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Analysis of "Teaching" and "Learning" in Interdisciplinary Learning

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Abstract: After the release of the new curriculum plan, interdisciplinary learning has emerged as a pivotal aspect of curriculum reform in compulsory education. This shift has necessitated a corresponding reform in the teaching and learning methods of fundamental education courses. The implementation of interdisciplinary learning has consequently become a pressing challenge in educational practice. To successfully execute interdisciplinary learning, several key preparations are imperative. Firstly, educators must recognize the significance of interdisciplinary teaching. Secondly, they should clearly understand that the essence of interdisciplinary learning lies in the enhancement of students' core qualities. Thirdly, teachers need to prioritize their professional development, cultivating a robust understanding of interdisciplinary knowledge and bolstering their proficiency in interdisciplinary teaching. Lastly, students themselves must foster a diverse range of interests, cultivate high-level thinking abilities, and develop effective learning habits across multiple fields.

Keywords: Interdisciplinary learning; Teacher; Student

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1. Introduction

In April 2022, the Ministry of Education of the People's Republic of China (PRC) held a press conference to announce the Compulsory Education Curriculum Plan (2022 edition) and the curriculum standards for 16 subjects. The new iteration of the compulsory education curriculum program introduces the interdisciplinary theme of teaching as a crucial educational method. This approach emphasizes the need to strengthen the horizontal connections between disciplines, thereby enhancing the comprehensiveness and practicality of students' learning. Plan 2022 specifically advocates that "no less than 10% of class hours should be dedicated to designing interdisciplinary theme learning activities for each subject" [1]. This directive marks a significant step in exploring a new mode of interdisciplinary cultivation in compulsory education in China. Recently, the effective implementation of interdisciplinary learning has become a focal point in educational research, reflecting the growing interest and importance placed on this topic within the teaching community.

2. Research

2.1. Promoting interdisciplinary learning as an inevitable choice for curriculum reform

2.1.1. Interdisciplinary education as a global educational trend

Since the 21st century, the continuous evolution of social economy, science and technology, and culture has introduced transformative changes into people's lives, studies, and workstyles. Divergent values collide, and the growth environment for children and adolescents undergoes profound changes. These shifts impact education, presenting new challenges in talent development. Concurrently, ongoing advancements in subject research contribute to the changing physical and mental development of students, reflecting distinct contemporary characteristics. In the current global landscape, the uncertainty of reality and the future necessitates interdisciplinary talents and thinking methods to address comprehensive and complex problems.

As innovative social economies develop and the demand for consciousness and abilities of industrial talents evolves, the cultivation of interdisciplinary innovative talents garners increasing attention globally. Strengthening student's abilities in problem-solving, cooperative learning, innovation, and critical thinking is an international consensus in education development. Interdisciplinary teaching stands out as a crucial avenue to realize the training of innovative talents.

2.1.2. Interdisciplinary subject learning: a new measure in compulsory education curriculum reform

In the past decade, profound changes have unfolded in China's economy and society. The Party and the state have prioritized education, convening a national education conference to drive comprehensive reform, deepen education evaluation, and fortify teaching material construction. The education pattern has experienced significant shifts, focusing on the foundational task of "cultivating people by virtue." This has led to the promotion of reform and innovation in the education system, resulting in a more diversified, open, innovative, and equitable education system.

The new era underscores innovative education, urging schools to adopt flexible education models, nurture students' innovative and practical abilities, and steer education reform toward a more comprehensive, practical, and targeted direction. The removal of boundaries in knowledge transcends subject barriers, representing an inevitable trend in subject curriculum reform within the context of core literacy [2].

2.2. The essence of interdisciplinary learning

The academic community holds diverse perspectives on the connotation of interdisciplinary learning. According to Professor Zhang, interdisciplinary learning involves integrating two or more disciplines within the curriculum and teaching orientation to address real problems and cultivate interdisciplinary understanding [3]. Wan posits that interdisciplinary learning revolves around "taking subject learning as the foothold, promoting specific problems, and utilizing two or more subject knowledge or discipline methods. Its purpose is to deepen and expand learners' understanding of subject knowledge and discipline methods, facilitating the development of higher-order thinking skills" [4].

Interdisciplinary learning, considered an educational method or learning approach, fundamentally involves the integration of knowledge, concepts, methods, and skills from diverse subject areas to address complex problems or explore intricate topics. This method typically centers on solving practical problems, accentuating the transfer of knowledge, aiding students in learning across various situations, and enhancing the practicability of acquired knowledge. Its goal is to impart more practical significance to students' learning experiences, bridging the gaps between disciplines, addressing the shortcomings of subject-specific teaching, and fostering

all-round development and core literacy among students.

3. Discussion

3.1. Teacher preparation in interdisciplinary teaching

Teachers play a pivotal role in curriculum implementation, significantly influencing the ultimate goals of education. Put simply, the realization of students' interdisciplinary learning hinges on the effectiveness of teachers' interdisciplinary teaching efforts [5]. The ongoing educational reform necessitates a shift in the role of teachers, demanding a reevaluation of educational philosophies and the integration of comprehensive and interdisciplinary educational objectives into their practices.

3.1.1. Enriching teachers' interdisciplinary knowledge

Traditional subject teaching has historically focused on the explicit transmission of subject knowledge and skills, prioritizing the depth and logic of subject-specific information. While teachers are traditionally seen as the possessors and conveyors of subject knowledge, interdisciplinary learning requires a broader perspective. It involves the integration and synthesis of multidisciplinary knowledge, establishing connections between disciplines, and exploring the depth of interdisciplinary learning. Consequently, teachers must evolve from being solely subject experts to having a reservoir of multidisciplinary knowledge. They should augment their understanding of other disciplines, grasping the basic principles, content, core concepts, and methods of diverse subjects to seamlessly integrate them into their teaching.

3.1.2. Improving teachers' awareness of interdisciplinary teaching

In the new era, interdisciplinary learning emerges as a crucial avenue for educators to reshape educational practices. Teachers need to consciously recognize the significance of interdisciplinary teaching as a means to fill the creativity gap inherent in traditional subject teaching. This approach empowers students to alter problem-solving methods and thought processes through interdisciplinary learning, ultimately enhancing their core literacy. To achieve this, teachers should actively engage in interdisciplinary education research, deepen their understanding of interdisciplinary teaching, and contribute valuable insights to their educational practices.

3.1.3. Enhancing teachers' interdisciplinary teaching and action abilities

Effective implementation of interdisciplinary learning requires an enhancement of teachers' interdisciplinary teaching action ability. Teachers should proactively participate in seminars and training sessions focused on interdisciplinary teaching, fostering communication with other experts and educators. Sharing personal teaching experience and learning about interdisciplinary teaching practice are essential components of this process. To overcome the fear of challenges, teachers should apply acquired knowledge. Following the guidelines of the interdisciplinary learning task group in the curriculum standards, teachers should design classroom teaching based on students' learning, utilizing teaching materials to continuously explore new ideas, models, and practices in interdisciplinary teaching. Reflection on teaching practices, continuous evaluation of teaching effectiveness, and a commitment to identifying opportunities for improvement are crucial steps toward enhancing the impact of interdisciplinary teaching.

In this dynamic era, it is crucial for teachers to continually elevate their awareness and ability to engage in interdisciplinary teaching. Only through constant self-improvement can teachers effectively adapt to the requirements of interdisciplinary curricula, accumulate interdisciplinary teaching experience, and enhance problem-solving skills and flexibility.

3.2. Student preparation in interdisciplinary study

The purpose of interdisciplinary study is to guide students in expanding their study field by bridging the inside and outside of the classroom and school. This involves conducting combing, inquiry, and communication, ultimately enhancing their knowledge and skills through the application of multidisciplinary knowledge to discover, analyze, and solve problems. In the cross-integration learning of multiple disciplines, students establish both vertical and horizontal connections and integrations between the knowledge and abilities of various disciplines. This process initially cultivates cross-border abilities, integration abilities, and problem-solving skills, contributing to the overall development of students' core literacy.

3.2.1. Developing interests in different fields

In real social life, the boundaries between disciplines are often blurred, and multiple disciplines intertwine and influence each other. Students need to cultivate an interest in different fields in their lives, demonstrating a willingness to understand and explore knowledge from various subjects. This not only aids in accumulating knowledge across multiple fields and broadening their subject breadth but also facilitates the connection of knowledge in different disciplines. Developing interests in diverse fields makes it easier for students to adapt to interdisciplinary learning, enabling them to seamlessly combine their knowledge and skills to solve complex problems.

3.2.2. Developing advanced thinking abilities

Advanced thinking ability is crucial for facing challenges, solving problems, and achieving success. Higher-order thinking skills, including analysis, synthesis, evaluation, and creation, empower students to better cope with complex problems and challenges. These skills enable a deeper understanding of the nature of the problem, leading to more effective solutions. Higher-order thinking skills encourage critical analysis of information, allowing students to identify credibility and reliability for informed decision-making. Moreover, they foster the generation of novel ideas and solutions, promoting innovation and creativity. These skills help students transcend disciplinary boundaries, integrate knowledge from different fields, and engage in interdisciplinary learning to gain a more comprehensive understanding of the world.

3.2.3. Developing autonomy, cooperation, and inquiry learning habits

Active student participation in learning involves the independent selection of learning goals and plans based on their interests and needs, choosing materials and methods independently. This fosters autonomy, learning motivation, and personalized learning, as well as the development of lifelong learning habits. Team ability is vital in both professional and social life. Cooperative learning enhances students' social skills, teaching them how to collaborate in practical applications, with interaction and competition stimulating motivation. Inquiry learning encourages active exploration across disciplines, facilitating the integration of knowledge and the handling of complex problems to adapt to interdisciplinary learning. These skills develop students' independence, teamwork, and inquiry abilities, enabling them to better navigate the changing world.

In interdisciplinary teaching, emphasis is placed on cooperation, interaction, and knowledge co-construction between teachers and students. The teaching goal is to cultivate students' interdisciplinary thinking ability, enabling them to cross disciplinary boundaries and integrate knowledge from different fields to solve complex problems. The role of a teacher is to stimulate students' desire to explore and unleash their creativity. Students can transform their learning styles by posing new questions, discovering connections between knowledge, and solving practical problems.

4. Conclusion

In contrast to subject-specific teaching, interdisciplinary teaching transcends the constraints of single-subject instruction. It not only breaks down the limitations inherent in a singular-subject approach but also strengthens the connection between subjects. This makes it a pivotal method for cultivating students' comprehensive abilities and core literacy. The quality and effectiveness of interdisciplinary teaching are heavily contingent on teacher's awareness of interdisciplinary teaching and their ability to execute it efficiently.

For successful interdisciplinary learning, students must foster a diverse range of interests and hobbies. They should actively utilize various learning resources, integrating knowledge and methods from different disciplines. Acquiring the ability to analyze and solve complex problems is paramount to enhancing the effectiveness of interdisciplinary learning. In essence, interdisciplinary teaching and learning serve as indispensable components in the holistic development of students, preparing them to navigate the complexities of the contemporary educational landscape.

Disclosure statement

The author declares no conflict of interest.

References

[1] Ministry of Education of the PRC, 2022, Compulsory Education Curriculum Plan 2022 Edition, Beijing Normal University Press, Beijing.

[2] Zhou S, 2022, The Logic Approach and Teaching Practice of Interdisciplinary Subject Learning. Basic Education Course, 2022(22): 4–11.

[3] Zhang H, 2018, Understanding the Standard of Interdisciplinary Learning. Basic Education Course, 2018(22): 7–13.

[4] Wan K, Rao A, 2023, Research on the Design of Learning Environment to Promote Interdisciplinary Learning. Education Research Monthly, 2023(3): 91–99.

[5] Li C, Liang S, 2023, Construction of Interdisciplinary Teaching Competency Model for Primary and Secondary School Teachers. Contemporary Teacher Education, 2023(2): 23–31.