

DEVELOPMENT OF PRESCHOOL CHILDREN IN THE CENTER OF SCIENCE AND
NATURE BASED ON THE “ILK KADAM” STATE PROGRAM

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Abstract. This article examines the role of Science and Nature Centers, established under the “Ilk kadam” state program, in fostering the holistic development of preschool children. The study explores how interactive, nature-based, and inquiry-driven learning environments stimulate cognitive growth, emotional well-being, social skills, and environmental awareness among young learners. Through hands-on experiments, observation, and guided exploration, children develop curiosity, problem-solving abilities, and respect for nature, while teachers act as facilitators of active learning rather than traditional instructors.

Keywords: Preschool development, “Ilk kadam” state program, Science and Nature Centers, inquiry-based learning.

INTRODUCTION

Early childhood is widely recognized as the foundational stage for intellectual, emotional, and social development. During this period, children are highly receptive to experiential learning, sensory exploration, and interactive engagement with their environment. The “Ilk kadam” state program, designed to modernize preschool education, emphasizes the creation of innovative learning spaces, such as Centers of Science and Nature, to stimulate curiosity and cognitive growth among young learners [1]. These centers aim to provide preschoolers with hands-on experiences that integrate natural exploration and basic scientific inquiry, encouraging the development of critical thinking, problem-solving, and environmental awareness from an early age. By combining structured educational frameworks with play-based discovery, the program seeks to cultivate not only knowledge but also lifelong learning habits that will prepare children for future academic and social success.

MATERIALS AND METHODS

Engaging preschool children with science and nature offers significant benefits for their cognitive and emotional growth. Exposure to natural phenomena—plants, animals, weather patterns, and ecosystems—sparks curiosity and a desire to ask questions, laying the groundwork for scientific thinking. Through activities such as observing plant growth, classifying natural objects, or experimenting with water and sand, children develop early reasoning skills and learn to make predictions based on observation. These experiences nurture problem-solving abilities by allowing children to test hypotheses, recognize patterns, and engage in cause-and-effect reasoning, which are critical cognitive processes in early childhood education.

Additionally, interaction with natural environments fosters emotional well-being and social skills. Studies have demonstrated that contact with nature reduces stress levels in children, promotes cooperative play, and enhances attentiveness and self-regulation [1]. Such benefits are particularly vital for preschool-aged children, who are still developing emotional control and social competence. By situating science learning in natural settings, the “Ilk kadam” program not only enhances intellectual abilities but also supports holistic child development.

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RESULTS AND DISCUSSION

The “Ilk kadam” program introduces specialized Centers of Science and Nature within preschools as dynamic learning environments designed to integrate experiential education with state-mandated learning outcomes. These centers are equipped with child-friendly scientific tools—magnifying glasses, simple measuring instruments, and interactive models—and natural elements like small gardens, aquariums, and terrariums to immerse children in discovery-based learning [3]. The curriculum is carefully structured to balance free exploration with guided instruction, ensuring that children’s curiosity is channeled into meaningful learning experiences.

Educators play a pivotal role in these centers, serving as facilitators rather than mere transmitters of information. Teachers guide observations, pose open-ended questions, and encourage children to express their thoughts through drawings, verbal descriptions, or group discussions. Such practices enhance communication skills while reinforcing conceptual understanding. Moreover, the program incorporates seasonal and thematic modules—such as “Life Cycles in Nature” or “Exploring the Sky”—to maintain children’s engagement and connect scientific exploration with their everyday lives.

The pedagogical approach within these centers is grounded in constructivist and play-based learning principles. By encouraging active participation, experimentation, and reflection, children construct knowledge through direct experiences rather than rote memorization. This methodology aligns with contemporary research emphasizing that hands-on, inquiry-driven activities in early childhood foster deeper understanding and retention of concepts [3]. Furthermore, collaborative projects—such as planting a shared garden or building simple structures—teach teamwork, negotiation, and shared responsibility, which are vital socio-emotional skills.

The developmental outcomes of participation in Science and Nature Centers extend beyond cognitive gains. Children acquire a foundational appreciation for the environment, cultivating respect for living things and a sense of stewardship. Exposure to scientific inquiry also instills perseverance and resilience, as children learn through trial and error, embracing mistakes as part of the learning process. These attributes contribute to the development of a growth mindset, which supports success in later educational stages.

While the benefits of the “Ilk kadam” program and its Science and Nature Centers are evident, effective implementation faces several challenges. One major issue is ensuring that educators receive adequate training to facilitate inquiry-based learning and manage interactive science environments. Without proper preparation, teachers may revert to didactic instruction, undermining the program’s experiential goals. Additionally, the availability of resources—such as safe outdoor spaces, scientific tools, and funding for maintenance—can vary across regions, potentially creating disparities in program quality [4].

CONCLUSION

The development of preschool children through the Centers of Science and Nature, as promoted by the “Ilk kadam” state program, represents a forward-thinking approach to early childhood education. By integrating hands-on scientific exploration with exposure to the natural world, these centers nurture cognitive skills, emotional well-being, social competence, and environmental awareness. The program equips young learners with the tools and dispositions necessary for academic success and lifelong curiosity. However, to realize its full potential, careful attention must be given to teacher training, resource allocation, and curriculum design to ensure equitable and developmentally appropriate learning experiences.

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