

Research on Teaching Questioning in High School Geography Classroom Based on Geography Core Literacy

Liu Bin^{1,2} & Wang Taogeng³

¹ School of Geographical Sciences, Southwest University, China

² Chenggong Campus of the Affiliated Middle School of Yunnan University, China

³ Kunming No.14 High School of Yunnan Province, China

Correspondence: Liu Bin, School of Geographical Sciences, Southwest University, Chongqing, 400715, China.

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Abstract

As the core of high school geography education, the success of core literacy in geography is closely connected to the design of questions in class. In current teaching, it is hard for fragmented questioning to carry the goals of regional cognition and holistic thinking; Places, detached from life contexts, give geography little practical power in action; And a one-way question and answer mechanism neglects our capacities to penetrate the concept of human-earth coordination. In this paper, we analyse the pain points along the lines of questioning the latest goals, authenticity in context and imbalanced mechanisms of interactions, and then we suggest the following reconstruction of the chain of questions with literacy features as an anchor point: activating spatial thinking through real situations, develop holism through follow up questioning, and deepen human-earth cognition with dynamic feedback. Innovation in classroom questioning does not only mean optimising methodology, it is leap crossing geography education from a knowledge transfer to a literacy generation approach.

Keywords: geography core literacy, high school geography, classroom questioning

1. Introduction

The new curriculum reforms have led to a prominence of core geography literacy in everyday teaching and learning, but changes to the forms of classroom questioning associated with it have not developed at the same pace. Unfortunately for pre-service teachers especially, questioning continues to be interpreted as merely a way of questioning knowledge points. The fundamental "where-why" questions that place too much emphasis on geography as a mechanical science sacrifices regional unity. When teachers run case studies of virtual scenarios, they lead students into an abstraction of themselves and the problem they could be solving in the real world. At the heart of this practicality is the disconnect between reformation and theory of education. It is necessary to revisit questioning systems and have to effectively re-engineer the genetic elements of competence into our questioning construction, scenario construction, and relevant interaction systems.

2. Theoretical Basis of Geography Core Literacy and Classroom Questioning

2.1 Definition and Connotation of Geography Core Literacy

Geographical core competencies, as the essential characteristics of geography, represent a comprehensive capabilities framework for students to grasp the human living environment. Spatial cognitive abilities call for the students to construct a thinking mode for the analysis of regional characteristics under multiple - dimensional scales. Elemental comprehensive thinking focuses on "in-depth study" of the dynamic interactions among natural factors, human factors, and human - social economic factors. Furthermore, the ability to be sensitive to the human - environment relationship involves attention to the interaction mechanism of human society with the natural environment, while the geographical practical ability indicates an ability to turn theory into action to the extent of dealing with problems of contemporary relevance. All four competencies penetrate each other to form an overarching organic whole that includes the potentially scientific approach to exploring the Earth's surface system and the value orientations relevant to the sustainable development concept, thus forming an essential geographical cognitive capability toolkit for citizens in modern society [1].

2.2 The Role of Classroom Questioning in Teaching

Classroom questioning is a key carrier of this thinking dialogue within the interactions between teachers and students. Thoughtful construction of questions can trigger students' cognitive conflicts and internal knowledge drive. Through the use of a stepped question chain, teachers create thinking scaffolds that help students escape the conundrum of fractured knowledge and create a systematic cognitive framework. For example, when students are trying to explain the urban heat island, their questions prompt them to link the climate data with the evidence chain of humans' impact, which helps to transform abstract notions into legitimate thinking paths. The dynamic dialogue process simultaneously reveals cognitive blind spots, prompting students to reconsider one - dimensional assertions as they explore towards depth of understanding and, ultimately, the learning capability of independent inquiry.

2.3 Relevance of Geography Core Literacy and Classroom Questioning

In the geography classroom, competency-based questioning changes students' cognitive pathways and provides them with real life situations that challenge abstract spatial ideas. Teachers ask regional comparison questions to help students deconstruct spatial environments at different scales, and integrative thinking tasks allow students to find implicit connections between climate change and economic activity. The continuum of certainty and ambiguity extends our studies of human-environment relationships. For instance, through classifying their own behavioral environment costs students engaged in meaningful learning. Stage 1 practical geography skills were again enacted when students engaged in simulated decision making around community transport planning issues. In doing so, classroom conversation transitioned from rote learning to civic realization of environmental responsibility and grounded the values of the discipline in real issues.

3. Status Quo and Problems of Classroom Questioning in High School Geography

3.1 Lack of Literacy Orientation in Questioning Design

At present, the design of questioned in high-school geography classrooms typically is not aligned with the coordinates of competency cultivation. So many disjointed questions sever the internal connections of knowledge. Teachers tend to locate memory-based questions in factual recall, for example, where place-names are located, which breaks down a complex regional system of interaction to an mechanical repetition of disaggregated, isolated items. In this question-answer mode, students form a tenuous cognitive structure and lack the ability to mobilize whole-picture thinking to examine the interactive mechanisms between natural and human processes behind soil erosion in authentic environmental problems they encounter. Some questions around regional comparison even exist as surface level comparisons and do not at all lead students to create a logical deduction chain across different spatial scales resulting in the cognitive ability to study a region in static map-reading stage. The more alarming reality is that questions about the human-environment relationship often preset standard answers that avoid the ensuing value-judgment conflicts in limited-resource allocation and deprive students of the opportunity to think dialectically about development costs and the environment. This ingrained habit of questioning that is divorced from the competency framework turns classroom dialogue into a superficial exchange of knowledge, putting the cultivation goals of the unique spatial thinking and the concept of sustainable development in the geography discipline at risk of being rendered ineffective [2].

3.2 Disconnection Between Questioning Content and Life Reality

Questioning in the classroom is often a disregard for students' life experiences, with a significant gap between textbook cases and reality. Teachers typically teach issues or topics of industrialization and urbanization based on some abstraction data model, while students have never examined the shape of the layout of a community business district or where the bus stops along their commute to school. Students practice the skills of climate type discrimination in hypothetical situations rather than actual phenomenon, and they cannot make any relevant connections from the analysis of precipitation patterns to the crop planting decisions made by local farmers. The example of question design about resources and the environment is an even greater disconnection. For instance, when educators discuss global carbon emission agreements, they prominently fail to consider the practical complications of how such campus projects would start with campus garbage separation; and thus, practical improvements regarding geographical practical skills outperform trying to act on big promises reserved for the classroom, leading to barriers to cognitive transfer. For example, educators file a river and a plan for pollution control; learners almost programmatically employ the template from the textbook and ignore the significantly greater potential of plastic packaging steadily depositing into the river near their school. The lack of life experience regarding questions and answers in the classroom culture becomes some form of guessing game isolationism where the establishment of a notion of humans and environment as a harmonious coexistence should be just some light superficial sermonizing without any emotional engagement as a priority.

3.3 Uneven Participation of Students

There is clearly a participation gap in teacher - student interactions. Teachers direct their questions towards a narrow group of students, with little attention to the cognitive diversity present. It is commonplace in geography classrooms for the visible active learners to quickly raise their hands multiple times to respond to questions, while the apparent response signal for learners sitting at the back of the room is to lower their heads, ostensibly avoiding eye contact and verbalization. This interactional bias inhibits regional cognitive training to a narrow group of people and results in most learners being denied many opportunities to develop spatial analysis skills. In talking about the locational conditions of ports, teachers will often ask urban learners to respond to the economic consequences of shipping, while rural - based learners' concrete realizations about the transportation efficiency of inland river docks become silent. This consistent absence of the silent group continues to undermine the breadth across the domain of cultivating comprehensive thinking, and the discourse around the human - environment interaction is now the value output of a few voices [3].

3.4 Inadequate Feedback and Evaluation Mechanism

The feedback from teachers on students' answers generally has only reached the evaluation for correctness, with little development in the evaluation of the thinking process, which shows depth. The evaluation often stops with agreement or disagreement with the conclusion, without bringing awareness to the underlying spatial perspective that is hidden from it by regional cognitive bias. When students explain the urban water logging they find, as being the result of inadequate drainage facilities, teachers fail to ask for evidence as to how they connected climate anomalies to a hardening of the surface rate, thereby losing the opportunity to embolden rich thinking. Admittedly the questioning associated with the human - environment relationship were assessed in a more superficial way too. Teachers were simply scoring students for their choices on the stances and were avoiding dialectical evaluation of the uniqueness of phases of regional development. This feedback mode encourages the learning habit of focusing on conclusions, and students gradually hide unconventional ideas to meet the expected answers. The peer - evaluation session after group presentations often becomes a mere formality, with peer suggestions focusing on the fluency of expression rather than the rigor of geographical logic. The ambiguity of evaluation criteria turns geographical practical ability training into a competition of result presentation, and the rationality of resource allocation or errors in environmental cost calculation in the scheme design are not included in the evaluation scope.

3.5 Teachers' Questioning Skills Need to be Improved

The deficiencies in questioning skills very much shape the quality of classroom discourse. Question design is often rife with closed-ended questions--which stop students' in-depth thinking. Some teachers are dependent on low-level questions using the phrases 'whether', and 'if' reducing the analysis of climate characteristics to just the identification of climate names. There is a clear disconnect in the waiting time allocated to students. Teachers will move to other students if no answer is forthcoming within three seconds, disrupting the elaborate exercise of evidence integration that goes into comprehensive thinking. When students offer non-normative you are leading (redirection move it) a question from an obvious specific idea about typhoon path the teachers miss all opportunities to use effective follow-up questioning techniques to investigate how students realize their line of reasoning about atmospheric circulation explanation, and the inquiry into their own paths of cognition in relation to the region is mandated to stop. The lack of balance in guidance when engaging in discussions about the human-environment relationship is especially observable. Overly emphasizing standard answers belittles the meeting of alternative perspectives and turns the topic of resource allocation into an occasion for moral admonition. The questioning in geographical practice tasks exposes further the unpreparedness dilemma. Constructing an exploration framework is never sufficiently elaborated prior to the outdoor observation and students engage often in disordered data collection.

4. Optimization of Classroom Questioning Based on Geography Core Literacy

4.1 Designing Questions Oriented to Literacy Goals

The design of questions must be congruent with the competencies goal system. For questions related to regional cognition, a progressive analysis chain needs to move from classroom space to the global level. When teachers have designed a topic on the development of urban functional areas, the first questions should help students identify the spatial morphological features of the commercial areas, and the advanced questions should ask students to be able to link population flow data with land - price fluctuation data. The engagement of cyclic thinking requires groups of cross - element questions. When examining the causes of flood disasters, it is important to integrate multi - dimensional evidence chains concurrently, such as climate context, topographical details, and drain facility failure. The conceptual framework for human - environment harmony should include value - conflict situations. While discussing plans for constructing wind - farms, it is essential to balance ecological protection requirements

with the reality of regional energy shortages, and avoid the trap of presetting a moral position. The key to geographical practical ability implementation lies in action - based questioning. In a community green space optimization project, students are required to map the vegetation shadow range according to the sunlight trajectory and transform their spatial decision - making ability into specific action plans. This goal - anchored design ensures that each question becomes an organic component of the competency puzzle, enabling scattered knowledge to coalesce into structured abilities in the process of solving real - world geographical challenges [4].

4.2 Creating Questioning Contents in Real Situations

Contextualized questioning must be situated in students' life experience fields to transform abstract geography principles into real - world challenges. When teachers develop traffic network analysis questions, they use the phenomenon of congestion on students' commuting routes to initiate a mapping exercise on the spatial misalignment relationship among pedestrian flow density at various times and public transportation stations. Data collection on the distribution pattern of community breakfast shops for an exploratory task, allows students to assess business radiation scope to verify the central place theory with real - world examples of consumption behaviour. In addressing environmental issues, local contradictions require the questions to be steeped in the local. The controversy surrounding preserving ancient trees in old urban area renewal becomes the natural resource for exploring the concept of human - environment harmony, that samplings of ecological and cultural memory value lead to a compromise trade - off. Disaster prevention and control educational programs can draw on local record flood - prevention drill activities with the assessment of redevelopment surface runoff plans that injudiciously allow water to flow into underground garages. Such contexts provide precise action coordinates for the geographical practical ability assessment. Debates on the cost - effectiveness of river dredging projects require the use of hydrological monitoring data to support decision - making. The complexity of the real world is naturally integrated into the texture of the questions, avoiding simplifying spatial decision - making into ideal model deductions and ensuring that the development of competencies is always anchored to the track of real - world problem - solving.

4.3 Optimizing the Interactive Mode of Questioning

The reform of the mode of interaction should disrupt the inertia of the teacher - controlled linear question - answer paradigm and open a multi - dimensional dialogue network of collective thinking collisions. The collaborative question circle involves students in the question - design process and allows them to generate points of controversy independently in the observation plan for the urban heat island effect topic. The role - playing mechanism is used in regional cognitive training, where students correspondingly take a planner, merchant, or resident standpoint to contest the direction of an old - city renovation so that the spatial decision - making process now presents a range of interest demands. The process of thinking comprehensively requires establishing a progressive level of dialogue ladder. Regarding the discussion of flood prevention and control, the students design element - association diagrams on their own, then through cross - questioning the vulnerabilities in the evidence chain, they create a logical argument. In the context of geographical practice - related him or her, an expert - consultation session needs to be incorporated. Water authority engineers are invited to evaluate online the technical feasibility of the campus rain-garden design scheme. The improvement of the participation of silent students depends on structured discourse tools. Three - color response cards are distributed to distinguish three types of intervention methods: "data support", "theoretical questioning", and "case supplement". This three - dimensional interaction transforms cognitive differences into teaching resources. When rural students use the experience of soil moisture conservation in terraced fields to modify the soil - erosion model, the concept of human - environment harmony is annotated in the real world. Spatial thinking completes self - correction in the process of debate, avoiding the teacher's one - sided instillation of standard answers [5].

4.4 Improving the Feedback and Evaluation System

The feedback and assessment system should move away from the superficial - level judgment of whether answers are right or wrong and establish a dynamic tracking system that problematizes the thinking processes. When teachers follow up on the position - supporting route that reports on climate prediction conclusions, however, they want students to demonstrate the logic of integration of meteorological data with its varying scales so that the break points of regional cognition are revealed. Each link in the question chain infers thinking evaluation. In flood - disaster analysis reports, for example, correlation strength judgements of natural and human factors must be signaled and responses that seem like element - listing are rejected. The construct of human - environment harmony, for instance, deserves acknowledgement for conflictual values - considering the stance of "whether to relocate fits in nature reserves" a profit - and - loss analysis table of stakeholders should be appended. The feedback of geographical practical ability conveys across the action iteration stage; for example, the property engineers assess

the cost of the campus rain - water recycling device design scheme and as a result reenact the water - collection slope parameters. Students establish personal geographical decision - making portfolios, collecting all cognitive correction records from community green - space planning to classroom debates, making the growth of spatial decision - making ability visible. Peer evaluation introduces a double - blind questioning mechanism. For port location argumentation reports, students mutually put forward falsifiable operational suggestions, and the development trajectory of competencies becomes clearly visible in continuous feedback.

4.5 Strengthening the Training of Teachers' Questioning Skills

The professional development of teachers must embed systematic training on questioning skills, with trainers dressing cognitive conflict scenarios to reveal thinking blind spots. Regional cognition workshops simulate the decision-making scenarios of urban expansion to make teachers rethink the limits of their own spatial analysis model. In comprehensive thinking training, the component - disassembly follows the disassembly directly by reconstruction method. The typhoon disaster case study is divided into independent modules including climate data, population, and emergency resources, after which teachers are guided toward establishing a dynamic chain of influence among the components. To research and train on human-environment harmony means recreating real-world decision-making pressure. For the discussion on tourism development in nature reserves, teachers are expected to respond to rapid-fire questions from representatives of environmental protection organizations. Geographical practical ability training is based on the design limitations of question chains. The framework of questioning submitted prior to outdoor investigations must be vetted by engineers to ensure its operational ability. Micro-teaching video observation recognizes the problem of waiting-time distribution, then marks points of thought bottleneck corresponding to student micro-expressions. The evaluation of training effectiveness shifts to the analysis of classroom dialogue texts, calculating the proportion of high - order thinking questions and the depth index of follow - up questions. Skill improvement is essentially the iteration of cognitive paradigms. When teachers start to actively collect the "unsolvable" geographical problems raised by students, it indicates that they have crossed the thinking fence of standard answers, and dynamically adjusting question design has become a normal practice in teaching.

5. Conclusion

The relaunching of classroom questioning is essentially a change in geographical education approach. When the conversation on flood mitigation is about the game of survival for residing river basin citizens, and the thinking about urban location is integrated with real place investigations of neighbourhood renewal, competencies are rooted in cognitive conflict. Good questioning should be a scaffold for thinking: regional cognition becomes solidified in questions of spatial scale transformation, and comprehensive thinking is anchored in questions for cross - element association questions. In the future we need to remain wary of the technological trap - if the feedback loops in smart classrooms are simply made faster by scoring less, we will compress thinking depth. Let questioning revert to the original geography premise: complex and living human homeland is a deciding factor for the implementation of competencies.

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