

Discussion on the Implementation of Big Concepts in Geography Teaching - Taking the Unit of “Regional and Regional Development” as an Example

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Abstract:

Big concepts reflect the essence of a discipline and go beyond the discipline itself, which is the core of science learning. Based on the teaching significance of big concepts, this paper takes the unit of “Regional and Regional Development” as an example, and through the specific geographical teaching implementation process such as “putting forward the big concept, establishing the concept structure, building the question chain based on the big concept, connecting the core literacy with the big concept, taking situational activities as the training means, and emphasizing the transfer effect of the big concept”, it plays the role of promoting students’ core competencies and helping them build a three-dimensional knowledge system.

Keywords:

Big Concepts, Regional and Regional Development

1. Introduction

Jonassen proposed that the only legitimate purpose of education is to solve problems. [1] The current education model is singular and cognitive rigidity, resulting in the isolation, fragmentation, and superficiality of classroom teaching. These problems directly affect the connection between school teaching and real-world knowledge, thereby causing difficulties in problem-solving and core competency cultivation.

Under the background of the integration and development of contemporary basic education science courses, the further application of big concepts has become an important way to cultivate core competencies. [2] Weifkins believes that big concepts usually appear as a useful concept, theme, controversial conclusion, or viewpoint, and a short phrase or sentence. [3] In specific teaching, we can regard big concepts as the collection of “common concepts” and “core concepts” in cross-disciplinary “integrated concepts” and the collection of “core concepts” in a single discipline. It is the core of scientific learning that can connect a large number of scientific knowledge

into a consistent whole. [4] Different from traditional classrooms, big concept teaching focuses on helping students develop the thinking mode of building knowledge structures that hides behind the background of knowledge, promoting the migration and application of knowledge, and at the same time, it can better combine students' "learning" and "doing", making the learning unit parts can be mutually connected and mutually promoted, becoming an important path for students to break through disciplinary boundaries and connect with real-world problem-solving.

2. Significance of Big Concepts in Teaching

2.1. Connection

Parsons proposed that the educational form should shift from a hierarchical structure to a network structure. In real teaching, geography teaching is often limited to fixed content units, lacking ductility and real-world context. At the same time, ordinary learning units often lack integrity, making it difficult to connect the discipline concepts and knowledge application. Big concepts play a role in connecting knowledge. By constructing a big concept - core concept - specific knowledge hierarchy and interrelated three-dimensional concept structure, knowledge, concepts, and skills can be connected to promote students' comprehensive understanding of the knowledge system.

2.2. Advancement

The current teaching still focuses on helping students acquire shallow knowledge and skills, lacking in-depth exploration of the essence and principles of knowledge. Basic concepts also lack in-depth processing and thinking due to the lack of in-depth processing and thinking. Understanding big concepts is a gradual process. Applying big concepts requires students to keep in close contact with big concepts at all stages of learning, gradually filling and improving the big concept system through continuous learning of each stage, and finally point to a complete and profound understanding of the big concept system. In this process, both the progressive nature of "content units" to "learning units" and "student competency units" and the effective progressive nature of students' systematic thinking ability, problem-solving ability, and concept construction ability can be achieved.

2.3. Migration

Big concepts are beyond the basic facts of the discipline and are in a superior position, which has strong migration value. [5] Effective mastery of big concepts means that students have the ability to link knowledge and skills and solve practical problems, and can make meaningful migrations beyond the limitations of the learning unit, which is an important step in cultivating super-disciplinary literacy skills.

3. Implementation of Geography Teaching Based on Big Concepts

3.1. Extract big concepts and establish concept structures

As principles, ideas, and methods that span disciplinary boundaries and connect life practices, big concepts can reflect the core requirements (capabilities and thinking, etc.) of a discipline and serve as the backbone of the discipline, encompassing a large number of disciplinary knowledge. The unit "Regions and Regional Development" is the opening chapter of Selective Compulsory II, requiring students to master the basic

concepts and principles related to regional development, laying a solid foundation for subsequent studies of various regional development case studies. Such fundamental chapters only by clarifying geography concepts, establishing a complete geographical concept system, can students correctly understand geographical causes, geographical laws, and geographical characteristics in future studies. The setting of the “big concept - core concept - core issue - specific problem chain” concept structure can provide scaffolding for students, allowing them to enhance their analogical transfer and deductive reasoning skills through the knowledge construction process of “big concept - core concept - knowledge point - big concept.” At the same time, in this knowledge construction process, fragmented knowledge is no longer randomly piled up, but structured and turned into discipline big concepts, and ultimately returned to big concepts themselves.

Based on this, the “Regions and Regional Development” unit is determined based on the chapter content, with the “sustainable development of regions” as the big concept and the “integrity of regional overallity” and “connectivity of regional interrelationships” as the core concepts of this unit, which are integrated and organized to form a learning unit with a big concept as the overarching and discipline core concepts as the entry point. Through relevant studies, it aims to direct the landing of students’ literacy (Figure 1).

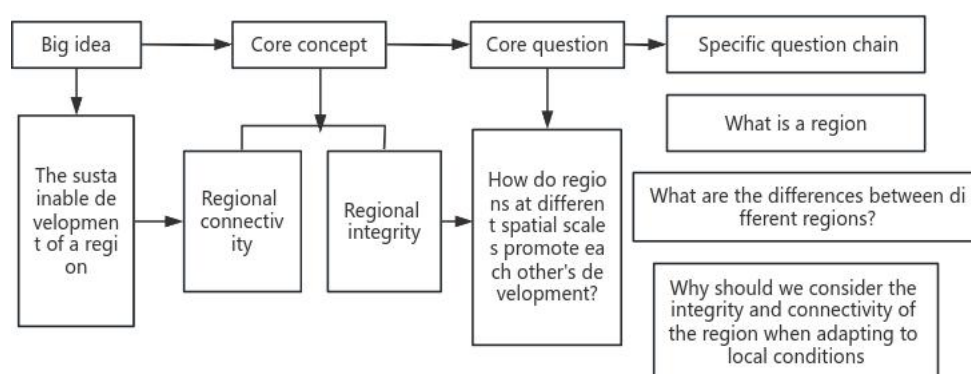


Figure 1. Conceptual Structure Diagram of “Regions and Regional Development”.

3.2. Build question chains based on big concepts

Problem-based teaching begins with questions and promotes the development of students’ core competencies by creating problem-solving scenarios. Focusing on the “big concept” of the learning unit, determining the core issues of the unit, and aggregating different module contents can systematically grasp the integrity of the discipline’s internal logic and internal system. Based on the core issues, setting up a question chain connects knowledge points through problem-driven thinking and promotes students’ mastery and migration of knowledge points. By turning knowledge into problems, turning problems into thinking, and turning thinking into ability, a final construction of the big concept system is ultimately achieved, thereby completing the construction of the big concept system.

During the teaching process of the “Regions and Regional Development” unit, teachers can focus on the core competencies such as regional cognition and human-earth coordination, using the progressive nature of the knowledge system as the basis, and focusing on the big concept question of “how different spatial scales of regions interact to promote regional development”, proposing a series of question chains (Figure 2). This question chain brings together the knowledge points of the entire

learning unit from shallow to deep, from elements to systems, ultimately pointing to the core issue. By decomposing the question chain, a thinking chain can be formed, helping students construct meaning on the basis of cognitive conflicts, quickly grasp the core conclusions of the learning unit, and become an important part of mastering big concepts.

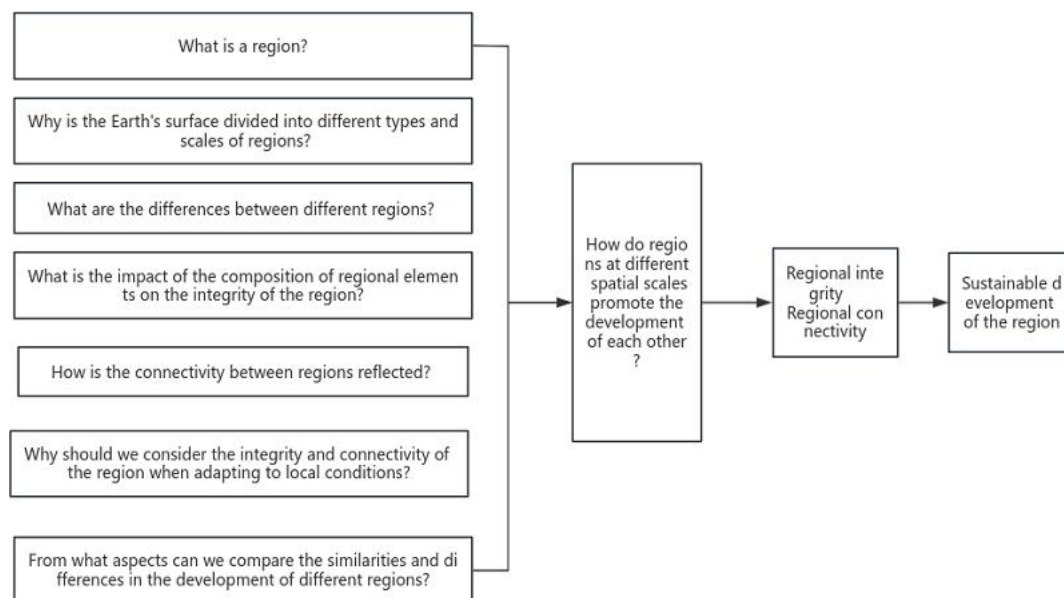


Figure 2. Problem chain setting for “Regions and Regional Development”.

3.3. Connect core competencies with big ideas

Subject core competencies are the implementation of the fundamental task of establishing morality and cultivating people. Therefore, for the teaching of a single discipline, the direct goal of learning units will all be attributed to the cultivation of subject core competencies. From the perspective of the hierarchy, the top-level big idea is itself the subject core competency. Duan Yushan pointed out that the four core competencies of geography, such as “geographical harmony concept”, “comprehensive thinking”, “regional cognition”, and “geographical practice”, are all core concepts in geography, that is, the “big ideas” of the discipline. [6] However, as the educational goal of subject cultivation, the connotation of subject core competencies is too rich and cannot be directly used as the big idea guiding the teaching of single-class or unit, but needs to be decomposed and refined according to the teaching theme.

In the learning unit of “Regions and Regional Development”, the cultivation process of subject core competencies can be specification by setting a problem chain, and ultimately pointing to the big idea, completing the cultivation and mastery of subject core competencies and the learning unit's big idea (Figure 3). In this process, actually, it is through the problem chain to transform the big idea into specific problems that students can understand, and in the process of problem-solving, students are imperceptibly cultivated and constructed the big idea system, connecting core competencies and big ideas.

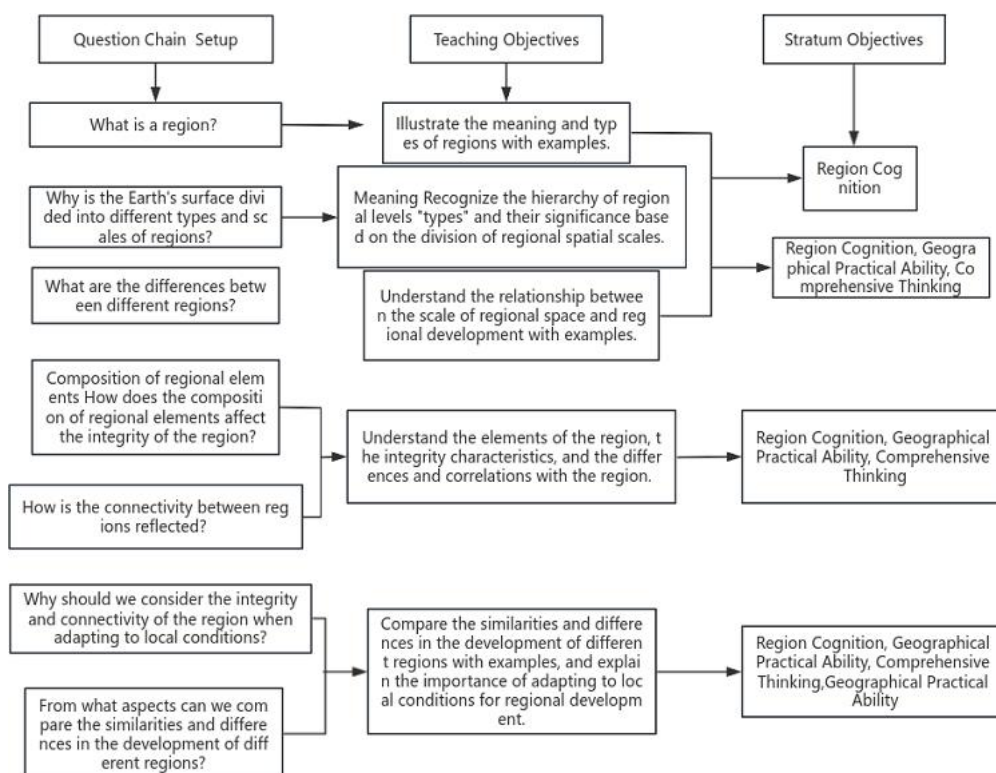


Figure 3. Stratum objective setting for “Regions and Regional Development”.

3.4. Use situated activities as a training method

Classroom teaching in the big idea perspective is a process of purposeful and hierarchical thinking construction, and this thinking construction can only be deeper and more authentic in the corresponding created situations. At the same time, the application of big ideas can combine the real situations based on single problems and the real situations based on core problems to make the entire teaching process form a task situation, avoiding the disjointed situation.

For example, in the learning unit of “Regions and Regional Development”, a topic of “the sustainable development of Jiangmen” can be used as a multiple situated starting point, providing regional or landscape maps of Jiangmen, guiding students to judge which regional elements are presented in the map and to determine which aspects of regional elements are related (such as climate, vegetation, hydrology, biology, culture, architecture, agriculture, etc.). Combined with the characteristic industries of local development, such as “PU fan craftworks” and “Xinhui tangerine peel,” students can understand the interrelationships between geographical elements and conduct teaching on the regional differences and regional correlations of the “Yangtze River Delta rice field” and “Songnen Plain corn” and “Jiangmen rice” examples. Through the application of this teaching situation case, students can combine instances to compare the similarities and differences of different regions from the perspectives of geographical environment integrity and regional correlations, describe the characteristics of different regions’ development, and ultimately understand the importance of regional development. This kind of local life situational context is authentic and vivid, which can help students combine deep thinking with life practice, making it more beneficial for problem-solving and concept-building.

3.5. Pay attention to the migration effect of big ideas

Big ideas, as the principles, ideas, and methods that govern the subject, naturally have the function of helping students lead subject content, spanning disciplinary boundary obstacles, and cultivating core competencies. Students can apply the knowledge and skills acquired from a single learning unit to other situations and even other disciplines, and creatively solve new problems, which is an important manifestation of the landing of core competencies. Therefore, teachers can provide cross-contextual problems in the teaching process to help students construct a comprehensive knowledge framework and promote the landing of competencies.

For example, in the “Regional and Regional Development” learning unit, when students have a deeper understanding of the big idea of “sustainable development of the region”, teachers can further build relevant situational contexts - “Jiangmen’s sustainable development policy” (Jiangmen’s sustainable development mainly focuses on economic sustainable development, social sustainable development, environmental sustainable development, etc.). Based on this, after-class activities can be arranged, requiring students to consult the history of the proposal of China’s sustainable development strategy, overall ideas and problems faced, and guide students to recognize the diversity of sustainable development connotations, not only in establishing a resource-saving and environment-friendly society, but also in transforming the economic development mode and adjusting the economic structure. Guaranteeing and improving people’s livelihood, technological innovation, deepening reform of the system and expanding opening up and cooperation, etc., promote students to realize the migration of the “sustainable development of the region” big idea, linking related history, politics and other interdisciplinary content, and constructing a diverse, integrated and rich cognitive structure.

4. Conclusions

In daily teaching, in order to fully exert the role of big ideas, we can put forward big ideas, establish conceptual structures, build question chains based on big ideas, connect core competencies with big ideas, use situational activities as training means, and attach importance to the transfer function of big ideas. Through the specific implementation process of geography teaching, we can give full play to the role of “big ideas” in promoting students’ coherent disciplinary core competencies and helping them build disciplinary knowledge bridges.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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