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THE INTERRELATION OF COGNITIVE AND SOCIAL DEVELOPMENT IN THE PRESCHOOL PERIOD

Azizova Zulfizar Fazilovna
Associate Professor (PhD), Department of "preschool education", "
University of economics and pedagogy" (non-state HEI)

Abstract. The article provides a theoretical and methodological analysis of the interrelation between cognitive and social development in the preschool years. The foundational concepts of J. Piaget and L. Vygotsky are examined comparatively, and the mutual conditioning of the two developmental domains is revealed through mediating mechanisms such as language and speech, play activity, the zone of proximal development, and theory of mind. The study considers empirical links between executive functions and social cognition, as well as the context of Uzbekistan's improved "Ilk qadam" ("First Step") state curriculum. The findings are summarized as pedagogical implications for improving the technology of forming social competence in preschool-age children.

Keywords: cognitive development, social development, social competence, zone of proximal development, theory of mind, executive functions, preschool education.

Introduction

The preschool period (ages 3–7) is a sensitive stage in human ontogenesis during which the cognitive and social foundations of personality are formed intensively. Although traditional psychological and pedagogical literature has often examined cognitive processes and social behaviour separately, contemporary research shows that these two domains constitute a single, mutually conditioned developmental system. As a child engages in communication with others, he or she simultaneously develops thinking, speech, and attention; conversely, the growth of cognitive abilities enables the child to understand others' intentions and feelings, to cooperate, and to regulate his or her own behaviour.

The first major approaches that theoretically substantiated this interrelation can be traced to L. Vygotsky's sociocultural theory[1] and J. Piaget's theory of stages of cognitive development.[2] In subsequent decades, empirical research on theory of mind and executive functions confirmed this connection at the level of measurable indicators. The aim of this article is to provide a theoretical synthesis of the interrelation between cognitive and social development in the preschool years and to demonstrate how it can be used to improve the technology of forming social competence.

Materials and methods

The study is theoretical and analytical (a review) in nature and relies on a qualitative methodology. The research question was formulated as follows: through which mechanisms are cognitive and social development interrelated in the preschool years, and what significance does this interrelation have for the technology of forming social competence? The following methods

[1]Vygotsky L. S. Mind in Society. – Cambridge, MA: Harvard University Press, 1978. – P. 84–91.

[2]Piaget J., Inhelder B. The Psychology of the Child. – New York: Basic Books, 1969.

were used: comparative-typological analysis of scientific sources, synthesis of meta-analytic findings, and conceptual modelling.

The following criteria were applied in selecting sources: (1) fundamental theoretical works of developmental psychology and preschool pedagogy (Piaget, Vygotsky, Bronfenbrenner, Elkonin); (2) contemporary empirical and meta-analytic studies that illuminate the targeted interrelation at a measurable level (Wellman et al.; Carlson and Moses; Devine and Hughes; Denham); (3) current normative documents of the Republic of Uzbekistan, including the improved "Ilk qadam" state curriculum (2022). The collected data were synthesized through thematic analysis, and the results were systematized along four directions.

Results

The results of the analysis were systematized along four interrelated directions: a comparative analysis of theoretical approaches; the connecting role of theory of mind and executive functions; the manifestation of the interrelation across age stages; and the normative context of Uzbekistan.

Comparative analysis of theoretical approaches

J. Piaget described cognitive development as a process that unfolds in stages through the child's active interaction with the environment. According to his theory, the preschool age corresponds mainly to the preoperational stage (approximately 2–7 years): the child begins to represent objects through symbolic thought and language, but remains limited in performing logical operations and in fully adopting the perspective of others — a phenomenon termed egocentrism.[3]

L. Vygotsky, by contrast, located the source of development in the child's social environment, in cooperation with adults and peers. His central idea is the zone of proximal development (ZPD): the distance between what a child can do independently and what he or she can do with the help of an adult or a more capable peer. As Vygotsky emphasized, learning leads development, that is, social interaction provides the basis for the internalization (interiorization) of cognitive functions.[4] In this way, language — initially a means of communication — later becomes inner speech that governs thought.

Criterion	J. Piaget (cognitive constructivism)	L. Vygotsky (social constructivism)
Primary source of development	The child's independent activity and experience with the environment	Social interaction and joint activity
Relation of language and thought	The development of thought determines language	Language shapes thought and becomes inner speech
Learning and development	Development precedes learning	Learning leads development (ZPD)
View of	A natural limitation of	Overcome through the

[3]Piaget J., Inhelder B. Op. cit. – New York: Basic Books, 1969.

[4]Vygotsky L. S. Op. cit. – Cambridge, MA, 1978. – P. 86.

Criterion	J. Piaget (cognitive constructivism)	L. Vygotsky (social constructivism)
egocentrism	preschool thought	internalization of social speech
Pedagogical implication	Creating a developmentally appropriate environment	Scaffolding and guided participation

Table 1. Comparative analysis of two approaches to the interrelation of cognitive and social development.

The two approaches do not contradict but complement each other: Piaget illuminates the internal logic of cognitive structures, while Vygotsky reveals their social origins. It is precisely from this synthesis that the contemporary view emerges — that cognitive and social development form a single, interrelated process. The schema below (Figure 1) presents a conceptual model of this interrelation.

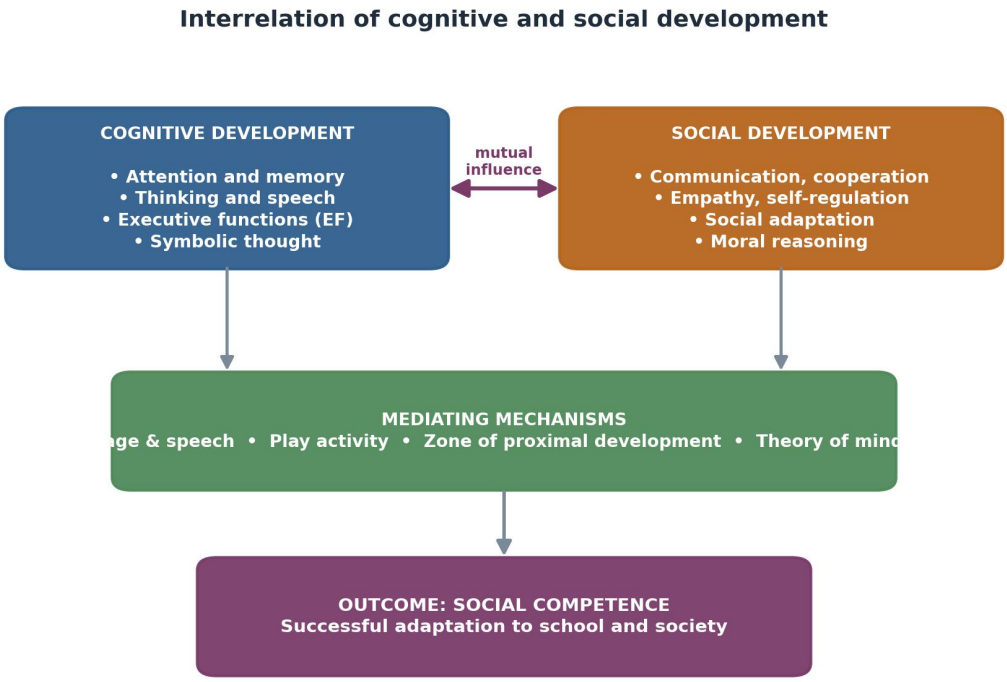


Figure 1. The interrelation of cognitive and social development: a conceptual schema.

The connecting role of theory of mind and executive functions

The phenomenon that most clearly demonstrates the bridge between cognitive and social development is theory of mind (ToM) — the ability to understand that other people have their own thoughts, desires, intentions, and feelings. The extensive meta-analysis by H. Wellman and colleagues showed that in the preschool years the ability to understand "false belief" increases sharply between the ages of 3 and 5, with a turning point occurring at around age 4 (Figure 2).[5]

[5]Wellman H. M., Cross D., Watson J. // Child Development. – 2001. – Vol. 72, No. 3. – P. 655–684.

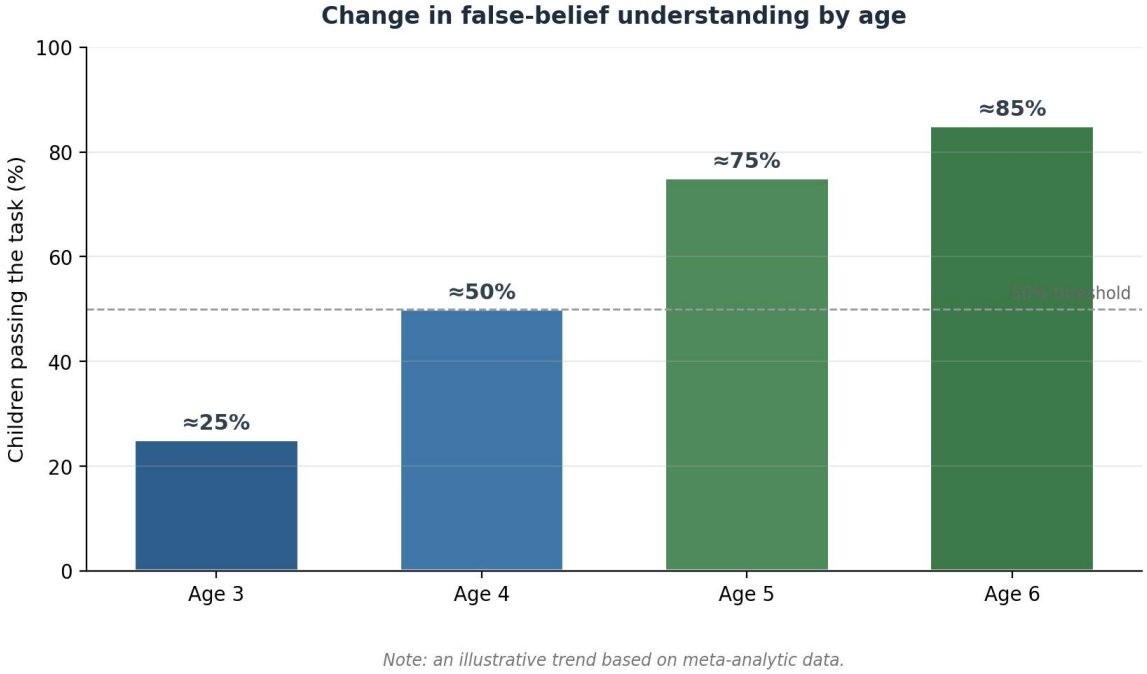


Figure 2. Change in false-belief understanding by age.

The development of ToM depends directly on cognitive capacity — especially on executive functions (EF). EF comprises working memory, inhibitory control (suppressing an unnecessary response), and cognitive flexibility. The studies of S. Carlson and L. Moses found that the level of inhibitory control predicts a child's success on theory-of-mind tasks.[6] The meta-analysis by R. Devine and C. Hughes confirmed a stable, moderately strong association between executive functions and false-belief understanding.[7]

Thus, in order to adopt another person's perspective, a child must control his or her attention, temporarily "suspend" his or her own viewpoint, and imagine an alternative state of affairs — all of which are cognitive mechanisms. At the same time, language and conversation with others (especially talk about emotional states) accelerate the development of ToM. This interaction reveals the spiral, mutually reinforcing nature of the cognitive and social domains.

The interrelation across age stages

The interrelation of cognitive and social development manifests itself in a distinctive way at each age stage. Table 2 summarizes the stage-by-stage expression of this interrelation.

Age	Cognitive markers	Social markers	Form of interrelation
3–4 years	Symbolic play, rapid growth of speech	Parallel play, simple turn-taking	First cooperation with peers through language

[6]Carlson S. M., Moses L. J. // Child Development. – 2001. – Vol. 72, No. 4. – P. 1032–1053.

[7]Devine R. T., Hughes C. // Child Development. – 2014. – Vol. 85, No. 5. – P. 1777–1794.

Age	Cognitive markers	Social markers	Form of interrelation
4–5 years	Beginning to understand false belief	Joint pretend play, friendship	ToM supports conflict resolution and cooperation
5–6 years	Strengthening of executive functions and planning	Rule-based games, emotion regulation	Inhibitory control regulates social behaviour
6–7 years	Elements of logical reasoning, learning motivation	Adherence to group norms, moral reasoning	Social-cognitive readiness for school is formed

Table 2. The interrelation of cognitive and social development across age stages.

As the table shows, at each stage a cognitive achievement expands social opportunity, while social experience generates new cognitive tasks. In this process, play — as D. Elkonin emphasized — serves, as the leading activity of the preschool age, as the principal arena uniting the two domains.[8]

The normative context of Uzbekistan: the improved "Ilk qadam" curriculum

Uzbekistan's improved "Ilk qadam" state curriculum (2022) in the field of preschool education defines the child's development across five interrelated domains: physical development and a healthy lifestyle; social-emotional development; speech, communication, reading and writing skills; the development of cognition; and creative development (Figure 3).[9] This very structure confirms, at the normative level, the idea substantiated in this article — that the cognitive ("development of cognition") and social-emotional domains cannot be separated from one another.

[8]Elkonin D. B. The Psychology of Play. – Moscow: Pedagogika, 1978.

[9]The improved "Ilk qadam" state curriculum for preschool education organizations. – Tashkent, 2022.

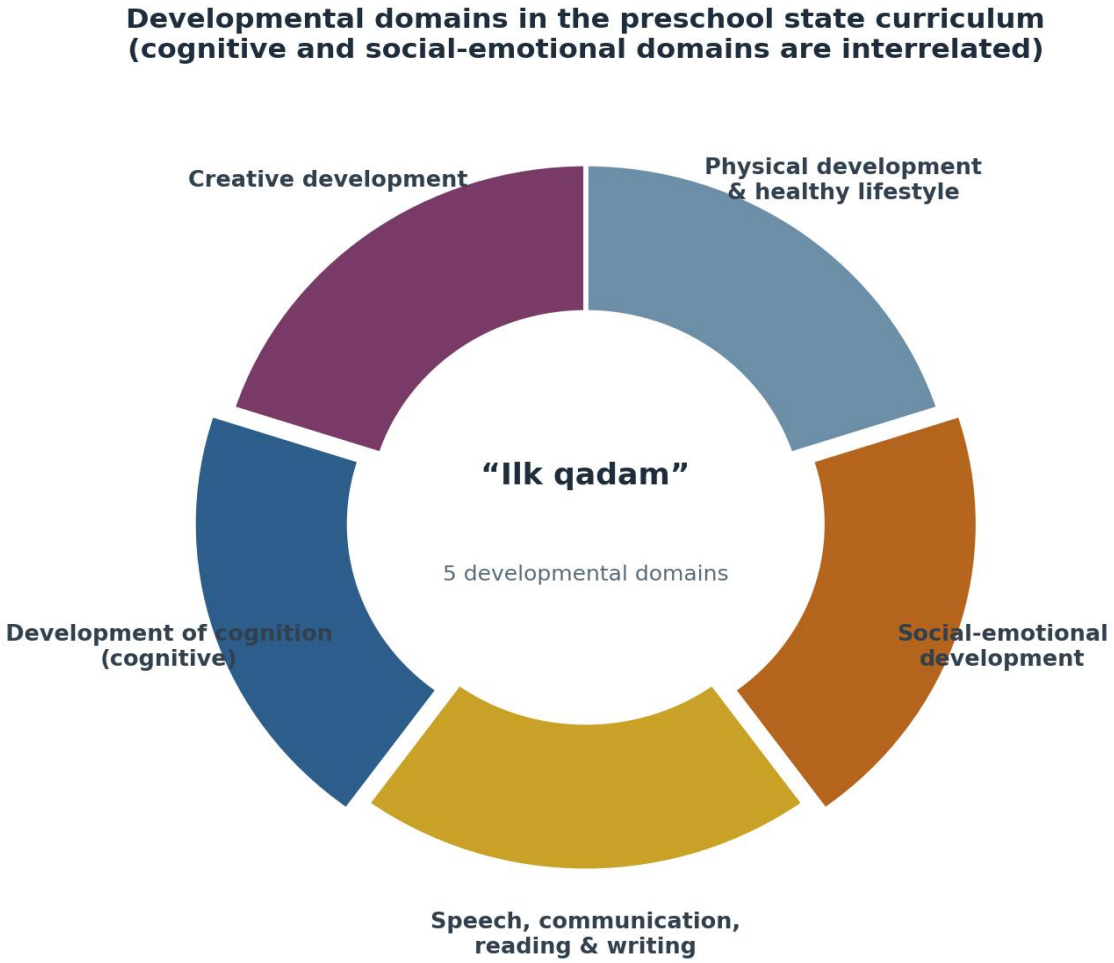


Figure 3. The five developmental domains in the "Ilk qadam" state curriculumю

In the curriculum, play is recognized as the leading activity of the preschool age, and through it the child's cognitive, social-emotional, and creative aspects are developed together. This approach is consonant with Vygotsky's zone of proximal development and Elkonin's theory of play, and provides a national normative basis for the technology of forming social competence.

Discussion

The results obtained show that in the preschool years cognitive and social development are not two separate directions but a single, mutually conditioned system. The comparative analysis (Table 1, Figure 1) revealed that the approaches of Piaget and Vygotsky do not contradict but complement each other; the empirical evidence on theory of mind and executive functions (Figure 2) confirmed this theoretical connection at a measurable level. The analysis of age stages (Table 2) demonstrated the spiral, progressively strengthening nature of the interrelation.

The practical significance of these conclusions is that recognizing the interrelation of cognitive and social development directly affects the design of the technology of forming social competence. Table 3 presents the contribution of the mediating mechanisms to the two domains and the corresponding pedagogical strategies.

Mechanism	Cognitive contribution	Social contribution	Pedagogical strategy
Language and speech	Thought and self-regulation	Communication, negotiation	Talk about emotions, dialogue
Play activity	Symbolic thought, planning	Role-taking, cooperation	Enriching socio-dramatic play
Zone of proximal development	Mastering a new cognitive task	Help from adults/peers	Scaffolding, gradual support
Theory of mind (ToM)	Perspective-taking	Empathy, conflict resolution	Story discussion, situational games

Table 3. Mediating mechanisms and pedagogical strategies.

U. Bronfenbrenner's ecological systems theory situates these strategies in a broader context: the child's development takes place within the interaction of the family, the preschool institution, and the wider social environment.[10] For this reason, the technology of forming social competence must encompass not only the content of lessons but also the developmental environment and cooperation with the family. As S. Denham emphasizes, social-emotional competence is an important component of a child's school readiness.[11]

As limitations of the study, it should be noted that this work is theoretical and analytical in nature and does not rely on the author's own empirical data; the quantitative indicators presented (Figure 2) illustratively reflect the trend of foreign meta-analyses. In addition, most of the empirical sources were conducted in other socio-cultural settings; experimental studies on a national sample are required to confirm these associations in the conditions of Uzbekistan.

Conclusion

The theoretical analysis has shown that in the preschool period cognitive and social development form a single, mutually conditioned system. Piaget's cognitive constructivism and Vygotsky's sociocultural theory complement each other and explain this connection through mediating mechanisms such as language, play, the zone of proximal development, and theory of mind. The empirical associations between executive functions and social cognition confirm this approach at a measurable level.

The structure of the "Ilk qadam" state curriculum also reflects this idea at the national normative level. Therefore, in improving the technology of forming social competence in preschool-age children, the cognitive and social domains should not be artificially separated; rather, their interrelation should be purposefully supported through integrated pedagogical strategies. This conclusion serves as a theoretical basis for further experimental research.

[10]Bronfenbrenner U. The Ecology of Human Development. – Cambridge, MA: Harvard University Press, 1979.

[11]Denham S. A. // Early Education and Development. – 2006. – Vol. 17, No. 1. – P. 57–89.

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