UNIVERSAL DESIGN 2014:
THREE DAYS OF CREATIVITY
AND DIVERSITY
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Universal Design 2014: Three Days of Creativity and Diversity

Proceedings of the International Conference on Universal Design, UD 2014
Lund, Sweden, June 16–18, 2014

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Dear Participants,

We are very excited to publish this compilation of the papers to be presented at UD2014, the International Conference on Universal Design in Lund, Sweden, June 16–18, 2014. The engagement for Universal Design around the globe seems to be larger than ever before. UD2014 will bring together a diverse group of practitioners and researchers in a broad conference that focuses on collectively exploring creative and desirable solution proposals that will shape the future of universal design products and practices.

Universal design, design for all and inclusive design all aim at dismantling physical and social barriers to inclusion in all areas of life. Our aim is to make UD2014 in Lund a creative and diverse meeting place for all participants. By exchanging knowledge, experiences and ideas we can build global connections and creative networks for future work on universal design.

We hope the conference will give participants and contributors rich opportunities to learn and engage in discussions on universal design. The contributions represent 27 countries and it is a great pleasure to outline the content of the conference. UD2014 will comprise 89 oral presentations, 6 keynote lectures, 2 plenary sessions, 7 workshops, 24 poster presentations, 10 student projects, and an extensive demo/exhibition track. The themes of UD2014 span over large parts of societal life, in work and in play, in indoor and outdoor spaces, in cities and rural settings, for young and for old.

These proceedings clearly show the breadth of universal design and its on-going adoption in societies all over the world. We are looking forward to meeting you in Lund in June 2014 and wish you a very warm welcome to “Three Days of Creativity and Diversity”.

For the conference committees,

Per-Olof Hedvall, Conference Chair,

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This edition of the International Conference on Universal Design was organized by Lund University (Sweden), Certec, Division of Rehabilitation Engineering Research in the Department of Design Sciences, Faculty of Engineering.

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Mapping the Common Ground: Inclusive Playscapes for Children in Jerusalem - From Global to Local

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Abstract. Is it possible to create an inclusive playscape that integrates the needs and aptitudes of various children within its design? This paper presents a research design project, the product of an interdisciplinary collaboration between interior design and occupational therapy collaborators, which expands the principles of universal design with a performance approach. By mapping, surveying and analyzing public playscapes with the purpose of understanding the playscapes’ ‘typical profile’, the project proposes a new profile of an “accessible and inclusive playground” that promotes a common ground for the playing activity of children suffering from disabilities together with typical children of the same age. The paper presents new perceptions and spatial concepts based on this profile, which relate to playgrounds as a universal outdoors.

Keywords. Inclusive Design, Inclusive Playscape, Urbanscape, Mapping, Measurement and Evaluation Tools, Universal Outdoors, the Common Playground

Introduction

A quality play and learning environment is more than just a collection of play equipment. The entire site, with all its elements – from vegetation to storage – can become a play and learning resource for children with and without disabilities[1]. This paper deals with the question of how to create inclusive playscapes that enable the integration of the needs and aptitudes of the various children for whom the playscape is designed. First, we claim that for many children, the experience of playing in the neighbourhood playground is self-evident; however, many children with disabilities have difficulty joining in this activity. A national survey, conducted by the National Insurance Institute (NII) and the Brookdale Institute, showed that in the year 2007, 314,000 children ages 0-17 (about 22%) suffered from some type disability, such as children in wheelchairs, children with a visual or auditory disability and children with a mental or cognitive disability. For many children, the neighbourhood playground is a place of joy and laughter, self-expression and exploration. However, for children with a physical disability, it is a place of frustration and disappointment due to their inability to reach the facilities and the lack of an appropriate environment required for them to use these facilities. Children with a cognitive disability often lack the motivation to take part in playground activities, while some children with deficient vision have

1 Corresponding Author.
difficulty in finding their way to the playing facilities or to safely moving between the different activity stations.

Whatever disabilities they may have, all children are entitled to play in a safe, motivating environment that is adapted to their needs. In order to achieve a condition of a healthy society that allows freedom for its children, it is important to incorporate the experience of play for children with disabilities in everyday life. This approach requires us to abandon the (false) attitude that assumes that this experience restricts only a few of our children and, consequently, is not a central issue for the rest of the society. The expansion of efforts towards a universal inclusive design approach will lead to an outcome in which every child, including those with disabilities, is able to enjoy a safe and continuous playing experience. The importance of this issue emerges from discussions with many other users of these spaces; ask almost any parent of a baby in a carriage, the response will be one of frustration and anger at the low priority of the needs of these children in urban planning.

The project presented here was carried out in the framework of collaboration between two different disciplines: the first, the Department of Interior Design, The College of Management, is concerned with designing the built environment in which we live. The second is the School of Occupational Therapy of Hadassah Mount Scopus and the Hebrew University of Jerusalem. This is a therapeutic-rehabilitation-educational centre that is concerned with understanding the functional problems of its patients, with the goal of creating functional therapy frameworks that enable people to be involved in various environments while engaging in activities that are meaningful for their sense of social belonging and welfare. From this perspective of the two disciplines, the project proposes to expand the principles of universal design from a performance approach, which perceives our physical environment, to one that is part of a more inclusive environment, incorporating social, psychological, economic, political, technological, cultural, ecological and other aspects.

1. Universal Design and Universal Outdoors

The project proposes an operational framework for the design of universal outdoor spaces that are an inclusive environment adapted for all users[2][3]. The concept of universal design constitutes an important landmark in the discussion of social responsibility and the built environment. While this concept suggests the possibility of finding a solution for any design challenge, it is “inclusive design” that offers the possibility of creating a design that suitable for everyone. This raises the question of the responsibility of the designers to both aspire to the maximum, while recognizing the needs of the various users. “Whatever the preferred term used, is that the designer must work with users and not expect to be the expert who knows all the answers.”[4]

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2 The curriculum of the Department of Interior Design, the Academic Track, The College of Management has placed on its agenda relevant topical issues that explore and study "the other" through the differently-challenged populations. With the purpose of promoting this agenda, academic and research work is carried out in the department in the framework of the "clinic of designers" of the department. This work positions the department as an opinion leader as the link between interior design and the field of accessibility. All of this is being done inter alia through collaboration with NGOs such as Shekel, Accessibility Israel, the Issi Shapiro house and other organizations.
The report by the public committee examining the legal rights of people with disabilities states: “A person's accessibility to his environment is for him the key for real integration in society and for equal opportunities!” But the actual conditions in Jerusalem for children with disabilities are dismal. For example, there are about 450 playgrounds scattered among the eastern and the western parts of Jerusalem in both secular and orthodox neighbourhood; however, there is not a single playground that is completely accessible to children and adults with disabilities[5].

What is an accessible and inclusive playground? It is a high-quality playground where the accessibility experience consists of both of the psychological (behavioral) dimension and the physical one, with physical accessibility applying not only to the concentration of playing facilities in one place[1], but also to the entire space with all its components, from entrances, walking distances, slope angles, handles for grasping, drinking facilities, toilets, benches, walking paths, signs, up to ground covers, thresholds, edge stones, etc. Psychological accessibility is the knowledge that there is an outdoors in which people can spend time and that, thanks to these characteristics, constitutes an inclusive and integrative focus of attraction for all of its users.

Interior designers in particular deal with the sensory connection between man and his immediate environment of activity. In this perspective, the playground can be related to as an interior room of the garden where it is located, and the playing facilities may be considered the items around which this interior space develops, by means of which the play is created. The playground also provides the intimate sensory connection between the child and other children in the same space, a connection that is indispensable for the development of responsibility, solidarity and a sense of belonging. These aspects are part of a complicated interaction that also includes the particular characteristics of the individual, and in this interaction, the means through which his/her quality of life is created. This is not a question of a direct and simple effect on any of these aspects, not even that of the physical environment. There is always an interaction and it stands to reason that the relative weight of any aspect differs under different conditions for various individuals.

The connection between the physical environment and the individual behavior is a connection of possibility or probability. The environment can facilitate or hinder certain activity or can increase or decrease the chances of the activity’s actualization. In this sense, the role of architects and designers in designing the physical environment is mainly to enable its users to achieve their goals as much as possible, and to realize the potential inherent in this goal.

In the framework of this discussion, the objectives of this project are to redirect the attention of designers and municipal policymakers to the need for adopting the approach of a universal outdoors that is designed to be beneficial for everyone as well as promoting new design concepts that make the space more accessible to everyone. The first part of the paper presents the study part of the project dealing with the typical problems arising in public playgrounds that repeat themselves time and again. These problems are elucidated by mapping, surveying and analyzing these spaces with the purpose of understanding their “typical profile”. This part proposes a new playground profile, accessible and inclusive, constituting a common ground for playing activity for children with disabilities together with typical children of their age. The second part of the paper proposes new design and spatial concepts based on this profile relating to playgrounds as universal outdoors.
2. Method: Mapping, Meaning and Making

2.1. Mapping: A Visibility Analysis of the Quality of the Open Areas and the Extent of Their Accessibility

The project started with the choice of about twenty-five various gardens around the city of Jerusalem by a team consisting of the representatives of both disciplines, of which five gardens were ultimately selected (Figure 1).

![Aerial Map of the Five Selected Gardens in Jerusalem](image1.jpg)

The gardens that were selected are part of the urban fabric of Jerusalem and include topographic conditions and local parameters that constitute an integral part of their spatial character. First, we examined these gardens using known information systems, such as urban maps, topographic maps, data stored with various GIS and CAD software (Figure 2).

![“The Snake Garden” Panoramic View from the Centre of the Garden – Designer: Amichai Reif](image2.jpg)

Subsequently, we examined and mapped the physical size of the gardens, passages, vegetation, borders, the number of foci of interest in them (more than one), the type of neighbourhood and its location in the city and its various users. The mappings of each garden were depicted by the designers in an analytical and phenomenological fashion, and enhanced the possibilities of visual representation of the space in a manner that does not disrupt the contents of the space itself (Figure 3).

For the next stage, we developed four measurement and assessment tools for the space in collaboration with the School of Occupational Therapy. These tools were based on questionnaires, observations and interviews and they were used for examining
the accessibility regulations in the physical environment of the garden, for surveying the various playing facilities according to the accessibility regulations and for conducting observations and interviews with children and parents using the space. The data were collected, measured and sorted in comparative Excel tables by an independent team of surveyors from each discipline, numbering 5-10 persons in each garden.

![Figure 3. Mapping Movement of People throughout the Garden Space, Designer: Amichai Reif](image)

The data collection and sorting led to an interdisciplinary dialog that emphasized the importance of enabling all of the users of the space to benefit from improved accessibility, by designing these spaces using a universal approach. Only after measuring, assessing and mapping the existing environmental conditions, it became possible to understand the effect of these conditions on human behavior in the space and how they facilitate or hinder social encounters, conversation, shared play, etc.

The findings of the garden surveys indicate the following problems in the profile of the “inaccessible” garden:

- A lack of a sense of belonging
- The presence of children with special needs in the gardens is almost invisible or transparent
- A lack of freedom of choice and control of the children in the space that causes an almost absolute dependence of the children on accompanying parents or caregivers
- A lack of accessible, protected and safe spaces

The combined findings at these stages led to the creation of several diagrams constituting a comparative mapping of the gardens examined. The data of the level of accessibility was sorted according to categories of Playscape and Urbanscape, where each category is related to various parameters. Playscape related to the number of foci...
in the garden, the type of playing facilities, paths, the size of entrances, etc., while the parameters for the Urbanscape examination included the type of neighbourhood, the population, the number of entrances, the foci of the presence of an urban passage in the garden, proximity to important public buildings and From the series of diagrams, a profile emerged of the “inaccessible garden”, both at the level of the urban system of connections (Urbanscape) and at the level of the internal activity of the playground (Playscape) (Figures 4, 5).

A view of three different mappings carried out in one garden (“Saint Simon” Garden) reveals how these mappings constitute a visual, quantitative and qualitative expression and the various aspects that were located in the same space, while pointing to possible solutions at the design level (Figure 6).

In this case, the various mappings, the analysis and survey tools revealed three different spatial scenarios: ‘Wrapped in Space’, ‘Inside-Out’ and ‘New Look’. These scenarios arose from the identification of the problem of separation and isolation in space due to the great number of foci in the garden (22 foci versus 6 to 9 foci in other surveyed gardens) and the large number of public buildings (6) located within the limits of the garden. The distribution of the garden over a large area causes a great dependence of the child on the parent and causes restriction of the child’s motor movement in space.

(Additional mappings and design solutions for other gardens can be found in the blog https://mappingthecommon.wordpress.com.)
Because the environment itself generates a sense of dependence, in order to facilitate a transition from dependence to independence by the child, the environment must be changed. The design solution in such a case would be the creation of an environment that enables the parent to transition the child from a state of dependence to one of independence. In addition, another problem that emerged was the separation and isolation that was created because the people who are older and people with disabilities were relegated to the periphery of the garden, in contrast to the population of young children and adults, who were located at the center of the garden. The design solution in this case pointed to the need to create integration and intermingling, by designing the expansion of walking paths and creation of new spaces that would serve as foci for various activities. Another mapping that focused on the question of “the look” from inside and towards the garden, showed that two public buildings, “Saint Simon Hostel Alyn House”, a hostel for people with disabilities and “Neve Horim”, a home for the people who are older, both located on the outskirts of the garden, were unaesthetic, uninviting and seemed of-of-place in the garden. The design solution in this case was to extend the garden’s look into the public buildings.

Figure 6. “Saint Simon” Garden – Comparative Diagram
Based on the new information and knowledge, the second stage of the project focused on developing a new design approach for the design of playgrounds, an approach that perceives the environment as a whole and is not satisfied with simply placing new facilities in the space.

2.2. An Accessible and Inclusive Garden as a “Common Playing Space” for All Children

How can we create a meaningful encounter between the various children? Designers, teachers, related professionals and others seek various ways to create meaningful communication between children with disabilities and children without disabilities, to ensure that every child gets the opportunity to participate in activities without hindering the activity. Psychologists and caregivers wonder whether and how it is possible to have social relations between the various children, but vacillate between opposing attitudes, one maintaining that children with disabilities should be allowed to play in spaces adapted to their particular needs, while the others claim that there is no need for special adaptation.

Social workers grapple with the question of how to create a meaningful encounter and promote efficient, immediate communications that will bring about the creation of continuous, stable and meaningful social relations for the children’s future. We, the designers and planners of the built environment, ask ourselves how to be considerate of children with disabilities without harming their social integration into this space so that the integration itself does not lead to stress and anxiety and is most natural to them? What are the aspects that should be taken into consideration apart from the disability itself, how can this be done so that a meaningful and non-artificial encounter is achieved? We believe that for such an encounter to take place, it should be held within what may be called “the common playing space” (Figure 7), a space that does not belong entirely to children with disabilities or to “typical” children but is not strange or artificial to any of them.

Figure 7. The Common Playing Space in the “Snake Garden”– Designer: Rachel Freidman

This is a new space, “a location” in which children can participate in common play, talk to each other, or simply have a successful encounter, a space that brings a sense of mutual enrichment and promotes the development of all of the children.

One of the basic guiding principles of creating the design model of an accessible and inclusive garden relates to “appropriate design”, which acknowledges that each
child as such, whether with or without disabilities, has abilities. “Activity-oriented design” (Figure 8), can create a system in which all children can take part jointly in the playing experience. “Appropriate activity-oriented design” is about a variety of physical components related to the developmental and social uses, which any space as such is supposed to provide an answer.”[6]

![Figure 8. Activity-oriented Design Diagram- Designer: Rachel Freidman](image)

The design solutions will include proposals for these problems on such a level that enables physical activity and motor development, taking decisions, learning, dramatic play, social development and joy[1]. In addition, the garden domain is part of a wider environment (neighbourhood), and, therefore, the design should adapt to the environment where it is located and provide an answer to components such as parking lots, boarding and alighting of passengers, public transport, access paths to the garden and inside it, an entrance gate and signs of direction and orientation.

The proposed solutions take into consideration the land slopes and the particular characteristic topography of the garden, the existing paths of the domain, the distribution of the facilities and the foci on the ground, according to age, activities, shade, shaded and adapted sitting corners, water fountains, signs, lighting and similar considerations. Every proposed solution addresses the issue of the quality of the facilities, safety and stability, adaptation for children with various needs, durability, maintenance ease, resistance to vandalism, various levels of challenges and the possibility of enabling several children to engage in an activity at the same time.

3. Summary

The project examined the question of how to create inclusive spaces that enable the integration of the needs and aptitudes of the various children for whom the space is designed. The project followed up the manner in which children with and without disabilities interact in the examined spaces, and proposes a planning-designing-operative concept of space. This concept is in keeping with what David Leatherbarrow calls “the topographical premises of landscape and architecture”, according to which there is no way to separate the planning-designing-operative procedure from the
landscape itself: “The task of landscape architecture and architecture, as topographical arts, is to provide the prosaic pattern of our lives with durable dimension and beautiful expression.”[7]

While it appears that the process of designing inclusive gardens has been completed, and that new standards and profiles have been established for developing an “accessible and inclusive playground,” the next step is to begin a process that takes into account the information obtained, and guidance on the utilization of the user profiles in the designing and planning procedures of playgrounds and open spaces. In this context, it is important to emphasize that the proposed profile constitutes “a springboard” for the creation of the “inclusive playscape”. Children without disabilities must overcome various psychological and other processes that they undergo upon accepting the different and the other in order to be able to allow “space” for the other who seeks their company. Thus, at issue is the creation of a common playscape that enables interactive and reciprocal learning by the children in it, without a passive and an active side. There should not be a participating side and an observing side; there should an experience whose principle is an active encounter between children with various needs and who differ from each other. Otherwise, as Goldman [8] points out, “the right to be outdoors” becomes meaningless for many children and people.

While this is a long and complex process, I believe that, when the space allows it, the probability that this goal will be realized is much greater, and that this project will make a meaningful contribution to the creation of an active environment that it is not made up only of children with various needs but one that implements a universal inclusive concept by designed, educational and social action.

References