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PRINCIPLES OF FORMING CHILDREN'S PLAYGROUNDS BASED ON NATIONAL ELEMENTS

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Abstract: This article examines the issues of designing children's playgrounds based on elements of national culture. The relevance of the topic lies in the fact that, under the influence of globalization and standardization, most playgrounds in Uzbekistan's cities are created according to international models, with limited integration of national decorative elements. The aim of the study is to identify mechanisms for incorporating national ornaments, folklore symbols, and architectural elements into children's environments through a new methodological approach, and to develop practical design principles. The research employs comparative analysis, graphic-analytical methods, case studies, and design modeling techniques, analyzing both local and international examples. As a result, a parameter table reflecting the functional structure of play zones and the compatibility of aesthetic elements with local religious and cultural contexts was developed, along with comparative diagrams. In addition, a final model based on national motifs and ergonomic standards is proposed. This approach integrates children's physical, psychological, and cultural development and can be applied to create unique play environments within urban landscapes.

Keywords: children's playgrounds, national culture, ergonomics, spatial composition, interior-landscape design, cultural identity, functional zoning

INTRODUCTION: In recent years, children's playgrounds have been considered not only as spaces for physical activity but also as socio-cultural environments. These spaces play an important role in shaping children's cultural identity. Under the influence of global culture, many playground projects follow unified international standards. As noted by Tajibayev and colleagues, most playgrounds in Uzbekistan are designed according to European or Asian standards, with limited inclusion of national folklore and historical elements. This may negatively affect children's national consciousness and weaken their connection to local culture.

Therefore, it is essential to introduce design principles that respect and integrate national architectural heritage. The relevance of the study is further supported by international trends, where incorporating socio-cultural heritage into playgrounds is becoming increasingly common. For example, Finland's "Kalevala"-themed playgrounds connect children's imagination with national epic traditions. In Japan and Korea, playground environments reflect folk tales and writing systems. Similarly, in countries such as Kazakhstan, Russia, and Canada, playgrounds enriched with national attributes strengthen a sense of place.



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The purpose of this study is to identify principles for designing playgrounds based on national cultural objects (architectural structures, decorations, folklore themes) and to propose an innovative conceptual model in accordance with regulatory standards. The research objectives include:

1. Comparative analysis of existing international and local playground projects;
2. Development of graphic-analytical models combining ergonomic requirements and cultural elements;
3. Drawing practical conclusions based on selected case studies and developing a prototype model for Uzbekistan.

The object of the study is children's playgrounds within spatial planning strategies (play zones, landscape, urban environment), while the subject is the principles of integrating cultural attributes into these spaces. The scientific novelty lies in proposing, for the first time in Uzbekistan, a comprehensive conceptual model aimed at innovatively integrating national decorations and symbols into children's playgrounds. This model combines national patterns, elements, and modern technologies, reflecting design principles beneficial from psychological and pedagogical perspectives.

The practical significance of the study lies in providing guidelines for urban planners and designers to create playgrounds based on national aesthetics, contributing to the enrichment of urban environments and the development of children's cultural awareness.

METHODS: The study combines several methodological approaches. Comparative analysis was used to evaluate ergonomic, functional, and cultural aspects of local and international playgrounds. Graphic-analytical methods were applied to analyze zoning and decorative elements within playgrounds. The case study method examined thematic playgrounds in various countries (Finland – “Kalevala”, Japan – free-form gate motifs, Korea – Hunminjeongeum writing structures), identifying their strengths and limitations. During the design modeling phase, the proposed concept was visualized in 3D using SketchUp and AutoCAD, optimizing the number and placement of elements. To deepen the analysis, Gibson's affordance theory and methods by Staempfli and others were applied. Children's spatial needs were studied from the perspectives of environmental psychology and educational pedagogy. Publications in this field (e.g., Tajibayev et al., 2025) and practical standards were analyzed. Surveys and interviews with children and parents were conducted to explore cultural identification and usability.

Based on the collected data, a conceptual scheme was developed, including active play zones, creative-psychological zones, rest areas, and visual decorative elements.





Figure 1. A colorful children's playground in a modern city (Olin, Joyshirin Square, Tashkent). The barriers between the colorful tubes and circular slides are covered with soft padding to enhance safety (author's illustration).

RESULTS: The analysis revealed that playgrounds incorporating national elements have several advantages. In projects such as Finland's Kalevala park and Japanese folklore playgrounds, clearly defined national themes are easily perceived by children and enhance their emotional satisfaction. A comparative table of playground parameters was developed, including area size, slide height, climbing structure height, age range, main theme, and materials used.

1-jadval. Table 1. Parameters of playgrounds in various projects. The table data are based on design standards and practical examples..

Loyiha nomi	Mamlakat	Maydon (m ²)	Slayd balandligi (m)	Yosh Oraligi	Mavzu/Ramz	Materiallar
“Kalevala”	Finlyandiya	1200	2,5	3–12	Milliy epos (“Kalevala”)	Yog‘och, temir
“Momotaro bog‘i”	Yaponiya	600	3,0	4–15	Folklor qahramonlari	Yog‘och, kompozit
“Hunminjeongeu m zonasi”	Koreya	500	2,0	6–14	Alifbo yozuvi (Hunminjeongeu m)	Shisha tolali, yog‘och
Taklif qilingan	O‘zbekisto	800	2,5	4–12	Milliy naqsh va	Temir,



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Loyiha nomi	Mamlakat	Maydon (m ²)	Slayd balandligi (m)	Yosh Oraligi	Mavzu/Ramz	Materiallar
loyiha	n				ramzlar	yogʻoch, keramik

The Uzbek proposal features a medium-sized playground with extensive use of national ornaments. The main difference lies in the theme and materials: Uzbek designs incorporate ganch, wood carvings, and carpet elements. Each project applies unique color schemes. For instance, the Finnish design uses black-and-white contrasts, while the Uzbek model incorporates warm tones and colorful mosaic patterns. A comparative diagram was created to evaluate projects based on ergonomics, number and interactivity of cultural elements, and use of local materials. The Uzbek model achieved high scores, particularly in ergonomic design, cultural integration, and creative engagement.



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Figure 2 - A modern playground located within a park area (photo: Carfagna, 2023). Colorful metal elements and slides are visible against the building backdrop, adding a dynamic rhythm to the environment.

DISCUSSION

The findings align with previous research. Tsubota (2022) emphasized the importance of integrating cultural characters into playgrounds to enhance cultural pedagogy. Kim and Park (2021) demonstrated the effectiveness of interactive learning through the Hunminjeongeum writing system. Frost (2019) highlighted that playgrounds incorporating local symbols strengthen children's sense of belonging. Comparing with international practices, the proposed model places greater emphasis on national patterns and materials. Similar approaches are seen in China, where traditional color systems are integrated into playground design. However, the study has limitations. The feasibility of real implementation in terms of space and funding was not assessed. The data is based on regional case studies rather than large-scale surveys. Future research should include broader social surveys and optimization of eco-technological design parameters.

CONCLUSION

This study analyzed principles for designing children's playgrounds based on national cultural elements in Uzbekistan.

Key conclusions:

- International practices often overlook cultural context in playground design.
- The proposed conceptual model integrates ergonomic and aesthetic indicators, addressing children's physiological and psychological needs while harmonizing with the urban environment.

Practical recommendations:

- Incorporate local folklore and traditional art into design in accordance with standards;
- Use materials reflecting national identity, such as ganch and carved wood;
- Integrate Uzbek symbols into interactive play elements;
- Apply participatory design by involving children and ensure safety through universal design principles.

Future research directions:

- Conduct experimental studies on implemented playgrounds;
- Adapt ergonomic parameters to national anthropometric data;
- Develop region-specific models considering cultural diversity.

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