

The Playground Between Preferences and Reality: A Pilot Study at the Belhamzaoui School in Annaba

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ABSTRACT: The significance of physical outdoor play is well-established, benefiting child development across multiple dimensions, including physical, psychological, social, and cognitive aspects. Given that children spend a significant portion of their time at school, it is crucial that their recreational needs are met through the outdoor spaces available within these institutions, primarily the playground. This study focuses on the primary users of this space—the students—and investigates their preferences regarding the use of the playground. We selected Belhamzaoui Abdelaziz School as a pilot case, developing criteria related to the configuration and design of the space, which guided the development of a student questionnaire and the conduct of field observations. The results of this study reveal the degree of alignment between the students' preferences and the existing conditions of the playground, providing insights that could guide potential redesigns, serve as a model for further analysis, or inform new designs.

KEYWORDS: child, outdoor play, playground, elementary school, usage preferences

Introduction

In today's world, as in Algeria and globally, technology has not merely emerged—it has pervaded. This infiltration is profoundly reshaping childhood, leading increasingly to scenarios where children are found isolated, and passively engaged with screens presented to them under minimal restrictions, rather than actively expending energy, finding amusement, or engaging in interpersonal communications through play. However, the significance of physical play, particularly outdoors, is incontrovertible. It fosters development across multiple

dimensions: physically enhancing motor skills and overall health; psychologically by managing stress and providing revitalizing interactions with nature; socially through the sharing of spaces and intergenerational interactions; and cognitively.

Considering that children spend a predominant portion of their lives within school boundaries, the need for regular recreation, play, and physical exertion, which are crucial for the optimal assimilation of educational content, can only be satisfied through the outdoor spaces these institutions offer, specifically the playgrounds. Consequently, substantial emphasis must be placed on the design of these areas to ensure they truly fulfill the recreational and developmental needs of the students. As the primary users of these spaces, students are not only beneficiaries but also key stakeholders in the policies concerning the redevelopment of school environments. This study, therefore, aims to delve into students' perceptions of their school courtyards, exploring their preferences and aspirations for these spaces to better understand and meet their needs.

This study explores the perceptions and preferences of students regarding their school's playground. Belhamzaoui Abdelaziz Elementary School in Annaba was chosen as a pilot case to address the following questions:

- What configurations and arrangements do students prefer for their school playground?
- Does the current playground meet their expectations?

To answer these questions, a literature review was conducted on playgrounds, specifically focusing on those in elementary schools, to identify seven design criteria related to the configuration and arrangement of the space that could engage students' interest. These criteria were used to develop a sociological survey via a questionnaire for the students and establish an observation grid for field observations. The comparison of survey results with observational data allowed us to assess the alignment between the two, drawing necessary conclusions for further studies.

The Playground: Preferred Configuration and Design Criteria

If the design of a playground must consider the safety of children against intrusions or accidents, as well as their visual, auditory, olfactory, and tactile comfort, it is equally important to consider adaptations to the capabilities and preferences of the children. (See Figure 1) Therefore, this section will focus on the preferences and interests of the students concerning the use of the courtyard, with the understanding that meeting these preferences and interests should ideally encourage children to engage more fully with the space as intended.

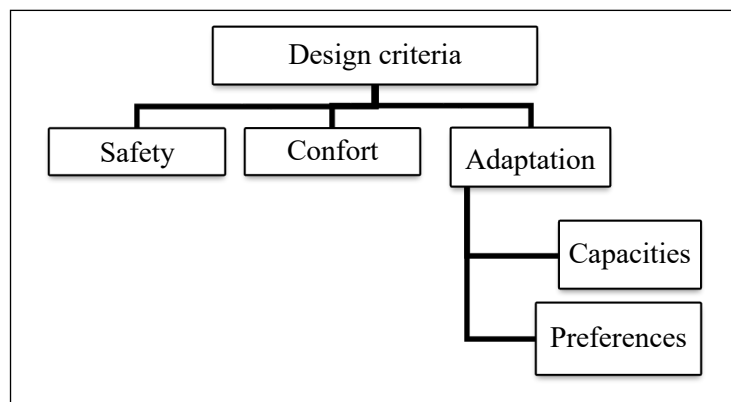


Figure 1. Design Criteria for a Playground

Following an extensive review of literature on playgrounds, specifically those within elementary schools, seven criteria related to the configuration and arrangement of the space have been identified to analyze the case study. These criteria are designed to spark the interest of students and include zoning, sports fields, recreational equipment, ground markings, urban furniture, objects, and natural elements.

Zoning: Diversity of Recreational Choices

The concept of zoning within a playground is pivotal. Quality recreational spaces should offer a variety of activities, as supported by literature (Yates 2001; Mazalto 2017, 194). Effective zoning involves organizing the playground into distinct areas, each designed for different activities. These zones can be demarcated by physical landmarks or visually distinct ground markings (Périno 2014, 224; Anouck, 2015; Delidou, Matsouka, and Nikolaidis 2015) and should be versatile, complex, and flexible in their setup (Bru et al. 1984, 79).

Including various surfaces -such as asphalt, rubber, grass, and sand- enhances the functionality of each zone. Moreover, integrating covered areas or classrooms adjacent to the playground allows for diverse activities like drawing or group discussions during recess. Such strategic zoning facilitates the harmonious coexistence of activities ranging from dynamic movement and equipment use to exploration and rest, providing spaces that children can personalize for their unique activities.

Sports Field and Its Beneficial Contributions

While not overshadowing the rest of the playground's layout, the presence of a standard multi-sport field within a playground allows children to engage in both team sports (such as football and basketball) and individual sports (like running and tennis). These activities not only provide physical exertion but also contribute significantly to a child's overall development, fostering social skills through team play and instilling respect for rules. Additionally, it is advisable to position a gymnasium

close to the playground if one is available. This proximity allows for the gymnasium's use when installing a sports field is not feasible or during inclement weather, ensuring that physical activities can continue uninterrupted.

Whether stationary or portable, recreational equipment is a staple in outdoor play areas. Swings, slides, and various play modules are designed to encourage essential playful activities crucial for child development, such as sliding, jumping, and learning to wait one's turn. These activities also teach children about sharing and risk assessment. However, just like the sports field, these elements should not overwhelm the playground's layout but rather maintain a harmonious balance with other aspects of the playground environment, ensuring a well-rounded recreational space (Peiron 2013).

Ground Markings: Low-Cost Distraction

Ground markings offer a low-cost, creative solution to enhance a playground's usability and aesthetic appeal. Simple designs like hopscotch, snail, twister, and various circuits painted on the playground surface promote physical activity and agility development (Delidou, Matsouka, and Nikolaidis 2015). These markings also facilitate social interactions among students and serve as educational tools through shapes and colors, contributing significantly to the beautification and functionality of the space.

Urban Furniture: A Significant Addition to Well-being

Urban furniture significantly enhances the functionality and user experience of playgrounds, from smaller elements like trash bins to larger fixtures such as picnic tables. Central to these elements, benches are particularly emphasized in playground design for their multifaceted utility (Delidou, Matsouka, and Nikolaidis 2015; Dawance, Deneff, and Ribeiro 2018; Wagner 2018).

These benches can be artistically crafted by local artists or even co-designed with the children themselves, offering a personal touch while fostering a sense of ownership and pride among the users. Strategically placed in visible, frequently accessed areas along the playground's periphery, benches facilitate multiple essential functions: they provide a spot for teachers to oversee activities, a place for students to rest, hydrate, or gather their thoughts, particularly useful in resolving conflicts or during casual interactions (Anouck 2015).

Picnic tables, optimally located in shaded and quieter sections of the playground, create versatile spaces for students to engage in various activities such as eating, drawing, or playing board games. These tables thus contribute to the social and recreational richness of the playground environment. Hygiene and safety are paramount, necessitating the strategic placement of trash bins near benches and tables, where snack consumption is frequent. These bins should accommodate waste sorting, be sufficiently numerous, and maintained regularly to ensure a clean

and safe environment (Dawance, Denef, and Ribeiro 2018). Additionally, other urban furniture components, including flower boxes, pergolas, kiosks, and water fountains, not only enhance the aesthetic appeal but also increase the functional value of the playground, making it more welcoming and usable.

Portable Recreational Objects: Supporting Developmental Activities

The playground should include a variety of play objects such as wheeled toys, balls, sticks, marbles, cards, and knucklebones, along with creatively reused items that collectively support the playground's dynamic environment (Peiron 2013).

These objects are grouped into developmental categories: sensorimotor, symbolic, assembly, and rule-based (Levine 2019), aligning with the different stages of child development. Such classification ensures that the recreational tools provided are not only fun but also instrumental in enhancing motor skills, cognitive abilities, and social interactions among children.

Natural Elements: Vital for Holistic Development

Incorporating a rich diversity of natural elements within playgrounds is crucial for fostering daily interaction with nature, which is essential for reducing stress and promoting focused, calm behavior among children (Bru et al. 1984, 79; Laberge, Boudreault, and Dumont 1999, 14; Manfred 2004, 81). Key natural features include an assortment of greenery -trees, shrubs, vegetable gardens, plants, flower boxes, hedges, and grassy expanses which are widely acknowledged for their positive impact on children's well-being (Dadvand et al. 2015; Dawance, Denef, and Ribeiro 2018).

Additional natural elements such as bodies of water, ponds, rocks, sandboxes, hills, and varied living organisms enhance the ecological learning environment and encourage exploratory play. Diverse ground coverings and textures, including natural options like grass and sand, are recommended to provide different sensory experiences, further enriching the playground's educational and recreational value. These elements not only contribute to the physical landscape but also to the cognitive and emotional development of the children who use the space.

The Belhamzaoui School Playground: The Gap Between Student Preferences and Reality

Among the various elementary schools in Annaba, Belhamzaoui Abdelaziz Elementary School, established as the oldest functioning school in the area, has been selected as the primary focus for our case study. Originally functioning as a communal girls' school named "Caraman" during French colonization in Algeria, the school is steeped in history. It was erected in 1856 by the mayor of Bône and later expanded vertically in 1880. Now it sits in the old town of Annaba, within the 4th sector as designated by the POS division (See Figure 2).



Figure 2. The Location of the School
Source: Google Earth modified (2022)

The architectural layout of the school features a central playground measuring 168m^2 flanked by an R+2 building covering 512m^2 . This infrastructure supports approximately 240 students, offering insights into the school's capacity and spatial utilization (See Figure 3).



Figure 3. The School's Massing
Source: Google Earth (2022)

To better understand the dynamics and preferences of the student body regarding the playground, a sociological survey was implemented, using a written questionnaire in Arabic. This questionnaire was distributed to a random sample of 30 students, about 10% of the school population, including boys and girls ranging from 4 to slightly over 10 years old. The responsibility of distribution and collection was managed by school teachers, with the assistance of parents for filling out the forms. From the 30 questionnaires distributed, 19 were successfully retrieved, forming the basis of our analysis. The demographic distribution of the respondents included 37% boys and 63% girls, primarily aged between 5 to 9 years, spanning from preparatory to 4th grade (See Tables 1 and 2).

Table 1. Sample by Age

Age	5	6	7	8	9	10
%	21.05	26.31	15.78	21.05	15.78	0

Source: Zediri (2022)

Table 2. Sample by Educational Level

Level	Preschool	1	2	3	4	5
%	21.05	26.31	21.05	15.78	15.78	0

Source: Zediri (2022)

Students were asked to select their preferred features for their school courtyard from the previously mentioned criteria (zoning, sports fields, recreational equipment, ground markings, urban furniture, objects, and natural elements).

The results showed a favorable response for the presence of recreational equipment (74%), a sports field (68%), zoning (63%), ground markings and objects (53%), urban furniture (37%), and natural elements (32%), in that order (See Figure 4).

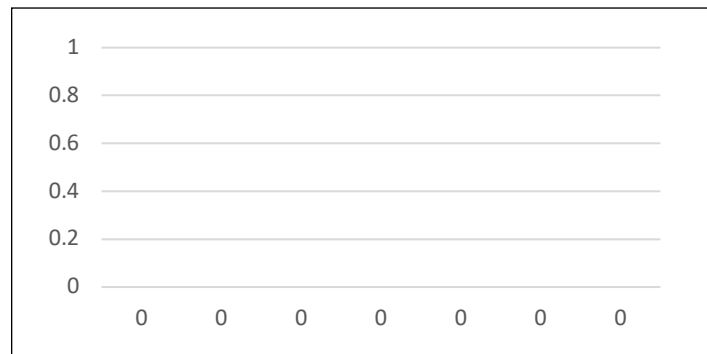


Figure 4. Student Preferences
Source: Zediri (2022)

Concurrent with the sociological survey, the following results are derived from observations made at the playground of the school under study, both before and during the students' recess period.

The playground is a central rectangular space measuring 168m² and accommodates 240 students (See Figure 5). This dimension translates to a capacity of 0.7m² per student—a markedly low capacity compared to international standards (between 5 and 8 m² per student) (Dawance, Denef, and Ribeiro 2018) and even national standards (3m² per student) as per the 2020 decree defining the typology of school constructions.



Figure 5. View of the Belhamzaoui School Courtyard
Source: Zediri (2022)

The limited capacity of the courtyard, at 0.7m^2 per student, can be attributed to the school's age, originally designed for a smaller number of students and without considering a vertical extension. This constrained capacity significantly limits the possible uses of the space and impacts the preferences indicated by the students, such as the installation of equipment.

In response to these space constraints, the school's educational team has opted for staggered recess periods. Initially, students from the 3rd, 4th, and 5th grades take their recess, followed by those in the 2nd grade, and finally, the 1st graders and preparatory students (See Figure 6). This arrangement minimizes the number of students using the space at any one time, thereby effectively increasing its capacity.



Figure 6. Recess by Groups

Source: Zediri (2022)

This method not only manages the available space more efficiently but also aligns with the students' expressed preferences by adapting the use of the courtyard to better accommodate the diverse activities they favor.

The practice of staggered recesses adopted by the school serves as a practical solution to spatial constraints. However, this method has its drawbacks; it restricts interactions between students of different ages and educational levels, thereby limiting the exchange of social and educational experiences among them. Additionally, the layout of the school with classrooms surrounding the courtyard means that students in session are inevitably subjected to the noise from their peers enjoying their recess, which can be disruptive.

Zoning: Student Appropriation of Space

What might be viewed as a form of unplanned or informal zoning is the presence of a central tarred surface that is used for physical games or group gatherings. Surrounding this area is a shelter equipped with two benches and a slight elevation difference (threshold) which is primarily utilized as a seating, discussion, and snack area. This area is covered with slightly slippery tiles, encouraging children to jump following the square markings and to slide on them. The border around an existing tree is also used for seating, and the external bathrooms with sinks function as a water area (See Figure 7).

Despite the absence of formally designated zones, students manage to organize themselves and adapt the use of the existing space according to their needs for physical activity and rest. At the same time, more than half of the surveyed students

(63.15%) expressed a preference for having designated zones within their courtyard, highlighting a significant interest in structured spatial organization.



Figure 7. Students in the Courtyard
Source: Zediri (2022)

Sports Field, Equipment, Ground Markings, and Objects: Notable Absences and Potential Solutions

The lack of a sports field, which is favored by 68.42% of the students, is particularly noteworthy. Given the limited space in the courtyard, accommodating a standard-sized sports field is impractical. However, innovative alternatives could include installing basketball hoops, mounting a movable vertical wall near the sinks for racquet sports, and delineating a mini soccer pitch with temporary artificial turf to facilitate physical activities.

Similarly, playground equipment, which is the top preference for 73.68% of the students, is conspicuously absent. In light of the space constraints, mobile and temporary equipment setups could serve as a feasible solution to meet the students' needs. The deficiency is also apparent in ground markings and objects, desired by 52.63% of the students. While the tile tracing in the shelter might serve as a rudimentary form of ground marking, facilitating play, more structured and versatile markings could enhance the usability of the space. Establishing rules for conflict management and alternating the use of different activities could also help in managing these features effectively.

Urban Furniture: Existing Setup and Enhancements

The existing urban furniture in the courtyard consists merely of two benches positioned under the shelter, along with two simple trash bins mounted in opposite corners and two hanging light fixtures (See Figure 8). Concurrently, 36.84% of the surveyed students indicated a preference for urban furniture in the layout of their courtyard.



Figure 8. The Urban Furniture of the School
Source: Zediri (2022)

The mere presence of two benches is grossly insufficient given the number of students occupying the courtyard simultaneously. This shortage forces them to sit on the threshold of the shelter, a surface that is ill-suited for seating. The trash bins, on the other hand, require regular emptying to maintain cleanliness. Removing the existing benches and installing new ones that are appropriately sized for children along the shelter could potentially meet the students' needs more effectively, especially during snack time.

Natural Elements: A Dominance of Greenery

As for natural elements, these are predominantly characterized by greenery, with a tree situated in one corner of the courtyard, plants around the shelter and classroom windows, a cat observed during photo sessions, and water if one considers that flowing from the taps at the sinks (See Figure 9). Regarding the preferences of the surveyed students, 31.57% expressed a desire for more natural elements within their courtyard.



Figure 9. The Greenery in the Courtyard
Source: Zediri (2022)

Thus, while greenery is quite prevalent as a natural element within the courtyard, there is room for adding more diverse elements where feasible, such as a vegetable garden, a removable sandbox, a water fountain, and some domestic animals. These additions would enhance the children's direct contact with nature, enriching their educational and recreational experiences at school.

Additional Elements Suggested by Students

Students also suggested incorporating a space dedicated to reading activities and a room for electronic games. The reading area could be set up outdoors or within quiet classroom spaces, utilizing areas like balconies on upper floors to create a conducive environment for reading.

The proposal for a room dedicated to electronic games reflects the current generation's inclination towards digital entertainment, which, if designed with active participation in mind, could also serve physical development purposes.

Conclusion

As noted at the commencement of this study, the role of outdoor play in fostering a child's multifaceted development is indisputable, establishing the playground as a critical platform for such activities. Optimal service to the child user demands the incorporation of specific configuration and design criteria within the playground. These essential elements encompass zoning, sports fields, recreational equipment, ground markings, urban furniture, objects, and natural elements.

The playground's markedly limited capacity presents a substantial challenge to its utility. Therefore, implementing staggered recesses has emerged as a feasible interim solution. However, this method introduces several limitations, particularly the restricted interaction among students across different age groups and academic levels, which could potentially diminish valuable social exchanges. Additionally, the proximity of classrooms to the playground area subjects those students in session to disruptive noise from the playground.

Given the lack of explicit and delineated zoning, there is observable evidence that students have adapted the usage of the existing space to meet their needs for both physical activity and relaxation. This adaptability suggests a significant benefit in involving students more actively in the decision-making processes related to their playground, ensuring that their direct input might lead to more user-focused design solutions. Considering the spatial constraints, it may become necessary to consider temporary modifications of the playground setup, including alternating different activities based on a predetermined schedule and effectively managing usage conflicts through the implementation of clear rules.

This study is positioned as a foundational or pilot investigation, with ambitions to extend this research to other institutions while specifically addressing preferences across different genders and age groups. Such an expanded study is poised to offer a deeper, more comprehensive understanding of playground dynamics, which could then inform targeted enhancements and solutions.

Ultimately, the extended findings are anticipated to contribute to a methodological framework for the design and redesign of playgrounds. This framework aims to ensure the creation of high-quality spaces that are fully supportive of the healthy physical, psychological, social, and cognitive development of children, thereby transforming playgrounds into truly beneficial environments for child users.

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