

From Small Activities to Big Life: The Dilemma and Implementation Path to Discipline Integration in Middle Schools Pointing to Qualities

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ABSTRACT

The cross-integration of middle school disciplines is the current trend and the need of education, but it is faced with difficulties in practice. The article mainly adopts the observation method and literature research method, analyzes the dilemma with three aspects, and put forward the progressive four-step implementation path. Respectively, schools and teachers can set up teaching objectives pointing to the core qualities of disciplines firstly, organize teaching materials to carry out small interdisciplinary activities in class secondly, then integrate teachers to launch big project-based learning and interdisciplinary activities, finally create comprehensive curriculum pointing to comprehensive qualities.

1. Introduction

In 2016, *Core Competencies and Values for Chinese Students' Development* was released, whose core qualities are actually beyond traditional disciplines. In 2019, *China Education Modernization 2035* was issued, which describes the vision of shifting from the core qualities of a single discipline to paying more attention to the whole education. cross-integration of disciplines is such a kind of developing trend and idealization results: it upholds the humanistic teaching concept, with different levels of interdisciplinary learning as the action carrier, breaks the boundary of of the knowledge and thinking in traditional disciplines, creates a real learning field that is in line with the laws and needs of people's physical and mental development and promotes people's continuous, comprehensive and stable promotion

of comprehensive qualities. The cross-integration of middle schools refers to the reform process and goal starting from the current situation of ordinary middle school education.

Based on this background and concept, the author tries to explore the feasible path of cross-integration of middle schools, change small class activities to real life, make learning happen at any time, naturally and effectively, to deliver more high-quality talents for higher education and the future society.

2. The Present Dilemma

2.1 The Discussion of Subject-oriented Education is still Controversial

Today, social problems are becoming more and more complex, subject knowledge is extremely rich, and community construction is strongly called for, the demand for

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talents in the future will change. Traditional disciplines focus on the memory of knowledge, and the training of knowledge, ability and thinking is outdated and rigid. The discipline based thought rooted in this mode has become an important resistance to interdisciplinary integration. In view of this, more than ten years ago, referring to the articles published in American educational journals, some researchers thought that educational research should change from “discipline based” to “problem-based”^[1]. With the release of the new curriculum standard and core qualities in recent years, some researchers have compared the new curriculum standard with the old one, and think that it should develop from “discipline-oriented” to “human-oriented”^[2], or to “whole person”^[3], etc., but some researchers are still calling for “returning to subject standard”^[4]. We can see the diversity and disunity of opinions.

2.2 The Development of Discipline Structure is Slower than its Content Expansion

Twenty years ago, China’s new curriculum reform was launched and quality education was implemented. The document requires “changing the current situation of curriculum structure, which overemphasizes subject orientation, too many subjects and lacks integration, setting up a nine-year consistent curriculum category and class hour ratio, and setting up comprehensive courses to meet the needs of different regions and students’ development, and reflecting the balance, comprehensiveness and selectivity of curriculum structure.”, “The primary school stage is mainly based on comprehensive curriculum, and the junior high school stage is mainly based on the combination of subjects and comprehensive curriculum.”^[5] Professor Zhang Tingkai of the Institute of curriculum and teaching materials pointed out clearly that “the curriculum design of compulsory education should eventually move towards the integration of curriculum system and structure.”^[6] Looking at the reality, the generation of high-quality interdisciplinary talents needed by the society depends on the high-quality interdisciplinary training in schools, but this integration has not yet been realized, and in the middle school stage with the greatest academic pressure, the resistance is the biggest.

2.3 The Cross-integration of Middle School Disciplines Lack Motivation

Primary school students have strong plasticity and more spare time. The successful cases like “Chinese+” cross-border learning in primary school affiliated to Rugao Normal School in Jiangsu Province reveal the feasibility of the reform. However, the interdisciplinary integration of middle school still stays at the level of theory and con-

sciousness, showing an ambiguous attitude of trial, wait-and-see or refusal, and its implementation is full of fog. At present, the evaluation criteria generally accepted by the society for schools and schools for teachers are mainly academic performance in traditional disciplines, especially in undeveloped areas in economy. Local governments and middle schools are lack of appropriate cases as comparison, feasible path as reference, professional teachers and corresponding incentive policies, and lack of understanding of its significance. Middle school students are facing the huge pressure of high school/college entrance examination, and the cost of trial and error is high in front of the watershed of life. All kinds of reality bring the front-line reform lack of motivation and confused action.

3. The Implementation Path

3.1 Set up Teaching Objectives Pointing to the Core Qualities of Disciplines

Based on the above situation, schools and teachers can set up teaching goals that pointing to and integrating core qualities of disciplines according to the actual situation. According to the classic “Taylor Principle”, among the four basic problems in compiling curriculum and teaching plan, the determination of educational goals is in the first place. Therefore, improving teaching objectives can be the first step to promote the reform of practice. It is necessary to set up comprehensive learning goals in traditional courses, which not only refer to the integration of different levels of teaching goals within disciplines, but also refer to the integration of goals that can be achieved by cooperation among different disciplines.

For example, core qualities of Chinese in high school include language construction and use, thinking development and promotion, aesthetic appreciation and creation, and cultural inheritance and understanding. Chinese class covers the study of the mother tongue, reading and writing. In a high school Chinese class, the teacher explained the poem *To A Skylark*, written by Percy Bysshe Shelley, in the state-compiled textbook. Two different teaching objectives are designed and represented in Table 1:

It can be seen that the first teaching objective on the left side of the above table can be divided into three points as shown on the right side, but the level is vague and lacks the progressive relationship of operability, and is limited to the text analysis focusing on the knowledge level, which pays less attention to the students’ comprehensive ability and personalized thinking. The teaching objectives on the right side are divided into three levels: knowledge, ability and thinking. Starting from the most basic recitation, it gradually goes deep into the text, analyzes the

techniques, and then combines reading and writing. At the same time, it uses the activity of “reciting to students” to exercise students’ ability of practical use of language. In this process, it improves the understanding of emotion, achieves recognition, and achieves the education of values and quality. In fact, such a design takes into account the above four core qualities of Chinese subjects. Only in this way can each class point to unique core qualities, establish discipline self-confidence, create equal opportunities for dialogue among different disciplines, and lay the foundation for the realization of interdisciplinary integration beyond the state of discipline dependence.

Table 1. Two Different Teaching Objectives of *To A Skylark*

Design 1	Design 2
1. Grasp the symbolic significance of the skylark and understand the poet’s yearning for light and his pursuit of ideals.	1. Knowledge: Know the author, read poetry with emotion, and understand the meaning of poetry, especially the skylark image in poetry.
2. Analyzes the expression effect of metaphor and contrast, understand the connotation of the romantic expression method used in this poem.	2. Ability: Discover, analyze, use poetry metaphor, other rhetorical techniques, romantic expression techniques and interlocking structural arrangement. Imitate this poem and recite it to classmates.
3. Understands the characteristics of this poem in transition and interlocking.	3. Thinking: Understand and agree with the author’s yearning for light and the pursuit of ideal expressed by the author through this poem.

3.2 Organize Teaching Materials to Carry out Small Interdisciplinary Activities in Class

In the initial stage, especially in schools with insufficient resources or traditional schools, can face great resistance to reform. Teachers of various disciplines can consciously use the existing resources in class, and design some interesting interdisciplinary class activities from the current knowledge points within the discipline. These tasks usually do not take up too much classroom time, but can naturally penetrate into the subject and improve the quality of the class. It should be noted that these tasks are not generated at will, but are fully prepared according to a lot of experience. Otherwise they are easy to fall into the superficial and fragmented low-quality learning state.

After reading and comparing the state-compiled textbooks of various subjects since the eighth curriculum reform, we can find that the tendency of liberal arts focusing on tools and science focusing on Humanities, which provides a good reference. For example, there is an ancient article named “Stone Boat Note” (volume 2, grade 8) in Chinese textbook in junior high school. Teachers can set

the interdisciplinary task of “read through the full text and draw the boat”. When it comes to the lettering of the small windows on the boat and the appearance of the characters, the pursuit of beauty involves the painting skills of fine arts. The length unit mentioned in the article is different from today’s. If students want to pursue the accuracy of painting, they must firstly understand the dynasty that made the boat, and then look up the conversion relationship between ancient and today’s measurement units. They will find that there are different opinions on the Internet, which requires careful reading and research, and students’ information literacy is trained. Then use mathematical calculation skills to find out the more accurate value, and finally draw a more accurate and beautiful boat, form a deep impression on the content of the text, also learn the explanation method and writing method of expository text under the guidance of the teacher. In this way, Chinese will be associated with history, fine arts, mathematics and other disciplines, but remember to pay attention to the duration and emphasis in the operation.

Another example is the column of “the feelings of biology and literature on plants” in Biology textbook (volume 1, grade 7), which excavates the biological knowledge in ancient poetry and modern prose, which is helpful to the study of biology and literature. Teachers should consciously set such interdisciplinary tasks which come from and return to daily life and are usually moderately difficult in class to guide students to participate.

3.3 Integrate Teachers to Launch Big Project-based Learning(PBL) and Interdisciplinary Activities

The large-scale activities mentioned here refer to those carried out in the form of PBL. The scale of activities and the depth of discipline integration are further. In the existing cases, most of them are based on a key or advantageous discipline. Due to the problems of difficult organization, tight class hours and shortage of professional teachers, most these activities in middle schools in different regions are characterized by low frequency development, uneven quality, etc.

In view of recent social problems in Nanjing, as is shown in Table 2, I design the following interdisciplinary research case of environmental protection for reference:

This task is triggered by a piece of news with the theme of “environmental protection”. In real life, environmental protection problems are not easy to be solved like “writing environmental protection slogans” commonly seen in Chinese test papers or “using some environmentally friendly degradable materials” only according to the knowledge in chemistry class. High level answers require comprehensive use of sociology, biology, chemistry, communication,

Table 2. An Interdisciplinary Research Case of Environmental Protection

Background	Social Issue	It is reported that on January 6, 2020, Nanjing Intermediate People’s court announced a typical annual environmental protection case. A water company in Nanjing, the defendant, was supposed to be responsible for sewage treatment, but secretly discharged the sewage into the Yangtze River through concealed pipes. It also artificially tampered with the monitoring data, and was repeatedly fined for being “a hardened criminal”. It was sentenced to “the most severe fine” for domestic environmental pollution, with a total fine of 520 million yuan plus environmental remediation fees. The defendant was sentenced to a maximum of six years’ imprisonment.
	Social Action	This incident has attracted the attention of the government and the public on the environmental pollution. Nanjing government has once again put forward the call for building “ <i>A Resource-saving and Environment-friendly Society</i> ”. In order to make a positive response to it, our school decided to build “ <i>A Resource-saving and Environment-friendly School</i> ”.
Activity 1	Observation & Reflection	Our school will hold an activity of “ <i>Advisers for the Effort</i> ”. The monitor has collected the following materials: At present, there is a lot of food waste in the school canteen, and it is suggested that the garbage should be classified and special ways should be adopted to deal with the leftovers in the canteen. The waste-water can be used to irrigate flowers and plants on campus, or be treated in a unified way, so as to avoid the domestic waste-water from polluting the water source. Please try to add more materials. After independent thinking, each group will discuss and select 3 suitable ones.
	Group Assignment	How would you deal with the behavior of the water company if it was you? Please choose to play different roles, such as students, teachers, government officials of environmental protection departments, journalists, managers of traditional petrochemical enterprises and new energy enterprises. Students who choose the same roles gather up into a team. Each team need to write a solution and present it to the public based on your role.
End	Social Participation	Organize the research results of each team into a comprehensive solution, and try to publish them on the Internet or send them to “ <i>Mayor’s Mailbox</i> ”(Selective according to the quality of completion)

economics and other disciplines.

In fact, there are many interdisciplinary activities included in a project, which need to integrate teachers of various disciplines to achieve in-depth and professional guidance. In the teaching and research, we can adopt the interdisciplinary integration mode of “individual preparation - Integrated preparation of this discipline - mutual research of related disciplines”^[7], that is, teachers need to prepare lessons three times before, during and after class, first independently, then collectively, finally, make interdisciplinary preparations. Comprehensive teachers can be cultivated in the interdisciplinary project participation based on school-based characteristics and management optimization.

3.4 Create the Comprehensive Curriculum pointing to Comprehensive Qualities

Focusing on appropriate and advanced teaching objectives, expanding and optimizing interdisciplinary activities, and finally becoming a new comprehensive curriculum are the development direction of disciplines facing the future. Its goal is also changing from core qualities of a single discipline to comprehensive qualities of a whole person. Chinese scholars have realized that “comprehensive curriculum design is easy to spread to multi-disciplinary fields under a certain theme, but creating a situation that can arouse the whole life of students and obtain the

unforgettable integrated experience is the real difficulty of design implementation”^[8]. “The emergence of education based on curriculum standards emphasizes that subject knowledge has largely replaced integrated curriculum. “However, “when teachers become more and more familiar with curriculum based on standards, they have the ability to integrate curriculum fields and will be enthusiastic to do so”^[9]. More than 20 years ago, Beane J A believed that “comprehensive curriculum is essentially different from interdisciplinary curriculum. It should go beyond the boundaries of disciplines, focus on the problems that are common in society and concerned by young people, and take the participation of teachers and students as the form of curriculum organization, The fundamental purpose of comprehensive curriculum is to promote the integration of human and society”^[10].

For example, “integrated curriculum in the United States has gradually differentiated into an action framework composed of interdisciplinary integration - English language, interdisciplinary integration - Social Sciences, interdisciplinary integration - stem curriculum and interdisciplinary integration - the theme of the 21st century”^[11]. Based on the real life situation, we can set up population education course, legal education course, social skills course, leisure and lifestyle course, etc. when these courses are meticulously integrated, it is inevitable to involve history, geography, chemistry, biology, physics, health and other disciplines, which can overcome the shortcomings

of too detailed subject division, Effectively expanding the connotation and extension of learning content is conducive to students' overall understanding of things and the development of comprehensive quality. This also brings enlightenment for the whole teaching ecology: these real, vivid, rich and intensive activities need to be designed and carried out closely around the real life and comprehensive education goals, and the formalism beyond the stage is not advisable.

4. Conclusions

The interdisciplinary integration of middle school is facing the inevitable trend and realistic dilemma. Big life is composed of small activities, which can focus on people's quality and achieve breakthrough from transformation activities. Here are four steps as the implementation path: setting up teaching objectives pointing to core qualities of disciplines firstly, organizing teaching materials to carry out small interdisciplinary activities in class secondly, then integrating teachers to launch big project-based learning and interdisciplinary activities, finally creating comprehensive curriculum pointing to comprehensive qualities. Once realized, it will break not only the barriers among disciplines, but also the barriers to the unlimited development of human and society.

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