal relationship between subject knowledge. This needs to be based on the core literacy of sports morality, sports ability and health behavior in the discipline of physical education and health, integrate the content of physical education curriculum with the content knowledge of other disciplines, and let students understand, experience and feel the knowledge of physical education and health in different subject backgrounds and space-time environments to obtain new concepts of physical education and health. This requires physical education teachers to combine the school environment, equipment and students’ knowledge and characteristics to develop more themes or project activities that reflect the subject of physical education and health, so that students can actively explore the connection with other subject knowledge from different perspectives of physical education and health. For example, let physical education teachers, art teachers, labor and information technology teachers and other subject teachers design “protect the environment from my happy game” theme learning activities.

First of all, under the guidance of this theme, students are allowed to understand the ways of protecting the environment through multiple channels such as the Internet, and make posters to protect the environment, and then let students think about how to use the garbage or resources in life to make sports game equipment from environmental protection. In this sports situation, students will think of using abandoned mineral water bottles to make sign plates or put sand in them as sandbags, grenades, batons, etc., and use the made equipment as the equipment for throwing away and batons in the content of physical education courses. This can not only increase the students’ practical ability, labor concept, improve their sports ability and learn the knowledge of protecting the environment by classifying garbage and poster propaganda, but also strengthen the connection between teaching and production and life, so as to enhance the internal connection of subject knowledge.

5.4. Preventing Shallow and Mixed Teaching to Achieve Knowledge Transfer

The requirements of interdisciplinary thematic learning proposed in the physical education curriculum standards are in line with the social and international development trends. At the same time, relevant theoretical and practical research results are constantly emerging, but there are also interdisciplinary thematic learning forms such as hybridity and superficiality, ignoring the integration and

transfer of knowledge. It is particularly important and urgent to prevent such problems. First, as the main body of teaching, physical education teachers should take the interdisciplinary subject learning in the physical education curriculum standards as an example, and establish a clear interdisciplinary teaching goal by carefully studying, speculating and understanding the teaching design ideas and combining teaching experience, students' interests and cognition, innovation and situation. Under the guidance of physical education teachers, students can communicate, cooperate and explore, so as to integrate interdisciplinary knowledge to realize knowledge transfer.

Second, learn from the existing successful interdisciplinary theme cases, learn through the background, purpose, key and difficult points, existing problems, evaluation, feedback, etc., and design scientific interdisciplinary theme learning to avoid shallow and mixed teaching to help students achieve knowledge transfer. For example, in the theme learning of "Reappearing the Long March", combined with the heroic deeds of the revolutionary martyrs' Long March, the directional cross-country scene of military training is simulated in sports such as track and field, gymnastics and so on. The directional cross-country and check-in points in this theme activity are closely related to the knowledge of maps, scales and directions, and history disciplines in geography. In the implementation of teaching, different scenes of the school are designed to design long march historical battle points, turning points, long march stories and party history knowledge to make cross-country check-in points, and combine students knowledge and sports skills to integrate the knowledge of geography, history and sports and health disciplines, avoid hybrid teaching, and realize the construction and migration of students overall knowledge.

Finally, teachers should establish a solid knowledge structure system to avoid hybridity and shallow teaching, and promote students knowledge transfer. As Ausubel said, the more consolidated the original knowledge structure, the easier it is to promote new learning and migration and to prevent hybrid and superficial, "all-encompassing" teaching form. At the same time, a solid knowledge structure can also avoid subjective imagination teaching. This requires that the design of interdisciplinary subject learning course content should be based on core literacy, students' knowledge structure, life situation, school age and other subject knowledge structure, so that students can truly experience and feel interdisciplinary subject learning in the course content, and help students realize knowledge transfer.

5.5. Designing Scientific Evaluation Criteria to Help Interdisciplinary Learning Long-Term and Orderly Development

The evaluation standard of interdisciplinary thematic learning is not a collection of individual subject standards, but a mixture of practice and repeated consideration (Liu & Liu, 2012). The purpose is to provide feedback or reference for improvement. The evaluation of interdisciplinary subject learning of sports and

health belongs to the category of teaching evaluation, but there are still many disadvantages in the evaluation subject, evaluation project, evaluation method and evaluation content. Therefore, it is urgent to further improve its evaluation model. From the perspective of the subject of evaluation, the interdisciplinary thematic learning of physical education and health focuses on student-student cooperation and teacher-student interaction. As a guide, teachers should integrate summative evaluation and process evaluation into students' self-evaluation and mutual evaluation, and even parents and class teachers to evaluate students, breaking through the single evaluation centered on teachers.

From the perspective of evaluation projects, physical education teachers evaluate students through learning objectives on the level and level of students' performance in projects or themes. For example, in the theme activity of "Protecting the Environment from the Happy Game I Started," some students showed the superb art of drawing environmental posters, and some students showed the phenomenon of skilled craftsmen making equipment. This requires physical education teachers to evaluate students by recording and summarizing students application and performance of knowledge in interdisciplinary subject learning in the process of project or subject learning, and feedback this evaluation to other subjects, including teachers and students of other subjects, so as to realize the relevance and diversity of evaluation.

From the perspective of evaluation methods, teachers combine students performance behavior with objective and subjective evaluation, process and result evaluation, quantitative evaluation and qualitative evaluation, and other multi-dimensional evaluations to improve the fairness of evaluation. From the perspective of evaluation content, we should not only evaluate the understanding, application and interpretation of students' subject knowledge, but also integrate the indicators of process and result in the process, including the evaluation of students' innovation, responsibility, division of labor and cooperation, solidarity and so on in the learning process. Through the above measures, we can optimize the evaluation management of interdisciplinary subject learning of sports and health, so as to promote its in-depth and long-term development and reverse the unscientific evaluation situation.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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