

AGE-RELATED AND PSYCHOLOGICAL CHARACTERISTICS OF PRIMARY
SCHOOL STUDENTS' THINKING AS A BASIS FOR DEVELOPING CRITICAL
THINKING IN NATIVE LANGUAGE AND READING LESSONS

Alimova Mavluda Adiz qizi

Acting Associate Professor, Department of Preschool and Primary Education,
Asia International University, PhD in Pedagogical Sciences

ORCID: 0009-0005-2571-6464

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Annotation. *The article analyses the age-related and psychological characteristics of the thinking of primary school students from the standpoint of developing critical thinking in “Native Language and Reading Literacy” lessons. Drawing on cultural-historical and cognitive-developmental theories (L.S. Vygotsky, J. Piaget, D.B. Elkonin, V.V. Davydov) and on research into metacognition, executive functions, theory of mind and children’s selective trust in information sources, the study identifies the psychological prerequisites and the age-related limitations of critical thinking at this stage. It is shown that primary school students are capable of elementary forms of questioning, evaluating evidence and monitoring their own thinking, provided that tasks rely on concrete material, oral dialogue and external supports. The age-appropriate potential for developing critical thinking is systematized for Grades 1–2 and Grades 3–4, and pedagogical implications for native language and reading lessons are formulated.*

Keywords: critical thinking, primary school age, concrete operational thinking, zone of proximal development, learning activity, metacognition, executive functions, theory of mind, selective trust, reading literacy.

INTRODUCTION

Developing critical thinking from the earliest stages of schooling has become one of the priorities of educational reform in Uzbekistan. The new assessment system introduced by Presidential Decree No. PF-79 of 26 May 2023 provides for evaluating students’ critical thinking and their ability to analyse given material [1], while the results of PIRLS 2021, in which fourth-grade students of Uzbekistan scored 437 points against the scale centrepont of 500 [19], show that the ability to interpret and evaluate texts requires purposeful development already in primary school. As we noted in an earlier study, “Modern lessons in the native language and reading are not only a means of developing speech competence but also serve as an important platform for shaping students’ analytical, reflective, and conscious approach to processing information” [5].

The effectiveness of such lessons, however, depends on how well their methods correspond to the age-related characteristics of children’s thinking. Two opposite positions can be found in pedagogical practice. According to the first, critical thinking presupposes abstract hypothetico-deductive reasoning and therefore becomes possible only in adolescence; according to the second, models of critical thinking designed for older students and adults are transferred to primary school without adaptation. Both positions lead to errors: the first underestimates the capacities of younger students, and the second ignores their real limitations. Contemporary research shows that elements of critical thinking appear early but develop gradually and depend on knowledge, language and adult support [16; 23].

The aim of the article is to identify the age-related and psychological characteristics of primary school students' thinking that determine the possibilities and limits of developing critical thinking in native language and reading lessons, and to formulate the pedagogical implications that follow from them.

LITERATURE REVIEW AND METHODS

The classical theories of cognitive development provide the starting point of the analysis. J. Piaget and B. Inhelder described the period of approximately 7 to 11 years as the stage of concrete operations, at which the child masters conservation, classification, seriation and reversible mental operations, but applies them mainly to concrete, perceptible content; formal reasoning about hypothetical propositions develops later [21]. L.S. Vygotsky showed that instruction leads development when it is directed at the zone of proximal development, that is, at what the child can do with the help of an adult or a more capable peer, and that higher mental functions first appear in joint activity and dialogue and only then become internal [10]. D.B. Elkonin identified learning activity as the leading activity of primary school age [9], and V.V. Davydov demonstrated that the foundations of theoretical thinking can be formed in younger students when the content of learning activity is specially organized [8].

Contemporary research has added several important lines of inquiry. J. Flavell introduced the concept of metacognition – knowledge about and monitoring of one's own cognitive processes [14]. E. Markman found that third- to sixth-grade students often failed to notice inconsistencies in texts and did not spontaneously compare propositions, although prompts improved their performance [17]. A. Diamond characterized executive functions – inhibitory control, working memory and cognitive flexibility – as the basis of self-regulated thinking that develops throughout childhood [12]. H. Wellman and co-authors summarized research on children's understanding of false beliefs [22], and J. Perner and H. Wimmer studied the attribution of second-order beliefs ("John thinks that Mary thinks...") by children aged 5 to 10 [20]. M. Koenig and P. Harris showed that preschoolers already mistrust ignorant and inaccurate speakers [15], while C. Mills reviewed how children gradually develop a critical stance when learning from others [18]. D. Kuhn and co-authors described the development of epistemological understanding from absolutist to multiplist and evaluativist levels, linking critical thinking with the understanding that claims require justification [16]. D. Willingham argued that critical thinking is not a general skill detached from content: even young children reason critically in some situations, but the quality of reasoning depends on domain knowledge [23]. J. Chall described the transition from "learning to read" in the early grades to "reading to learn" from about Grade 4 [11]. P. Facione's expert consensus defined the core skills of critical thinking as interpretation, analysis, evaluation, inference, explanation and self-regulation [13].

In Uzbek methodological literature, the need to take the age characteristics of students into account in native language and reading lessons has been emphasized by K. Qosimova and co-authors [2], and R. Qo'ldoshev substantiated the priority of the dialectical relationship between speech and thinking in primary school textbooks [3]. In our previous research, a methodology for developing critical thinking in native language and reading literacy lessons was developed, and the reproductive, search and creative levels of critical thinking were identified [4]. These findings, however, are scattered across different fields and have not yet been systematized in relation to the components of critical thinking and the specific content of native language and reading lessons.

The study is theoretical. It applied theoretical analysis and synthesis of psychological and pedagogical sources, comparative analysis of developmental theories, systematization and generalization. The characteristics of primary school students' thinking were analysed along five lines that correspond to the core skills of critical thinking [13]: cognitive operations; speech and dialogue; metacognition and self-regulation; perspective-taking and evaluation of information sources; and the motivational context of learning activity.

RESULTS

The first result concerns cognitive operations. Primary school age is the period in which visual-figurative thinking gives way to concrete operational thinking [21]. Students become able to compare, classify, establish sequences and identify cause-and-effect relationships, but they perform these operations most successfully on concrete material: events of a story, actions of characters, pictures, tables. Hypothetical questions such as "What would have happened if...?" are accessible to them only when they are tied to a familiar plot and supported by visual or verbal cues. Consequently, the operations of analysis and inference [13] can and should be developed from Grade 1, but on the material of a specific text rather than in abstract form.

The second result concerns speech and dialogue. According to L.S. Vygotsky, reasoning first appears as a dialogue with an adult or peers and only later becomes inner speech [10]. For primary school students, this means that justification, the central operation of critical thinking, develops through oral exchanges in which the teacher asks "Why do you think so?", "How do you know?", "Where does the text say this?" and offers speech frames such as "I think..., because...".

In Grades 1–2, justification is mainly oral and supported by the teacher; in Grades 3–4, students are gradually able to formulate short written justifications structured as opinion, evidence and conclusion.

The third result concerns metacognition and self-regulation. Monitoring one's own understanding develops slowly: as E. Markman showed, even students in Grades 3–6 often do not notice contradictions in a text unless they are prompted to look for them [17]. The limited capacity of working memory and still developing inhibitory control [12] make it difficult for younger students to hold a long text in mind, to refrain from the first answer that comes to mind and to consider an alternative. Self-regulation, which P. Facione regards as the culminating skill of critical thinking [13], therefore has to be supported externally at this age: through short texts, "stop and check" questions during reading, simple checklists and reflective questions at the end of the lesson. Written work offers additional opportunities for self-monitoring. Our earlier study examined spelling errors that arise in primary school students' written work under the influence of local dialects and methods for their correction and proposed a procedure in which "each student keeps an 'error notebook' and checks his or her written work according to a set algorithm, and mutual checking is organized" [7, p. 214] (translated from Uzbek). Comparing a dialect form with the literary norm requires the student to notice a discrepancy and to check his or her own text, which is an elementary form of monitoring one's own thinking.

The fourth result concerns perspective-taking and the evaluation of information sources. By the beginning of schooling, most children understand that other people can hold false beliefs [22], and during primary school age they increasingly master second-order reasoning about what one person thinks another person thinks [20]. This creates a psychological basis for discussing characters' intentions and the author's purpose: for example, the question "What did the fox want

the crow to believe when it praised her singing?” in I.A. Krylov’s fable “The Crow and the Fox” requires exactly such reasoning. At the same time, children’s ability to doubt is rooted earlier than is often assumed: preschoolers already prefer accurate informants [15], although a mature critical stance towards sources develops gradually [18]. At the level of epistemological understanding, younger students tend to regard knowledge as a set of certain facts received from authority [16]; the teacher’s task is to show that opinions may differ and must be supported by reasons.

The fifth result concerns the motivational context. Learning activity, as the leading activity of primary school age [9], creates favourable conditions for the deliberate development of thinking, and younger students’ natural curiosity supports questioning. On the other hand, the high authority of the teacher and the textbook may lead students to accept statements without checking them. The development of critical thinking therefore requires a classroom climate in which asking questions, expressing disagreement and admitting a mistake are regarded as normal parts of learning. The emotional side of learning is equally important: in our earlier study, art therapy was considered as a means of alleviating cognitive and emotional difficulties among young learners [6]. A supportive emotional climate reduces the fear of making a mistake and thus creates conditions for open questioning and discussion.

On the basis of these results, the age-appropriate potential for developing critical thinking was systematized for Grades 1–2 and Grades 3–4 (Table 1). The boundary between the two groups is approximate and reflects general tendencies rather than strict age norms; it also corresponds to the transition from learning to read to reading to learn described by J. Chall [11].

Table 1

Age-appropriate potential for developing critical thinking in primary school

Psychological line	Grades 1–2	Grades 3–4	Implications for native language and reading lessons
Cognitive operations	Transition from visual-figurative to concrete operational thinking; comparison and classification by clear external features	Consolidation of concrete operations; first generalizations; cause-and-effect relations within a text	Comparing characters, sorting information, building cause-and-effect chains on familiar material
Speech and dialogue	Thinking aloud; short oral justifications with the teacher’s support	Extended oral argument; first short written justifications	“I think..., because...” frames; pair discussion; written “opinion – evidence – conclusion” texts
Metacognition and self-regulation	Limited monitoring of understanding; reliance on external prompts	Emerging ability to check an answer against the text and given criteria	“Stop and check” questions; simple checklists; reflective questions at the end of the lesson

Psychological line	Grades 1–2	Grades 3–4	Implications for native language and reading lessons
Perspective-taking and sources	Understanding characters' beliefs and intentions in simple stories	Second-order reasoning; noticing persuasive intent; comparing two accounts	Discussing characters' intentions and the author's purpose; comparing two texts on one topic
Reading	Learning to read: decoding requires much attention	Transition to reading to learn: more independent work with texts	Grades 1–2: critical thinking tasks on texts read aloud and pictures; Grades 3–4: independent text analysis

DISCUSSION

First, the results argue against both extremes described in the introduction. Waiting for formal operations would mean missing the period in which the psychological prerequisites of critical thinking – concrete operations, perspective-taking, selective trust and learning activity – are actively forming. At the same time, transferring adult models of critical thinking to primary school ignores the limits of working memory, self-regulation and abstract reasoning at this age.

The developmental view of critical thinking proposed by D. Kuhn and co-authors [16] and D. Willingham's argument about the role of knowledge [23] suggest a third path: critical thinking should be developed gradually and on specific content. Native language and reading lessons provide such content in the form of texts that students understand and care about.

Second, the zone of proximal development is the key psychological mechanism of this process. At first, the elements of critical thinking exist in a shared form: the teacher asks the questions, points to the evidence and models the justification. As students master these actions, the external support is reduced, and the questions become the students' own. This interpretation of Vygotsky's theory [10] explains why dialogue, speech frames and reflective questions are not auxiliary techniques but the main means of developing critical thinking in primary school.

Third, individual differences among students are considerable at this age: children of the same grade differ in reading fluency, vocabulary, working memory and experience of discussion.

Our earlier study showed that an individual approach has a significant influence on the development of students' analytical skills and reasoning abilities [5]. Taking into account the levels of critical thinking identified in our previous research [4], this finding points to the need for graded tasks that allow each student to work within his or her zone of proximal development.

The limitation of the study lies in its theoretical nature: the age boundaries and characteristics described here are generalized from international research and need to be verified by diagnostic studies of primary school students in Uzbekistan. Such diagnostics, together with the development of a system of graded tasks, constitute the next stage of our research.

CONCLUSION

The analysis leads to the conclusion that primary school age is a sensitive period for laying the foundations of critical thinking.

Concrete operational thinking, the developing ability to understand other people's beliefs, early forms of selective trust and learning activity as the leading activity create real psychological prerequisites for questioning, evaluating evidence, drawing conclusions and monitoring one's own thinking.

At the same time, these abilities are limited by the reliance of younger students on concrete material, by the immaturity of metacognition and executive functions and by the tendency to accept the statements of authority. Therefore, critical thinking in primary school should be developed on the material of specific texts, mainly through oral dialogue in the early grades and with a gradual transition to written justification in Grades 3–4, with external supports that are progressively withdrawn.

For native language and reading lessons, this means choosing tasks according to the age-appropriate potential summarized in Table 1, using speech frames and “stop and check” questions, creating a classroom climate that encourages questions and disagreement, and applying an individual approach through graded tasks. The development and empirical testing of such a system of graded tasks is the subject of further research.

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