

ANALYSIS OF THE PEDAGOGICAL CONDITIONS FOR DEVELOPING DESIGN-BASED PROJECT COMPETENCE IN PRESCHOOL CHILDREN WITHIN THE CONTEXT OF EDUCATION AND UPBRINGING

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Abstract

This article investigates the significance of a design-based educational environment in fostering project competence among preschool children. The study analyzes both open and subject-enriching components of the learning environment, alongside the methodological foundations of design-based pedagogy. The findings highlight the effectiveness of this approach in promoting children's creative thinking, autonomy, and social adaptation skills.

Keywords: Subject-developing environment, design-based education, open environment, resources, design competency, pedagogical conditions, national identity (mentality), individuality, environmental education, creative potential.

Introduction

In today's advanced society, there is scarcely a profession, field, or service that remains unaffected by the skilled hands, imagination, creative thinking, and project-based contributions of designers. From vibrant storefronts and uniquely structured buildings to fashion and media products, design effortlessly captures the attention of both children and adults alike.

Design has become deeply embedded and closely intertwined with various spheres of life, including architecture, interior design, transportation, clothing, footwear, toys, books, magazines, advertising banners, corporate branding and logos, marketing, commerce, souvenirs, food products and packaging, technical equipment, presentations, celebratory events, show business, theater and stage

design, politics, education, software development, ideas and patents, project innovations, digital technologies, the internet, and web-based processes.

Within this broad cultural and technological landscape, the pedagogical conditions for establishing a developmental, subject-spatial, design-based educational environment are increasingly integrated with the design activities of older preschool children. Amid rising expectations for the quality of contemporary preschool education and upbringing, it is no longer sufficient to equip children solely with standardized sets of practical knowledge and skills that may be improved over time. Instead, there is a growing need to cultivate creativity, flexibility, and project competence from an early age, through engagement in meaningful and imaginative design experiences. [12].

LITERATURE REVIEW

According to the literature, the term “conditions” is interpreted in the following ways:

- “a situation related to a specific object or phenomenon” [10, p. 211];
- “rules or regulations established in a particular area of life activity” [13, p. 123];
- “an environment in which a specific event takes place” [20, p. 411].

"Pedagogical conditions are a set of complex pedagogical measures aimed at increasing the effectiveness of the pedagogical process. These conditions represent external factors in relation to the subject of the educational process" [14].

One of the most critical factors in fostering children's creative development is the creation of supportive conditions that nurture the emergence and growth of their creative abilities. As L.S. Vygotsky emphasized, "no scientific discovery or invention can come into being without the creation of the necessary material and psychological conditions." This perspective highlights the importance of a thoughtfully structured educational environment that encourages exploration, imagination, and the independent generation of ideas from an early age. [109].

According to G.G. Grigorieva, “one of the main conditions for developing creativity is a broad approach to problem-solving (creativity as a way of life)” [8]. In this regard, children should be given opportunities to interact with new and diverse materials, shapes, and textures [17].

Ideas proposed by prominent educators such as J.A. Comenius, M. Montessori, K.D. Ushinsky, F.N. Blekher, P.P. Blonsky, A.M. Leushina, S.T. Shatsky, and A.P.

Usova—as well as modern researchers like N.A. Vetlugina, V.A. Petrovsky, R.B. Sterkina, M.N. Polyakova, V.A. Ezikeeva, T.S. Komarova, L.V. Pantelev, and N.P. Sakulina—reflect a number of indicators characterizing the environment of the modern preschool institution [18, p. 115].

MATERIALS AND METHODS

This study investigated the influence of a design-based educational and developmental environment within preschool institutions on the formation of children's project-based competencies. Particular attention was given to the role of an open and object-enriched developmental environment, as well as the availability and effective use of diverse educational resources.

The methodological foundation of the research included observational techniques, hands-on practical activities with children, and experimental methods. Throughout the study, children's participation in project-based tasks, their capacity for self-expression, and their levels of creative thinking were systematically assessed.

To effectively organize children's creative activities within a design-based framework, the educator must cultivate an environment that promotes the development of imaginative and aesthetic sensibilities, project-oriented and creative perception, as well as artistic and figurative thinking. Such an environment enables children to explore innovative and expressive solutions in their visual and constructive activities.

[21].

DISCUSSION

The organization of a specialized open, subject-spatial environment that supports the development of design competencies through project-based activities serves as a key indicator of personal growth in preschool children. This development is facilitated through hands-on engagement in project work, implemented at both the content-processual and culturally contextual levels.

The presentation of cultural artifacts and artistic works within the learning environment—through expressive, creative, personally meaningful, and communicative activities and games—constitutes the core of design education. This pedagogical approach stimulates children's interest in design by transforming objects from their surroundings into sources of meaningful,

engaging activity. As a result, it fosters the creation of an "open learning environment" that encourages exploration, creativity, and active participation.[12].

ELEMENTS OF THE OPEN LEARNING ENVIRONMENT:

Design activity can be conceptualized as an *integrative method of cognitive development*, wherein the learning process is seamlessly embedded within creative expression. In the context of preschool education, design-based activities possess unique potential for integrating various domains of knowledge, thereby fostering interdisciplinary learning.

A crucial aspect of this process is the effective utilization of resources within the subject-spatial and socio-cultural environment. Enriching children's experiences through the exploration of design solutions—and encouraging them to apply these in real-life contexts—promotes both engagement and competence. Examples include decorating flower beds in kindergarten, organizing exhibitions of sculptures made from unconventional materials in playgrounds, creating thematic sketches for spring, reading, or carnival costumes, and producing original "designer items."

Participation in city walks, excursions, cultural festivals, landscape design projects, seasonal folk markets, exhibitions, museums, carnivals, theater productions, and sand or ice shows plays a vital role in developing children's design perception. These experiences offer rich aesthetic stimulation and foster a deeper appreciation for visual and spatial composition.

As noted by scholars, "the naturalness and transparency of a child's sense of beauty" are nurtured through national traditions, the family environment, and the modeling of aesthetic taste by adults [7]. Additionally, "to effectively introduce children to design activities, it is essential that they visit exhibitions, museums, and festivals" [16]. Walking through the natural landscapes of one's homeland and observing the diversity of its flora and fauna also holds profound aesthetic and educational value. These experiences not only leave lasting impressions but also contribute to the formation of ecological consciousness and the development of compositional awareness in young learners. [5].

Organizing rational collaboration: Collaboration within the educational process cannot be effectively established without first creating an artistic and

aesthetic developmental environment for preschool children. The development of artistic and creative activity, including the introduction of design elements, is intrinsically linked with the domain of art [4]. In the early stages of educational programming, special emphasis is placed on strengthening collaboration with the local community in supporting children's upbringing and development [1].

From an early age, children demonstrate interest in the events occurring around them—at home and in the broader community. Over time, these experiences are internalized and reproduced in a more conscious and purposeful manner [3]. A child's engagement in design activity can be viewed as an elementary or "proto-design" stage, wherein foundational skills and perceptions related to design are first cultivated.

A key factor in ensuring high-quality education—encompassing educational values and standards, dynamism, stability, and effectiveness—is the teacher's professional competence. Equally important is the rational organization of the material and technical environment, which serves as a structural support for a high-quality educational process [2].

From the earliest days of life, children perceive their surroundings in a metaphorical and holistic manner [5]. In today's world, modern architecture, objects, clothing, media products, and design projects for children have significantly transformed traditional approaches to design and decoration in preschool educational settings [16]. Creative manual activities that regulate and structure a child's daily life can thus be classified as early forms of design engagement.

An illustrative example of this philosophy can be found in Italy, where the concept of the "House of Joy" was introduced—an environment intentionally designed to evoke a positive emotional state and support the holistic development of the child [11, 14]. This vision aligns with Y.A. Komensky's assertion in *Great Didactics* that "a child's environment must be pleasant both internally and externally."

Historically, educational perspectives on the role of the environment have evolved. During the 15th to 18th centuries, thinkers such as J. Rousseau and J. Locke emphasized the importance of raising children in close connection with nature. By the 18th and 19th centuries, the physical environment was increasingly recognized as a vital developmental resource within the community, as advocated by I. Pestalozzi and others. Issues related to children's aesthetic education have

since attracted scholarly interest across numerous countries, including Germany, England, France, the United States, and Italy.

Various pedagogical methodologies emerged to support this direction, such as Friedrich Froebel's "gifts," Maria Montessori's autodidactic materials, and Ovide Decroly's "life materials," alongside other sensory-didactic systems. Rudolf Steiner, the founder of Waldorf education, emphasized the need for carefully curated spaces, furnishings, toys, and utensils made from natural materials. He advocated for the use of nature-like, simplified forms (Ilekals) and folkloric imagery—such as wooden toys and fabric dolls—to reflect familiar cultural patterns and promote emotional, sensory, and imaginative development in early childhood.

Design competence offers new and promising directions in children's creative development. There are vast opportunities to cultivate this competence through activities that enable children to enhance and personalize their everyday surroundings using design products and aesthetically pleasing items made with their own hands. Internationally, there is growing demand for children's creative works—such as drawings, hand-crafted toys and dishes, fabric compositions, wall newspapers, and other design artifacts—highlighting the global appreciation for child-centered creativity.

Children, in collaboration with adults, often participate in designing their group environments and play areas, as well as creating clothing for their dolls. In countries such as Japan, France, Germany, Italy, and Finland, children's design activities are successfully integrated into the educational process, combining visual creativity with applied design skills. Japan, in particular, has seen significant advancement in child-focused design culture over the past fifty years [6]. As noted, "Design products presented to children aim to create a comfortable, material environment for them. Children's design is the process of fulfilling tasks in the aesthetic and artistic education of preschool children" [16].

Group-based design projects also offer valuable pedagogical potential. Collective creative endeavors can be structured through collaborative planning, where responsibilities are distributed among team members, or through step-by-step contributions made by different groups. In such scenarios, the educator—whether a music teacher, general instructor, or designer—assumes the role of chief designer or project conductor, facilitating the overall creative process.

The tools and materials used by children mirror those employed by professional designers. These include both natural and synthetic resources such as paper, cardboard, fabric scraps, paint, pencils and markers, clay, plasticine, glue, natural objects, stencils, scissors, templates, pantographs, and prototypes. These materials enable children to experiment with form, color, structure, and function, while also engaging in meaningful tactile and visual experiences.

Design products created by children serve a dual purpose: they are integrated into play and are functional in daily life. “When a child engages in activities using objects they have created, they begin to experience a sense of individuality, assess their own knowledge and skills, and compare their work with those of peers, particularly in terms of stylistic choices” [16].

The inclusion of secondary materials in design activities serves both educational and environmental goals. Reusing and repurposing materials not only supports ecological consciousness but also promotes resourcefulness, sustainability, and creativity. Through such practices, children learn to handle raw materials with care, utilize waste products constructively, and minimize waste in the production process.

As emphasized in the literature, “Design products intended for children must be executed at a high artistic level and possess excellent ergonomic qualities. Children’s design may encompass a broad spectrum, from toy design to interior and landscape design” [16]. Furthermore, the application of techniques and technologies—such as transferring children’s artwork onto fabric or household items—can be a source of great excitement and pride. Creative methods like working with polymer clay or engaging in the Ebru (marbling) technique further enrich the sensory and imaginative experience of preschool learners.

Results

Taking into account the above considerations, the pedagogical conditions for the development of a specialized open-space subject-environment based on design education in the preschool education and upbringing process have been developed.

Pedagogical conditions of the developing special-open subject - spatial environment, improved on the basis of design education in preschool education and upbringing.

Conditions of the pedagogical environment			
Methodological system of project education			Principles of organization of the design educational environment
Forms	Tools	Methods and technologies	
Collaboration	Educational and methodological documentation	Project (design)	Mentality
Teamwork	Educational and methodological support	Mind-map ((Radiant thinking).	Humanism
			Environmental education.
Projectness	Design for children	Game	Age matching
Individuality	Children's design	Organization and methods of project activities.	Motivation and incentive
Working in pairs	IKT	Methods of motivation and stimulation of project and design activities.	Contextuality (based on normative educational documents)
			Thrift (rationality)
Master class	Media products	Methods of observation and self-control	Personal orientation
Walk	Artistic and stylistic solution of the environment	Problematic situations.	Ergonomics (comfort)
		Integrativity	Creativity
		Variability	Safety
		Reproduction	Critical thinking.

"The strategy and tactics of constructing a healthy educational environment are guided by the person-centered model of education and upbringing, as well as the nature of the relationships between adults and children" [15].

The elements of the developing open environment can, in response to contemporary needs, be adapted flexibly—improved, removed, or enhanced with new components as necessary.

"If the preschool subject-space design education environment primarily provides opportunities to meet and foster all the needs that emerge during the project and design activities of learners at every hierarchical level, it can be considered a developing environment. The collection of such opportunities provided by the educational environment, which allows the individual learner to assimilate social-

human values and seamlessly incorporate them into their internal world, forms the foundation of their evolving creative potential" [18]

The results of the research showed that the open environment created based on design ensures the effectiveness of developing children's project competencies. Through this environment, children not only have the opportunity to showcase their abilities but also develop independent thinking and innovative approaches. To improve and effectively organize the educational environment, the following conclusions were drawn:

Pedagogical Conditions of the Special Open Subject-Space Environment

Creating a special open subject-space environment is crucial for shaping children's project and design competencies during the educational process. This environment provides children with extensive opportunities for creative activities, considering their social, psychological, and physiological conditions.

Methodical System of Design Education and Pedagogical Approaches

To create a developing environment based on design, it is necessary to improve educational and regulatory documents and instructional support. The use of collaborative work, team-based approaches, and techniques such as mind mapping (mind-map) serves as an effective method for developing children's creative thinking abilities. Additionally, the inclusion of values such as ecological education, national identity (mentality), and humanism are important pedagogical factors.

Design Approaches Understanding for Children

Organizing design and project activities in a way that is understandable for children, creating problem situations for them, and involving them through observation and independent activities helps to enhance children's project thinking abilities.

Use of Modern Technologies in the Educational Process

The use of modern artistic-creative techniques, digital design, and media technologies in design activities increases children's interest and develops their technological literacy. Adaptiv rivojlantiruvchi ochiq muhitning takomillashtirilishi

Here is the word-for-word translation of the provided text into English:

"The elements of the proposed developing open environment must be adapted according to the demands of the time, meaning the environment should be changed in a mobile way and enriched with new elements, which is of great importance. Such an environment allows children to independently develop their creative abilities and acquire new knowledge by applying various design technologies.

Acquiring social-human values and developing creative potential. The educational environment must create wide opportunities for the development of a child's personal social values. In the educational process of preschool children, through various effective activities, they should acquire human values, helping them accept these values as part of their inner world."

CONCLUSION

"According to the research results, the use of design-based developmental and open environments in the preschool education process allows for the effective development of children's design competencies. These conditions play an important role in supporting children's abilities, as well as their social and intellectual development. The results provide a foundation for expanding design-based education in educational institutions and for developing new approaches to enhancing design competencies in preschool-aged children."

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