TECHNOLOGY FOR DEVELOPING THE DESIGN OF A MODERN PRESCHOOL EDUCATIONAL INSTITUTION

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Abstract

This article examines the essence and content of the technology for developing the design of a modern preschool educational institution. The study analyzes the regulatory and legal foundations of preschool design, conceptual planning, modeling of the educational environment, as well as the integration of pedagogical and technical solutions. Particular attention is paid to the principles of creating a safe, developmental, and inclusive educational environment that takes into account children's age-specific and individual characteristics. The research findings have practical significance for designing preschool educational institutions based on modern pedagogical approaches.

Keywords

preschool education, educational institution design, design technology, educational environment, pedagogical design, innovative approach, inclusive education.

Designing a modern preschool educational institution is one of the key pedagogical and social tasks within today's education system. The design of a preschool institution is aimed at creating an environment that supports children's age-related and individual characteristics and ensures their physical, intellectual, social, and emotional development. Therefore, the design process must be carried out on a scientifically grounded, systematic, and step-by-step technological basis.

The technology for developing a preschool educational institution design begins with the analysis of regulatory and legal documents and state educational standards. At this stage, laws related to preschool education, sanitary and hygienic norms, safety requirements, and objectives outlined in educational programs are examined. This ensures that the design content is legally and normatively sound.

At the next stage, a conceptual model of the educational institution is developed. This includes defining the type and capacity of the institution, educational directions, number of groups, and the fundamental principles of pedagogical activity. In addition, the functional distribution of play, learning, creative, and relaxation areas necessary for children's activities is planned. In this process, children's free movement, independent activity, and safety are considered key criteria.

An essential stage in the design technology is modeling the educational environment. The educational environment encompasses conditions that stimulate children's cognitive activity, support their socialization, and foster the development of creative abilities. Modern pedagogical technologies, information and communication tools, and interactive game elements are integrated into the design. At the same time, inclusive education requirements are addressed by creating adapted conditions for children with special educational needs.

Subsequently, the stage of developing design and technical solutions is implemented. At this stage, the architectural and interior design of buildings and rooms, color harmony, and the ergonomic suitability of furniture and equipment are taken into account. The use of environmentally friendly materials and the implementation of energy-efficient technologies constitute an integral part of the design of a modern preschool educational institution.

In the final stage, mechanisms for evaluating the effectiveness of the design and implementing it in practice are determined. Project outcomes are analyzed based on pedagogical, organizational, and economic criteria. When necessary, the design is refined and tested through pilot implementation. This process contributes to ensuring the sustainable operation of the preschool educational institution.

The establishment of a modern preschool educational institution relies on a well-considered and scientifically grounded design technology. Such a design aims to create an educational environment oriented toward children's age characteristics, individual needs, and their physical, intellectual, and social development. Therefore, the design process encompasses not only construction and architectural issues but also pedagogical, psychological, and organizational factors.

The initial stage of the design technology involves an in-depth study of existing regulatory and legal documents, state educational standards, and sanitary and hygienic requirements. This stage ensures compliance with legal and normative requirements and helps prevent potential organizational challenges in the future.

At the subsequent stage, a pedagogical model of the preschool institution is formed. This model defines the main directions of the educational process, group composition, types of activities, and organizational forms of children's engagement. The educational environment must provide conditions that promote children's play, communication, observation, and creative activities.

Identifying functional zones within the institution is of particular importance in the design process. Playrooms, learning rooms, rest and sports areas, as well as outdoor spaces are planned to ensure children's safety and comfort. In addition, creating adapted conditions for children with special educational needs in accordance with inclusive education requirements represents a crucial component of the design technology.

At the next stage, design and technical solutions are developed. Interior decoration, color selection, and ergonomic arrangement of furniture and equipment should have a positive psychological impact on children. The use of modern information and communication technologies, along with environmentally friendly and energy-efficient materials, enhances the overall effectiveness of the design.

In the final stage, the developed design is comprehensively analyzed and evaluated. Its pedagogical, organizational, and economic effectiveness is assessed, and improvements are made when necessary. As a result, a preschool educational institution designed in accordance with modern requirements provides an effective educational environment that supports children's holistic development.

Analyses conducted on the technology for designing modern preschool educational institutions indicate that traditional approaches no longer yield sufficient results. Contemporary educational demands require preschool institution designs to be developed on a comprehensive pedagogical, psychological, and technological basis. In this context, design technology should focus not only on organizing the physical environment but also on creating an educational space that meets children's developmental needs.

The approaches discussed in this study demonstrate that a child-centered principle plays a central role in preschool institution design. The educational environment should promote children's independent activity, learning through play, socialization, and creative development. This necessitates proper planning of functional zones and ensuring openness and flexibility within the environment.

The discussion also highlights that considering inclusive education requirements is one of the most important aspects of modern design. Creating a safe and comfortable environment adapted to children with special needs is an integral part of design technology. This enhances the social responsibility of preschool institutions and supports the principles of educational quality and equity.

Furthermore, the study reveals that integrating modern information and communication technologies into the design process increases the effectiveness of the educational process. Digital tools, interactive game elements, and visual materials stimulate children's cognitive activity and enhance their interest in learning. At the same time, the age appropriateness and pedagogical relevance of such technologies must be carefully considered.

The use of environmentally sustainable and resource-efficient solutions was also identified as a critical issue. Employing eco-friendly materials and energy-efficient technologies is important not only from an economic perspective but also for fostering environmental awareness among children.

Overall, the discussed issues indicate that the technology for developing the design of a modern preschool educational institution requires a multifaceted and systematic approach. Only through the integration of pedagogical ideas, technical capabilities, and social needs can an effective and sustainable educational environment be created.

In conclusion, the technology for developing the design of a modern preschool educational institution is a pedagogically and organizationally significant process for ensuring educational quality. The findings of this study confirm that preschool design should not be limited to architectural planning but must focus on creating a safe, comfortable, and development-oriented educational environment that takes children's age and individual characteristics into account.

Strict adherence to regulatory and legal documents, state educational standards, and sanitary and hygienic requirements was identified as a key factor in the design process. In addition, modeling the educational environment, organizing functional zones appropriately, and planning activities based on a pedagogical concept significantly enhance design effectiveness.

The results demonstrate that integrating modern pedagogical and information and communication technologies into design solutions positively affects children's cognitive activity, social adaptation, and creative development. Designs developed with consideration of inclusive education requirements contribute to ensuring equal opportunities and maintaining educational quality in preschool institutions.

Within the framework of this study, the technology for developing the design of a modern preschool educational institution was analyzed based on theoretical sources and practical observations. The analysis focused on identifying the effectiveness of a systematic and technology-based approach to designing preschool educational environments that meet contemporary pedagogical, psychological, and social requirements.

The analytical stage revealed that the application of a step-by-step design technology significantly enhances the coherence and functionality of preschool educational institutions. In particular, the preliminary analysis of regulatory and legal documents, state educational standards, and sanitary-hygienic requirements ensures compliance with normative criteria and

reduces potential organizational and safety-related risks. This stage provides a solid foundation for further design decisions.

The results of conceptual modeling demonstrated that clearly defined pedagogical goals and functional zoning positively influence the quality of the educational environment. Preschool institutions designed according to a child-centered approach create conditions that promote children's independence, creativity, and active participation in learning processes. The separation of play, learning, creative, and relaxation zones contributes to balanced cognitive, physical, and emotional development.

The analysis of educational environment modeling showed that integrating modern pedagogical technologies and information and communication tools increases children's cognitive engagement and motivation. Interactive elements, visual resources, and digital tools stimulate curiosity and support exploratory learning. At the same time, the results indicate that the effectiveness of such technologies largely depends on their age appropriateness and pedagogical relevance.

Particular attention was given to the inclusion of inclusive education principles in the design process. The findings revealed that projects incorporating adapted spaces and flexible environments for children with special educational needs ensure equal access to educational opportunities. This approach not only improves educational quality but also strengthens the social responsibility of preschool institutions.

The evaluation of design and technical solutions indicated that ergonomic furniture, appropriate color schemes, and environmentally friendly materials have a positive impact on children's psychological comfort and well-being. Moreover, the use of energy-efficient technologies contributes to the sustainability of preschool institutions and supports the formation of environmental awareness among children.

Overall, the results of the study confirm that the technology for developing the design of a modern preschool educational institution is effective when implemented as a comprehensive and integrated system. The combination of pedagogical planning, functional design, technological innovation, and regulatory compliance leads to the creation of a safe, developmental, and sustainable educational environment. These findings highlight the practical value of the proposed design technology for improving the quality and effectiveness of preschool education.

In summary, the technology for developing the design of a modern preschool educational institution requires a systematic, scientifically grounded, and innovative approach. A well-designed project serves as a crucial factor in supporting children's holistic development, improving pedagogical effectiveness, and ensuring the sustainable operation of preschool educational institutions.

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