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PECULIARITIES OF REASONING IN PRIMARY SCHOOL PUPILS

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ABSTRACT

One of the main goals of modern education is to help primary school students learn how to think logically. This is important because it helps them understand, solve problems, and learn by thinking about what they have learned in all subjects. At this stage, children evolve from intuitive, syncretic thinking to more organized reasoning, shaped by education, language acquisition, and social engagement. This article examines the psychological and pedagogical characteristics of reasoning during the early school years, drawing upon J. Piaget's concepts regarding the transition from preoperational to concrete-operational thought and Vygotskyan perspectives on the social dimensions of higher mental functions. It emphasizes the preeminence of tangible representations, the incremental development of logical operations, and the reliance of children's arguments on context, adult supervision, and linguistic resources. Recent research on argumentation and dialogic teaching in primary classrooms is synthesized to demonstrate how teacher inquiries, collaborative problem-solving, and feedback influence the quality of students' reasoning. The article concludes with practical implications for instructional design aimed at deliberately fostering explanatory, justificatory, and reflective reasoning from the initial years of education.

Keywords: Primary school pupils, reasoning, argumentation, cognitive development, dialogic teaching, concrete-operational thinking.

INTRODUCTION

In a lot of school systems, the primary school stage is seen as a time when higher mental functions, like the ability to reason, explain, and justify decisions, are formed. Kids come to school with a lot of real-world experience, but their reasoning is often based on their own experiences, gut feelings, and how things look to them. In the initial four years of education, children experience structured teaching, symbolic systems like written language and mathematics, and novel modes of social interaction, all of which alter their cognitive processes. Classic developmental psychology refers to this phase as a transition from preoperational to concrete-operational thought, marked by the development of reversibility, conservation, and the capacity to integrate multiple perspectives. Piaget's research indicated that children aged seven to eleven years become increasingly adept at employing logical rules when tasks are situated within familiar, concrete contexts.

Simultaneously, socio-cultural theories assert that reasoning is not merely an internal cognitive framework, but a culturally influenced endeavor shaped by language and engagement with more proficient individuals. Vygotsky and his adherents demonstrated that adult scaffolding within the zone of proximal development facilitates children's engagement in reasoning activities that surpass their independent capabilities, thereby enabling them to gradually internalize culturally esteemed cognitive frameworks. In modern primary classrooms, this theoretical insight is implemented through dialogic and inquiry-based pedagogies, which regard children's verbal reasoning as a fundamental learning outcome rather than merely a means of information retrieval. Studies on classroom discourse and argumentation demonstrate that robust reasoning develops when students are encouraged to offer explanations, contemplate diverse perspectives, and substantiate their responses with evidence.

Even with these improvements, everyday teaching still often makes reasoning about giving the right answer, and it doesn't pay enough attention to how primary students really make arguments. To create lessons that help students move from concrete, context-bound reasoning to more general and reflective forms, it's important to know about these age-specific traits.

This article is conceptual-analytical, based on a selective review of classical developmental theories and contemporary empirical studies regarding reasoning and argumentation in primary education. The sources encompass seminal texts by Piaget and Vygotsky, alongside contemporary studies regarding children's argumentative abilities, dialogic pedagogy, and inquiry-based learning in the primary years.

The analysis proceeded through multiple stages. Initially, theoretical frameworks of cognitive development from ages six to ten were analyzed to discern essential psychological traits pertinent to reasoning, including the prevalence of concrete operations, the diminution of egocentrism, and the emergence of metacognitive awareness. Second, empirical classroom studies utilizing discourse analysis, tasks in science and mathematics education, and evaluations of argument quality were examined to delineate the manifestation of these psychological characteristics in authentic learning contexts. Third, the results were combined to make a list of pedagogically important differences in how primary school students reason, with a focus on the role of language, context, and teacher mediation.

The literature review uncovers various interconnected characteristics of reasoning among primary school students. First, kids' arguments are based on real-life experiences and things they can see and hear. When asked to explain their answers, they often talk about what they can see or remember from doing something instead of abstract ideas. This is an example of concrete-operational thinking, which is when logical operations like classification and seriation are possible but work

best with real things or situations that are already known.

Second, primary school students show that they are starting to be able to think logically, but this ability is not yet stable. In simple tasks, they can create "because" clauses and connect premises to conclusions, but their reasoning may still have contradictions, details that don't matter, or jumps from one idea to another. Research on classroom discussions indicates that numerous children offer one-word or scant explanations unless specifically encouraged to expand, and they gain from teacher demonstrations of comprehensive arguments organized around claims, evidence, and reasoning.

Third, the social environment of the classroom has a significant impact on the quality of students' reasoning. When teachers mostly ask closed questions that need short factual answers, kids don't get to practice extended reasoning very often. Conversely, dialogic and inquiry-based lessons, which encourage students to make predictions, elucidate phenomena, compare alternative solutions, and engage with peers, produce more substantial and logically organized contributions. Studies on dialogic teaching indicate that open-ended questions, the incorporation of student ideas, and the promotion of peer-to-peer dialogue correlate with improvements in reasoning and achievement, especially among disadvantaged populations.

Fourth, the growth of reasoning is closely related to how well someone speaks a language. As primary school students learn more words and how to put them together, they get better at using connectives like "because," "if," "therefore," and "although." However, if they don't have enough language skills, their arguments may not be as clear as they should be, even if they understand the topic well. Bilingual and multilingual environments add more complexity, but they also open up new possibilities. For example, switching languages can help kids understand ideas and build explanations.

The identified peculiarities possess significant implications for educational practice. The prevalence of concrete representations indicates that pedagogical approaches should incorporate manipulatives, visual models, and authentic contexts, progressively integrating more abstract reasoning tools. For instance, teachers can go from asking kids to explain why they think something will happen to making general rules about why things happen. In mathematics, this could entail associating the tangible action of grouping items with the theoretical notion of multiplication; in science, correlating practical experiments with causal elucidations.

The lack of logical coherence in the reasoning of young students shows how important it is to use systematic modeling and scaffolding. When teachers talk about how they think, clearly marking premises, intermediate steps, and conclusions, they give kids templates they can use.

Because the quality of reasoning depends so much on how people talk in class, learning environments that are rich in talk need to be carefully planned. When the teacher talks most of the time, there isn't much room for students to practice longer reasoning. On the other hand, structured group work, whole-class discussions, and paired dialogue about difficult questions give kids chances to test their ideas, hear other people's points of view, and improve their arguments. But just talking more isn't enough; teachers need to teach students how to listen, take turns, and disagree respectfully so that reasoning stays focused and useful.

The close link between language and reasoning shows how important reading and vocabulary growth are for brain development. Teaching language skills along with content, like teaching logical connectors with science or math, can help students express complex ideas better. In multilingual classrooms, recognizing and strategically employing students' home languages, rather than repressing them, can enhance comprehension and facilitate reasoning by enabling pupils to analyze problems in the language they find most accessible.

Finally, encouraging metacognitive awareness of reasoning from a young age can set the stage for learning that lasts a lifetime. Basic reflective exercises, like asking students to say which argument convinced them or what they would do differently next time at the end of a lesson, help them see reasoning as something to think about rather than something that happens automatically. Over time, this encourages intellectual humility, a willingness to change, and the ability to correct oneself, all of which are important parts of mature reasoning.

To reach bigger educational goals like critical thinking, problem solving, and active citizenship, it is important to understand and respond to the unique ways that young learners think. Primary education that acknowledges the unique aspects of children's reasoning will enhance academic achievement and establish cognitive and attitudinal foundations for lifelong learning.

References

1. Piaget J. The Language and Thought of the Child. 3rd ed. London: Routledge & Kegan Paul, 1959.
2. Inhelder B., Piaget J. The Growth of Logical Thinking from Childhood to Adolescence. New York: Basic Books, 1958.
3. Vygotsky L.S. Mind in Society: The Development of Higher Psychological Processes. Cambridge, MA: Harvard University Press, 1978.
4. Mercer N., Dawes L. The study of talk between teachers and students, from the 1970s until the 2010s // Oxford Review of Education. 2014. Vol. 40, No. 4. P. 430–445.
5. Osborne J., Erduran S., Simon S. Enhancing the quality of argument