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Conceptual Framework For Developing Preschoolers' Cognitive Skills Through Project-Based Learning

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Abstract: This paper presents a conceptual framework for improving preschool children's cognitive skills using Project-Based Learning (PBL). The framework is based on constructivist and child-centered learning theories, emphasizing active exploration and collaboration. In English lessons, PBL encourages children to think critically, solve problems, and express creativity. The study argues that combining PBL with preschool education supports cognitive, linguistic, and social development through meaningful, hands-on activities.

Keywords: Project-based learning, preschool education, cognitive skills, early childhood, constructivism, English language teaching, creativity, problem-solving, inquiry-based learning, holistic development.

Introduction: In recent years, early childhood education has paid more attention to developing children's thinking and problem-solving abilities rather than only focusing on memorization. Preschool is a critical period when children start to explore, ask questions, and build their understanding of the world. Therefore, teachers need to create learning environments that encourage curiosity and active participation.

Project-Based Learning (PBL) provides such an opportunity. It allows children to learn by doing, exploring real-life topics through creative and meaningful projects. In English lessons, PBL helps preschoolers connect language learning with everyday experiences, making learning more natural and enjoyable. By participating in group projects, children not only improve their language skills but also develop their cognitive abilities, such as attention, memory, reasoning, and creativity.

In Uzbekistan, the Ilk Qadam (the First Step) program intended for preschool educational organizations, emphasizes child-centered and active learning in preschools. It highlights the importance of allowing children to explore, experiment, and learn through meaningful activities that match their interests and developmental level. Integrating PBL with Ilk Qadam (the First Step) principles supports holistic cognitive development, combining curiosity, creativity, and collaborative learning.[1]

This paper aims to present a conceptual framework for using PBL to enhance preschoolers' cognitive development in English language lessons. It discusses the theoretical background, key principles, and practical applications of PBL for early childhood education.

METHOD

Project-Based Learning (PBL) is a teaching method where children learn by working on meaningful, real-life projects. As Katz and Chard explain, projects come from what children are interested in and curious about. A project is a deep exploration of a topic that matters to them. It involves asking questions, discovering answers, and showing what they have learned. This means that teachers do not force projects on children; instead, projects grow naturally from children's curiosity and experiences. This approach helps children stay motivated and develop advanced thinking skills from an early age. [2]

The framework for helping preschoolers develop thinking skills through PBL is based on constructivist theory. According to constructivist theory, learning happens when children actively build their own understanding by connecting new ideas to what they already know. Rather than passively absorbing information, children construct meaning through exploration, reflection, and social interaction.[3] Two important theories that support constructivism are Jean Piaget's cognitive development theory and Lev

Vygotsky's sociocultural theory. [4,5] According to Piaget, children learn by actively engaging with their surroundings and constructing knowledge from their experiences.Piaget emphasized that children progress through stages of cognitive development—sensorimotor (from birth to 18-24 months), preoperational (2 to 7 years), concrete operational (7 to 11 years), and formal operational (adolescence to adulthood)—by actively engaging with their environment. [3] Preschool children, who are generally in Piaget's preoperational stage of cognitive development, construct knowledge through active exploration, imaginative play, and the use of symbols to represent their experiences. As Piaget noted, during this stage—typically between the ages of two and seven—children begin to develop symbolic thought, enabling them to engage in pretend play and use language to represent ideas and objects. [5] Through PBL, children can experiment, ask questions, and use what they learn in real-life situations. For example, they might create mini projects about nature, community helpers, family traditions, animals, plants, festivals, or even simple science experiments like planting seeds or observing the weather. They could also make small art projects, build models, or role-play everyday situations. These activities help strengthen their memory, reasoning, creativity, and problem-solving skills.

Similarly, Vygotsky highlighted that learning is a social process. His concept of the Zone of Proximal Development (ZPD) describes the difference between what a child can do alone and what they can achieve with guidance from someone more knowledgeable, like a teacher or peer. This shows that support and collaboration are essential for children's cognitive growth. [6] Vygotsky also proposed that children develop cognitively through collaborative dialogues with more knowledgeable individuals.[7] In a PBL setting, working together on projects allows children to listen to each other, express their ideas, make decisions as a team, and solve problems creatively in a safe and supportive environment.

Modern research also supports this idea. Sylvia Chard found that projects help children link new information to what they already know, keeping their attention and encouraging them to ask questions and explore. [8] Yu found that Project-Based Learning enhances creative thinking and engagement by encouraging imagination, curiosity, and reflective thinking. [9] In early childhood English lessons, PBL allows children use language in real situations — they can name objects, talk about events, ask questions, and share their ideas — which helps improve both their language skills and thinking abilities.

In Uzbekistan, researchers like Qodirova D. and Alikhodjayeva G. have stressed the importance of active, child-centered learning for developing preschoolers' thinking and creativity. Qodirova points out that including project activities in English lessons helps improve children's attention, memory, and imagination. [10] Alikhodjayeva argues that the use of interactive pedagogical technologies in preschool settings significantly contributes to the development of cognitive abilities, enhancing children's intellectual growth, motivation, and self-directed learning. She notes that when children actively participate in collaborative projects and problem-solving activities, they demonstrate higher levels of attention, reasoning, and creativity. [11] These findings show that project-based and interactive methods fit well with how preschoolers think and learn, making lessons more meaningful and suitable for their development.

The following conceptual diagram (Table 1) illustrates how Project-Based Learning supports preschoolers' cognitive development.

Level	Key Components	Main Cognitive Functions
1. Active Exploration & Discovery	Children explore and discover through play and inquiry.	Stimulates curiosity and critical thinking.
2. Cognitive Development	a) Attention, Memory, Reasoning, and Problem-Solving b) Social Interaction &	Builds thinking skills, teamwork, and communication.

	Collaboration c) Language & Thought	
3. Reflection & Self-Learning	Motivation, Reflection, and Self-Directed Learning	Encourages independence and lifelong learning habits.

Table 1. Summary Model of PBL-Based Cognitive Growth in Preschool Education

The conceptual framework that emerges from these theoretical and practical perspectives places preschoolers at the center of the learning process. Teachers guide and support children, asking questions and giving them chances to explore, instead of just giving information. PBL creates a complete learning environment that helps children grow in thinking, language, and social skills through practical, hands-on activities.

RESULTS AND DISCUSSION

Looking at both theory and practice shows that Project-Based Learning (PBL) is an effective way to support preschoolers' thinking and problem-solving skills. It allows children to explore, ask questions, and learn through real experiences. Instead of just memorizing facts or doing the same tasks repeatedly, children have chances to think, do, and create, making learning active and meaningful.

Preschoolers' thinking skills grow a lot based on how they interact with their surroundings. When learning is hands-on, full of language, and social, children become naturally curious. In project-based activities, they explore real-life topics like nature, family, or their community. These projects involve watching, comparing, sorting, reasoning, and making decisions — all important for early thinking skills. Such activities help children go beyond just recognizing things to understanding them more deeply, improving their critical thinking and problem-solving.

Project-Based Learning also helps children develop thinking and language skills together. By talking about their projects, presenting ideas, and telling stories, children learn to express themselves, link experiences to concepts, and use language to think and reason. This connection between thinking and language builds a strong base for abstract thinking later on. PBL also improves important skills like focusing attention, remembering information, and planning — all of which help children manage themselves and get ready for school.

Another important point is that working together helps children's thinking skills grow. In projects, children work in pairs or groups, learning to listen, share ideas, and agree on solutions. This builds social skills while also improving logical thinking. When teachers guide children by asking questions, giving hints, and showing examples, each child can do more than they could alone. Sharing ideas in a group becomes a key way for children to develop their thinking.

From a teaching perspective, PBL changes the teacher's role from just giving information to helping children discover and learn. Teachers guide, encourage, and support children as they explore questions, helping them take charge of their learning. This approach builds motivation, curiosity, and persistence — qualities that keep children engaged in thinking. It also matches modern education goals, which focus on critical thinking, problem-solving, and creativity.

In preschool English lessons, PBL lets children use language in real situations — naming, describing, asking, and explaining — which helps them understand and remember better while developing thinking skills. It also supports metacognition, as children learn to think about their own learning, notice what they know, and plan how to improve, fostering early independence and self-directed learning.

In summary, project-based learning helps children explore, think, and solve problems. It develops attention, memory, reasoning, and teamwork, while using language to support understanding. It also encourages reflection, motivation, and independent learning, building a foundation for lifelong growth.

CONCLUSION

Project-Based Learning (PBL) is an effective way to support preschool children's thinking and learning in English. By putting children at the center, PBL encourages exploration, questions, and discovery, helping them build knowledge actively. Through hands-

on projects, children develop attention, memory, reasoning, problem-solving, creativity, and social skills. Using language in real projects also links words to ideas and experiences, supporting both thinking and communication. In short, PBL is more than teaching English — it nurtures children's intellectual, social, and emotional growth, preparing them for future learning and lifelong development.

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