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Research on Primary Language Classroom Teaching for Cultivating Higher-Order Thinking Skills

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Abstract: In the context of knowledge economy and information age, the goal of basic education has shifted from single knowledge transmission to comprehensive cultivation of core literacy, and the cultivation of higher-order thinking ability has become an important breakthrough in deepening education reform. As a subject with both instrumental and humanistic nature, elementary school language is not only the starting point of language learning, but also the key carrier of thinking development. However, the current elementary school language classroom is generally characterized by the obvious tendency to instill knowledge and the superficialization of thinking training. Teachers tend to focus on word memorization and text retelling, neglecting the systematic guidance of higher-order abilities such as critical thinking and creative thinking, resulting in students' lack of active thinking and weak in-depth understanding. This situation contrasts sharply with the goal of "improving thinking quality" put forward in the Compulsory Education Language Curriculum Standards. How to integrate the cultivation of higher-order thinking skills into the language classroom requires not only breaking through the shackles of traditional teaching modes, but also constructing a teaching path that conforms to children's cognitive laws. This study starts from the four dimensions of teaching design, method innovation, training reinforcement and technology integration, and tries to explore a teaching practice path that can not only consolidate the language foundation, but also activate the potential of thinking, so as to provide theoretical support and practical reference for the improvement of the quality of elementary school language classroom and increase its efficiency.

Keywords: higher-order thinking ability; elementary school language; classroom teaching

1. Introduction

Higher-order thinking refers to the fundamental capacity of students to analyze, evaluate, and create when confronted with complicated problems and the level of its development has a direct influence on an individual's ability to engage in lifelong learning and solve problems effectively. Elementary education is a critical educational phase for developing thinking processes, and the language classroom is particularly conducive to cultivating higher-order thinking in students because it has a rich linguistic context and text carriers in a diversity of texts. However, in traditional language teaching, thinking training is often relegated to more monotonous and shallow questions and answers about the text's content, resulting in an over-reliance on "right", predetermined answers, putting the students into a "low-order cognitive cycle". For example, studying ancient poems limited to rote memorization or copying, ignoring the aesthetic aspects of imagery and mood,

or retelling narrative texts without critically examining characters' motives and socio-economic and cultural contexts without critical triage of the character's motives and their socio- economic cultural circumstance do not engage any higher-order thought. This evident inertia in the educational process "deadens" student's thought at the recollection/ comprehension level making it more difficult for students to apply the knowledge level of understanding, and analysis levels. In recent years, although educational researchers have paid attention to the importance of thinking development, there is still a lack of systematic integration of operational strategies in the primary language classroom. Based on the characteristics of the language curriculum, this study proposes to reconstruct classroom activities with "visualization of thinking", promote logical reasoning through the design of problem chains, stimulate creative expression through interdisciplinary projects, and build an immersive discursive field by relying on information technology. These strategies not only echo the educational concept of "learning-centeredness", but also attempt to break the fragmentation of thinking cultivation in language teaching, and provide teachers with action guidelines with both theoretical depth and practical applicability [1].

2. Definition and Connotation of Higher-Order Thinking Skills

Higher-order thinking ability generally means the holistic literacy of a person that transcends encoding information and its simple use; it involves actively analyzing, evaluating, synthesizing, and creating new knowledge. Its essence is characterized by three central features; critical thinking, creativity and systematicalness. A higher-order thinking ability in primary school Chinese teaching is manifested in focusing on teaching students to think, to progress that consolidates and goes beyond the local "knowing what" to the global "thinking why" and the exploratory "how to solve". For example, students might unearth the deep metaphors and symbolic meanings in ancient poetic imagery, reconstruct the logic of the characters actions in narrative texts, or create diversely layered solutions to problems, they have previously identified by interpreting fluently accounts and interpretations of fables. The higher-order thinking capacity consists of four dimensions; critical thinking, creative thinking, logical reasoning, and transfer and application practices. Critical thinking focuses on questioning, and some form of dialectic analysis of the textual information, such as for example, contriving about cultural differences by comparing the different versions of folk tales. Creative thinking essentially reflects or regards other boundary engagements with the personalized reconstruction of the language expressions, such as, for example, recreating the artistic conception of ancient poems through new skits. Logical reasoning focuses on extracting rules from phenomena, such as establishing a correlation model between the characteristics and functions of things in expository texts. The transfer and application requires extending Chinese learning experience to real life, such as converting reading strategies into communication skills through debate activities. The cultivation of higher-order thinking ability is not separated from basic Chinese learning. Instead, it relies on language practice to achieve in-depth development of thinking, enabling students to develop the awareness of independent thinking while reading texts and laying a cognitive foundation for lifelong learning [2].

3. Current Situation Analysis of Higher-Order Thinking Skills Cultivation in Elementary Language Teaching

Currently, the promotion of higher-order thinking skills in elementary language classrooms still encounters many realities, with a need for reconciliation between the traditional teaching mode and the literacy-oriented aims. Most teachers operate within a knowledge-based teaching paradigm that locks them into a teaching focus on mechanical training, like word recognition and reciting paragraphs, text-related questioning centered around "right" answers, and students become passive receivers of information, subject to being containers of this receptive information. For example, the teaching of ancient poetry typically exists only in reciting entire units and copying texts mechanically, with little

movement to students wresting with and exploring the emotional logic of an imagined space invocated by combination of images; a text with allegorical philosophical content may shift focus from open discussion to moral preaching, thus limiting the space for students to make personal judgments.; lower grades may simply be asked to observe and retell, and even thinking maps in the middle grades do not utilize any gradient of greater thinking task. Students' thinking is left at a shallow (understanding) level for extended periods. While few teachers are trying new types of activities like group work or situational performances in class, the questions are not designed to engage higher-order cognitive challenges, and discussions about the text are largely focused on "what the characters in the story did" versus "why they did it" or "how you might choose if it was your choice to make." The assessment system is lagging behind as well, focusing too much on a paper-and-pencil test for reproduction and not tracking the thinking process dynamically, to the detriment of teacher motivation to engage in thinking. A few trail-blazing teachers have started to incorporate practices like project-based learning, tiered assignments, and visual thinking tools, but due to an overall lack of curriculum restructuring - these practices are largely relegated to an add-on instead of a form of higher-order thinking training.

4. Principles of Primary Language Classroom Teaching to Cultivate Higher-Order Thinking Skills

The teaching of how to develop higher-order thinking skills should follow the principles of systematicity, problem orientation and gradualism in elementary school language classes. The principle of systematicity requires students to think in every part of the chain of the curriculum design in order to cultivate thinking. For example, in the teaching of historic poems, we integrate imagery perception, metaphorical discernment and cross-cultural comparisons to think about a close-loop of thinking from cognitive to critical. The principle of problem orientation stresses the use of open-ended tasks to spur deeper thinking. For example, we can use "how to reconstruct the meaning of a fable from a modern perspective" as an inquiry project around a fable and find ways to motivate students to tap into their analytic, evaluative and creative thinking skills to create solutions. The principle of gradualism has to match the development of children's cognitive abilities. For younger grades, we minimize the load for logical reasoning to observation and association training. For 4th and 5th grade, we begin to guide students to move from reading illustrative texts toward thinking that involves generalization and identifying relationships. The principle of contextualization emphasizes that thinking training should occur in real language use; through role-playing to restore the dilemma of decision-making in text conflict; or students can be guided to re-interpret the classics in socio-cultural contexts through cross-curricular thematic learning. The principle of assessment and integration emphasizes visualizing thinking processes, for example, students can create mind maps to show how they move from extracting information to forming opinions, and adjusting teaching scaffolds accordingly [3]. These principles lead to a balance between the instrumental and humanistic properties of language so that the cultivation of thinking is not only grounded in the language foundation, but goes beyond the text surface, ultimately realizing the co-construction and symbiosis of quality of thinking and core literacy.

5. Teaching Strategies for Cultivating Higher-Order Thinking Skills in Primary Languages

5.1. Optimization of the design to integrate the thinking cultivation

The core of optimizing the design for integrating the development of thinking lies in reconstructing the underlying logic of the language classroom, and transforming the goal of thinking development into an operable teaching scaffold. Teachers need to break through the limitations of traditional time division and explore the opportunities for thinking development in the teaching materials from the perspective of the unit as a whole.

For example, the contrasting theme of "primitive thinking and modern science" is set up in the unit of mythological stories, so as to guide students to build up a framework for critical thinking in the inter-temporal dialogues. The teaching design of a single story should be embedded with stepped thinking tasks. For example, in the teaching of "Borrowing an Arrow from a Straw Boat", three cognitive levels can be designed, namely, "sorting out the steps of the implementation of the plan", "deducing the chain of consequences caused by different decisions", and "reconstructing the event with modern project management theories". The three cognitive levels of "combing the steps of the plan", "deducing the chain of consequences of different decisions" and "reconstructing the event with modern project management theory" can be designed in a hierarchical way, so that students can naturally go through the thinking leap of analyzing, evaluating and creating in language practice. The interpretation of the text needs to leave room for extension of thinking. For fables such as "A Little Horse Crosses the River", we have designed the activity "Mental Modeling behind Animal Behavior", which exposes the logical reasoning process of the students through character diary writing. The development of curriculum resources should pay attention to the enlightenment of thinking, the digital restoration of the Qingming Riverside Drawing and the text of the Spring Festival in Beijing are used to establish an intertextual relationship, so that students can train the ability to construct the chain of evidence in the graphic and textual intertextual evidence. This kind of deeply integrated classroom design makes thinking training no longer an isolated link, but permeates the language elements of literacy, reading and writing like salt seamlessly dissolving in water, forming a symbiotic effect of language learning and thinking development [4].

5.2. Innovative Teaching Methods Activating the Vitality of Thinking

Innovative teaching methods to activate the vitality of thinking need to reconfigure the paradigm of teacher-student cognitive interaction, transforming unidirectional knowledge transfer into a multidimensional collision of thinking. Teaching implementation focuses on the construction of cognitive scaffolding, the development of the problem chain guidance system, the design of the main problem cluster with thinking tension, prompting students to complete the thinking leap in the deconstruction and reconstruction. Dialogue mechanism innovation is the core path, to build an academic seminar-style classroom discourse system, the use of follow-up questions, cross-examination and other strategies to expose students' logical loopholes, and drive them to independently improve the chain of reasoning. Iteration of cognitive tools is indispensable, and the introduction of visual mind mapping technology transforms the abstract thinking process into an editable and traceable dynamic model, making it easy for teachers and students to jointly review the quality of thinking. Cross-border integration strategy to broaden the field of thinking, integration of scientific argumentation, art and aesthetics and other diversified thinking modes, the formation of composite thinking training module. Classroom organization is transformed to flexible, according to the development of thinking needs to flexibly switch independent inquiry, collaborative debate and other learning forms, in cognitive conflict and consensus building to enhance the agility of thinking. Technology empowerment needs to grasp the principle of moderation, the use of virtual reality to restore the historical context of the text, with the help of intelligent analysis systems to capture the trajectory of student thinking, to provide data support for accurate intervention. The evaluation focus shifts to the process of enhancing thinking skills, establishing an observation system that includes indicators such as logical rigor and diversified perspectives, and strengthening metacognitive abilities through immediate feedback. These measures synergistically reshape the thinking ecology of the language classroom, so that language acquisition and thinking development form a resonant effect.

5.3. Strengthening Training to Enhance the Quality of Thinking

Intensive training to improve the quality of thinking requires the construction of a structured and sequential path of thinking development, focusing on the systematic shaping of analytical, evaluative and creative abilities. Teaching and learning should establish a mapping of the decomposition of thinking elements, and refine the core dimensions of critical thinking and logical reasoning into observable behavioral indicators. For example, in the reading of argumentative essays, we should set up a hierarchical training module for the deconstruction of arguments, assessment of the validity of arguments, and identification of loopholes in the argumentation. The leveled training modules need to be matched to the cognitive characteristics of different grades, focusing on information categorization and simple reasoning in the lower grades, developing multiple comparisons and cause-and-effect analysis in the middle grades, and strengthening complex problem solving and idea generation in the upper grades [5]. The development of tools for externalizing thinking is crucial. Graphic organizers such as conceptual relationship networks and decision trees that are designed to help students transform implicit thinking processes into visual cognitive schemas. Dynamic assessment mechanisms should be embedded in the teaching process, and tools such as thinking process observation scales and cognitive trajectory archives should be used to track the complete chain of students' thinking from the reception of information to the output of ideas. Disciplinary thinking transfer training should break through the single dimension of the language, and integrate the hypothesis verification in scientific inquiry and the multiple interpretations in art appreciation into text study, for example, analyzing the logic of the evolution of folktales by historical evidence method. Metacognitive training needs to be carried out throughout, guiding students to establish a sense of monitoring thinking, recording the process of adjusting the basis for decision-making through reflective logs, and cultivating the ability to scrutinize and optimize self-cognitive activities. All these training measures point to the improvement of the precision, depth and flexibility of thinking quality, so that language learning can become a melting pot of thinking.

5.4. Using Science and Technology to Help Expand Thinking

The use of science and technology to help expand thinking must be based on the essence of language education, and build a cognitive development system with human-computer synergy. The teaching environment should break through physical space limitations, develop immersive virtual text fields, and use three-dimensional modeling technology to restore literary scenes, so that students can deepen their three-dimensional deconstruction of textual meanings in embodied cognition. The in-depth application of intelligent diagnostic tools can accurately capture the trajectory of thinking, deploy natural language processing systems to analyze students' classroom speeches in real time, and generate heat maps of personalized thinking development to provide teachers with a basis for intervention and decision-making. The construction of a dynamic cognitive scaffolding system is crucial, and the design of an adaptive learning platform pushes differentiated discursive tasks according to the blind spots of students' thinking, for example, automatically generating rebuttal training modules for the weak links of argumentation. Cross-media resource integration technology needs to strengthen the function of unification of thinking, build a multimodal learning space to realize the intelligent correlation of text, image, and audio, and train students to quickly extract the logical threads in the flood of information. The development of cognitive modeling engines is worth exploring, transforming the thinking structure of classical texts into interactive algorithmic models, allowing students to adjust parameters to observe the transmutation of textual meaning caused by different decisions. The creative use of digital narrative tools can extend the boundaries of thinking, assisting students in reconstructing narrative logic with the help of storyboard generators, and cultivating creative imagination in non-linear editing. The

ethical considerations of technology cannot be ignored, and the establishment of a boundary framework for the use of data ensures that students' cognitive privacy and subjectivity survive in the process of thinking training. These technology integration measures do not replace traditional language teaching, but form a new cognitive gas pedal that enables text interpretation and thinking development to realize a qualitative leap in the digital twin [6].

5.5. Adopting Multiple Evaluations to Guide Thinking Advancement

Adopting multiple evaluations to guide thinking advancement requires constructing three-dimensional assessment frameworks that penetrate cognitive processes. Diversified evaluation subjects integrate teacher diagnostics, peer mutual assessments and parental observations, forming multi-perspective feedback mechanisms to objectively reflect students' thinking development trajectories. Innovative evaluation tools combine digital portfolios with conceptual mapping techniques, visually presenting the dynamic evolution of logical deduction and creative thinking abilities. Multidimensional evaluation criteria transcend traditional knowledge measurement, focusing on core indicators including reasoning rigor, perspective uniqueness and cultural interpretation depth. Process-oriented evaluation cycles establish phased tracking models, using artificial intelligence algorithms to dynamically generate thinking growth maps that inform personalized intervention strategies. Cross-cultural evaluation elements embed traditional literary appreciation paradigms into modern assessment systems, nurturing students' ability to interpret texts through historical context lenses. Classroom observation protocols prioritize capturing micro-thinking behaviors, developing specialized coding systems to quantify abstract cognitive activities. Evaluation feedback mechanisms emphasize dialogic interactions, designing reflective journals that prompt students to self-examine argumentation patterns and cognitive biases. These integrated assessment approaches reconstruct the value orientation of Chinese literacy education, transforming evaluation from terminal judgment into thinking scaffolding tools that continuously stimulate intellectual potential [7].

6. Conclusion

This study systematically demonstrates the intrinsic connection between the cultivation of higher-order thinking ability and language teaching, reveals the crux of superficial and fragmented thinking training practices in the current classroom, and proposes a breakthrough path from the four dimensions of design, method, training, and technology. Optimizing the teaching design requires the classroom structure to prioritize thinking development, transforming text interpretation into a ladder for thinking advancement; innovating the teaching method focuses on breaking one-way teaching and reconstructing the teacher-student interaction paradigm through activities such as debates, creative writing, and project exploration; specific thinking training needs to be carried out throughout the language practice process, with logic honed in imitation writing, criticism deepened in annotation, and imagination stimulated in continuation writing; and technology empowerment emphasizes the creation of contexts that integrate the virtual and the real, creating a new environment for the development of thinking training. The synergistic implementation of these strategies not only promotes the symbiosis between language proficiency and thinking ability but also injects vitality and innovation into the language classroom. Future research can further explore the adaptive mechanism of different text types and thinking development, as well as the localized construction of thinking development evaluation tools, to promote deep changes in language education from “knowledge transfer” to “thinking empowerment”.

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