

A Study of Interdisciplinary Assignment Design in Elementary Schools Pointing to Core Literacy

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Abstract: *The Compulsory Education Curriculum Program (2022 Edition) clearly states that it is necessary to focus on students' core literacy, and interdisciplinary homework is an important teaching practice, which can promote the cultivation of students' core literacy as well as the implementation of the "double-decrease" burden reduction and efficiency. However, the research found that in practice there are interdisciplinary homework goal deviation, difficult to choose the content, the form of a single and biased evaluation and other dilemmas, in order to better cultivate students' core literacy, we should grasp the goal of pointing to the core literacy, mastering the key points of content choice, enriching the form of homework and pay attention to the authenticity of the evaluation of the design, to give full play to the comprehensive function of cross-disciplinary homework nurturing, and to help realize the fundamental task of education to build morality and respect for the people. The purpose is to help realize the fundamental mission of education to build morality and nurture people.*

Keywords: *core literacy; elementary school; interdisciplinary assignments*

1. Introduction

How to cultivate people who can face the unpredictable reality of life and future development in the 21st century is a new topic for the development of the times. China constructed a general framework for the core literacy of Chinese students' development in 2016, and how to cultivate the core literacy of students has become a hot topic. In April 2022, China issued the Compulsory Education Curriculum Program (2022 Edition), which emphasizes that education should focus on the core literacy of students and cultivate people with all-round development. In order to achieve this goal, the Program also specifically points out that interdisciplinary teaching should be carried out, and each discipline should guarantee at least 10% of the class time for designing interdisciplinary thematic learning, promoting the synthesis of the curriculum, orienting teaching to the real life of students, and realizing the synergistic value of the curriculum for educating people.^[1] Interdisciplinary teaching has become an important way to enhance students' core literacy. In the traditional context of subject-specific teaching, the design and implementation of homework is mainly based on the knowledge structure of the discipline, focusing on the cultivation of students' disciplinary literacy, and increasingly digging deeper into the homework in the discipline is difficult to respond to the needs of students to adapt to and transform the complexity of the real world, and is prone to become a "false homework". Therefore, the development of the times calls for interdisciplinary assignments, and it is an important topic of both theoretical and practical value to grasp the fundamental purpose of core literacy, explore the practical path of feeding interdisciplinary teaching through interdisciplinary assignments, and cultivate students' core literacy that organically integrates disciplinary literacy and interdisciplinary literacy.

2. Analysis of the connotation of interdisciplinary work

Homework is an important part of teachers' teaching, and in core literacy-oriented quality education, interdisciplinary homework should be a powerful complement to subject-specific homework. Interdisciplinary assignments take into account "interdisciplinarity" and "thematic integration", requiring students to be able to integrate information, materials, techniques, tools, ideas, concepts and theories from different disciplines, with a focus on creating products, explaining phenomena or solving problems.^[2] The predecessor of interdisciplinary homework is integrated homework. Compared with integrated homework, interdisciplinary homework emphasizes breaking down barriers between disciplines, designing and creating a realistic homework situation related to students' real life around a

certain theme, organically integrating multidisciplinary knowledge, cultivating students' ability to synthesize multidisciplinary knowledge to solve real problems during the process of completing the homework, and giving full play to the multidisciplinary collaborative nurturing function to cultivate the core literacy of students. Therefore, interdisciplinary homework is an important medium for pointing to core literacy and jointly cultivating disciplinary literacy and interdisciplinary literacy.

3. The State of the Art of Interdisciplinary Assignment Design Practice

Since the Compulsory Education Curriculum Program and Curriculum Standards (2022 Edition) explicitly proposed the implementation of interdisciplinary thematic learning recommendations, many schools have been invested in the design and implementation of interdisciplinary teaching, however, through the investigation of four elementary school in Guangxi's G City and B City, it was found that in practice many teachers, due to the fixed concepts, the lack of targeted training and guidance, the lack of interdisciplinary literacy and difficulties in grasping the students' Individual differences and other reasons, they are caught in the predicament of interdisciplinary homework design.

3.1. Interdisciplinary Assignment Goal Deviation

According to Bloom's theory of classification of educational objectives, there are six levels of cognitive domains, namely, memorization, comprehension, application, analysis, evaluation, and creativity, which are progressive and depict the ladder-like pattern of students' cognitive dynamics deepening.^[3] These six levels of hierarchical progression depict a stepwise pattern of students' cognitive dynamics. Although the state is now vigorously promoting the transition from test-oriented education to quality education and is committed to cultivating core literacy, it was found in the research that some teachers still have a tendency to "emphasize wisdom" when designing interdisciplinary assignments, and there is still an obvious gap between this and the implementation of quality education. Specifically, although the assignments are designed in an interdisciplinary form, the ultimate goal is still to memorize and recapture knowledge and apply it at a lower level, so students are still at a superficial level of learning and cognition when completing such assignments, and it is difficult to reach higher-order goals such as deep analysis and application of creativity, which can't better promote the cultivation and development of the students' core literacy skills, and it deviates from the original intention and goal of interdisciplinary assignment design. This is a deviation from the original intention and goal of interdisciplinary assignment design, and it is urgent to adjust and correct the goal.

3.2. Difficulty in choosing content for interdisciplinary assignments

The survey found that more teachers expressed difficulties in choosing the content of interdisciplinary assignments, and also had difficulty in grasping the "span" of interdisciplinary assignments. An important characteristic of interdisciplinary work is that it is committed to exploring the organic integration and innovative growth points of knowledge between disciplines, adopting an integrative logic, and becoming a vehicle for students to engage in interdisciplinary learning. However, this is a difficult choice for teachers who are accustomed to the logic of subject-specific teaching. In the logic of subdisciplinary work, the design of homework focuses on the mastery of knowledge in the discipline and the cultivation of disciplinary thinking and other disciplinary literacy, and the main content involved is the area in which the teacher is proficient, so he or she is able to choose the content of subdisciplinary homework in a professional state. However, in the face of the new demand for interdisciplinary homework that involves the integration of multidisciplinary content, the teacher is puzzled by the choice of how to select the content to become raw material for interdisciplinary homework, and his or her state turns to discouragement. Teachers are discouraged, and it is difficult for them to grasp the degree of "interdisciplinarity". In the absence of targeted and coachable professional training, teachers fail to develop leadership in interdisciplinary work design, and in some cases become faithful implementers of the ideas of others, rather than choosing content that is appropriate for their own students in the context of their own students' realities. However, the most important concept of interdisciplinary learning is to link students' real lives and provide real-life contexts for students to acquire comprehensive knowledge and skills to solve problems, so teachers fail to use this interdisciplinary assignment design criterion, and it is difficult to meet the learning needs of students' comprehensive development.

3.3. Single form of interdisciplinary assignment

In the four schools interviewed, the design of interdisciplinary assignments in some schools has not yet been able to become a point of innovative reform of school assignments. There is a lack of an innovative atmosphere for the design of interdisciplinary assignments, and there are limitations in the forms of interdisciplinary assignments, with interdisciplinary assignments mainly designed in a discipline-centered form, failing to design poorly structured assignments in accordance with the realities, making it difficult to truly achieve the higher-order goal of synthesizing interdisciplinary assignments. In addition, on the issue of the degree of cooperation in completing the assignments, teachers are inclined to design individual assignments, such as the language teacher assigns students to complete the drawing of the mind map of the ancient poems of the language in an individual form, the teacher does take into account the degree of difficulty in completing the assignments to design the assignments, but this tendency neglects the cultivation of students' cooperative spirit and ability. In the structure of core literacy, social participation is an important literacy for students to become social beings and adapt to social development. In the real society, individuals do not exist independently in the society, and there are complicated relationships among people, and examples of cooperation to solve problems abound. Therefore, in school education, it is necessary to harmonize the proportion of cooperative work and individual work, and to abandon single-mindedness.

3.4. Biased evaluation of interdisciplinary assignments

Evaluation has always been a major difficulty in curriculum teaching, and with the emergence of interdisciplinary assignments, how to evaluate interdisciplinary assignments has become a new difficulty that confuses teachers. At present, the practice of many teachers is to carry out evaluation on the basis of designing stratified assignments, and this kind of evaluation takes into account the individual differences of students, which should be said to be welcome. However, in terms of form, teachers have paid attention to the situation of students at different learning levels, and evaluated students at different learning levels using stratified assignments as a carrier, but they have failed to grasp the key to the evaluation of cross-disciplinary assignments in terms of the evaluation criteria, i.e., authenticity, and have still evaluated them in terms of the traditional thinking of subject-specific evaluation. However, in terms of evaluation criteria, they failed to grasp the key of interdisciplinary work evaluation, i.e. authenticity, and still evaluated the work with the traditional thinking of subject-specific evaluation, which echoes the deviation from the goal mentioned in the previous section. In other words, the quality of students' work and their process performance are not judged from the perspective of authenticity. As a result, teachers are biased in evaluating students' interdisciplinary assignments, failing to accurately grasp students' process learning, and finding it difficult to provide targeted and optimized feedback, which not only greatly reduces the effectiveness of students' interdisciplinary learning and the cultivation of core literacy, but also makes it difficult for teachers to obtain the necessary feedback information to improve their own teaching.

4. Essentials of Interdisciplinary Assignment Design in Elementary Schools in the Context of Core Literacy

4.1. Assignments targeting core literacy

The core of the core literacy is the all-round development of human beings, which is divided into three aspects, namely cultural foundation, independent development and social participation, and is comprehensively manifested in six major literacies, namely, humanistic background, scientific spirit, learning to learn, healthy life, responsibility, practice and innovation.^[4] Interdisciplinary assignments focus on the organic integration of knowledge from different disciplines to cultivate students' comprehensive quality and solve problems in real-life situations, which is consistent with the concept of core literacy. Therefore, interdisciplinary teaching and its assignments are an important way to cultivate core literacy, and therefore, when designing interdisciplinary assignments, the objectives should be aimed at the development of students' core literacy, reflecting the goal of fostering the all-rounded development of human beings, and progressively promoting the cultivation of higher-order competencies in students. Therefore, when designing interdisciplinary assignments, they should aim at developing students' core literacy, reflecting the goal of fostering a well-rounded person, and progressively promoting students' cultivation of higher-order abilities, which is the proper meaning of interdisciplinary assignments, and realizing the goal of fostering and improving core literacy through

interdisciplinary teaching and assignment design. Specifically, when designing interdisciplinary assignments, teachers should, first of all, according to the details of the core literacy and the specific learning situation of students, instead of focusing on the cultivation of students' test-taking ability and skills, jump out of the thinking predicament of test-taking education, think about the learning effects that can and should be obtained by the students through the interdisciplinary assignments, and unify the design of interdisciplinary assignments with the goal of pointing to the cultivation of the core literacy, so as to make interdisciplinary assignments become an important driving force for the cultivation of students' core literacy. Let interdisciplinary assignments become an important push force for the cultivation of students' core literacy.

4.2. Selection points for mastering the content of the assignment

Sub-specialty assignments are mainly tested for the achievement of the objectives of the subject teaching, subject knowledge has three basic features: systematic, internal logic and clear boundaries.^[5] Based on these characteristics, the increasingly sophisticated excavation of subject knowledge makes it easy for assignments to stray from the complex reality, leading to the formation of "false assignments" that are not conducive to students solving real problems. Under the direction of core literacy, education must be oriented to the real world, cultivate students' comprehensive abilities and literacy, and prepare them for entering and adapting to the real and complex society in the future. The focus of interdisciplinary work is "interdisciplinary", and "interdisciplinary" lies in the integrated presentation of knowledge between different disciplines, and it is real work designed based on real life. Therefore, the important guideline for teachers to choose the content to grasp the degree of "cross" is to consider the developmental demands of students and the characteristics of interdisciplinarity, seize the two design points of core literacy and close to students' real life to choose the content, grasp the intrinsic connections and intersections between disciplines on the basis of the original in-depth knowledge, link the knowledge of different disciplines, horizontally expand and integrate the knowledge domains, and horizontally expand and integrate the knowledge domains of different disciplines. Horizontal expansion and integration of knowledge domains, the formation of close to the actual life of the moderately complex homework situation, exercise and enhance the ability of students to comprehensively call on the knowledge of different disciplines to form an integrated logic of thinking to solve problems, and thus cultivate the core literacy of students.

4.3. Enrichment of diversified forms of work

Interdisciplinary assignments cultivate students' core literacy rather than simply "test-taking," so there are a variety of forms of interdisciplinary assignments to consider, as follows. From the carrier form of homework, it can be divided into two forms: written homework and practical homework. Firstly, teachers should improve the commonly used written homework in traditional homework forms, reduce the content of homework that is simply repeated, abandon the tactics of "asking questions", pay attention to integrating the knowledge of different disciplines, and encourage thinking and solving problems from multiple perspectives; Secondly, teachers should design practical assignments that are oriented to ill-structured problems, expand thinking and exercise hands-on ability. These practical assignments, such as comprehensive inquiry assignments and social practice assignments, should focus on the complex reality and create a problem situation close to real life by connecting with knowledge in different disciplines, so as to enable students to comprehensively use their existing experience and knowledge in many disciplines to solve real problems to the greatest extent. From the point of view of the object of homework completion, there are two forms of individual homework and group homework. Firstly, personalized hierarchical homework, which integrates the differences between students' personalities and comprehensive learning conditions, designs hierarchical homework in line with their level to meet the promotion needs of students at different levels. This targeted and selective interdisciplinary homework can mobilize and stimulate students' enthusiasm for comprehensively applying what they have learned to solve problems; Secondly, group cooperative homework, the form of group cooperation has unique advantages in completing interdisciplinary homework. Gardner's theory of multiple intelligences holds that "the basic nature of the ability that individuals need to solve their real problems or produce and create effective products' is diverse-not a kind of ability, but a group of abilities, and its basic structure is also diverse-various abilities exist not in an integrated form but in a relatively independent form".^[6] Each individual's form of intellectual combination is multiple, and the diverse forms of intellectual combination of group members are more conducive to solving problems together from different perspectives.

4.4. Assignment evaluation focuses on authentic attributes

Discussions on the definition of authentic assessment began in the 1980s, but there is still no consensus on the definition of authentic assessment.^[7] The definition of authentic assessment used in this study is Archbald and Newmann's definition of authentic academic achievement, which suggests that authentic assessment should include three characteristics: (1) the ability to create knowledge; (2) the ability to engage in rigorous inquiry; and (3) the value of the assessed activity or academic achievement beyond the assessment itself.^[8] And at the heart of this authenticity is the ability of students to integrate many aspects of their existing knowledge, skills, attitudes, and individual dispositions and to apply them to meaningful new problem situations.^[9] Education attributed to core literacy is education that is oriented and adapted to the real world. Interdisciplinary assignments in this orientation focus on reality and provoke students to think about solving real problems through ill-structured problems. Its assessment should focus on authenticity, i.e., its significance to reality, and therefore students' interdisciplinary assignments should be assessed for authenticity based on the core literacy. In authenticity assessment, students' self-assessment and mutual assessment as well as social assessment are particularly important, and are equal to or even more important than teachers' assessment. Firstly, it is the evaluation from students, after completing the interdisciplinary work for the real world, students should evaluate and reflect on their own and others' achievements based on the actual situation, so that students can be in the situation of judging and evaluating the phenomena and choices that they may face in the future life, and improve their judgmental and discursive abilities by being in the real and complicated real situation. Secondly, it is the evaluation from the society. In the context of authentic evaluation, the society as a subject has a significant voice. Interdisciplinary assignments play the role of modeling the diverse and heterogeneous realities that individuals may encounter after integrating into society, and society is qualified and necessary to respond to this judgment. Therefore, teachers need to synthesize multiple subjects and provide students with a feedback platform to grasp the effectiveness of their own authentic learning.

5. Conclusion

Interdisciplinary assignments pointing to core literacy are an important way to promote the deepening reform of curriculum teaching and learning, thus breaking through the predicament of interdisciplinary assignment design and empowering frontline teachers to optimize interdisciplinary assignment design can promote the realization of the nurturing value of quality education and the implementation of the fundamental task of establishing morality and educating people.

Acknowledgements

2022 Guangxi Normal University Graduate Education Innovation Program Project "Research on the Burden Response and Adjustment Path of Primary School Teachers in the Context of 'Double Reduction' Policy" (JYCX2022016)

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