

THE IMPACT OF INTERACTIVE PLAYGROUND ENVIRONMENTS ON THE COGNITIVE AND MOTOR DEVELOPMENT OF PRESCHOOL

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Annotatsiya: *Ushbu tezis avtonom quvvatga ega interaktiv bolalar maydonchalarini loyihalash va ularning maktabgacha yoshdagi bolalar rivojlanishiga ta'sirini o'rganishga bag'ishlangan. Tadqiqotning maqsadi ekologik toza energiya bilan ta'minlangan ushbu innovatsion muhitning bolalarning kognitiv va motor ko'nikmalarini rivojlantirishdagi samaradorligini ilmiy jihatdan asoslashdir. Natijalar bolalar infratuzilmasiga texnologik va pedagogik asoslangan yechimlarni joriy etish uchun amaliy tavsiyalar bo'lib xizmat qiladi.*

Kalit so'zlar: *interaktiv maydoncha, avtonom quvvat, kognitiv rivojlanish, motor rivojlanish, maktabgacha ta'lim, loyihalash, yashil texnologiya, kinetic energiya.*

Annotation: *This thesis focuses on the design of autonomous powered interactive playgrounds and the study of their impact on the development of preschool children. The research objective is to scientifically validate the effectiveness of this innovative environment, powered by eco-friendly energy, in developing children's cognitive and motor skills. The findings will provide practical recommendations for integrating technologically and pedagogically sound solutions into children's infrastructure.*

Keywords: *interactive playground, autonomous power, cognitive development, motor development, preschool education, design, green technology, kinetic energy.*

In modern urban planning, children's playgrounds are regarded not only as recreational areas but also as crucial educational environments for the complex development of children. The concept of designing an "Autonomous Powered Interactive Developmental Playground" is a direct result of this approach. This technological solution integrates green energy sources (solar/wind) with sensor-based developmental play elements, significantly differentiating it from traditional playgrounds.

- **Synthesis of Technology and Development:** Existing playgrounds are often technologically limited, failing to provide sufficient stimuli for developing the cognitive and motor skills required by the 21st century.

- **Energy Efficiency:** Using autonomous power supply for playground elements is not only ecologically beneficial but also ensures the continuous operation of interactive features, thereby enhancing their educational value.

- **Impact Assessment:** There is a necessity to scientifically substantiate the direct impact of the designed interactive playground on child development.

To theoretically and practically study and substantiate the impact of the elements of the designed autonomous powered interactive developmental playground on the cognitive (logic, memory, problem-solving) and motor (fine and gross motor coordination) development of preschool children.

1. Analyze pedagogical literature reflecting the influence of interactive play environments on the development of preschool children.

2. Determine the design requirements for autonomous powered interactive play elements (e.g., light, sound, or sensor-based games).

3. Develop practical methodological tools (tests, observations) to assess the impact of the designed interactive playground model on children's cognitive and motor skills.

4. Analyze the obtained results and provide practical recommendations regarding the educational effectiveness of the interactive playground design.

The research is expected to yield scientifically grounded solutions proving that the design of an autonomous powered interactive playground achieves higher effectiveness in accelerating the cognitive and motor development of preschool children compared to traditional playgrounds.

The designed autonomous powered interactive developmental playground is not only an ecologically clean and technologically advanced solution, but it also serves as a crucial catalyst in optimizing the cognitive and motor development of preschool children. This, in turn, contributes significantly to the efforts aimed at raising a healthy and knowledgeable generation in Uzbekistan.

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