Designing a Child-friendly Outdoor Public Playground For Children Aged from 4 to 8

On the Nordbahntrasse in Wuppertal

Through Co-creation Mindset

Neda Batenipour

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Industrial Design Department

Faculty of Design and Art

Bergische Universität Wuppertal

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Neda Batenipour

February 13, 2022

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Dedication

Dedicated to Hazrat Roghayeh, a three-year-old daughter, and Hazrat Ali Asghar, a six-month-old son of Imam Hussain (peace be upon them), the supporting light in the hardships of these years far from homeland and family.

Also dedicated to my dear father (Ali), and my dear mother (Batool) for all their kindness and support over these years.

Abstract

According to the United Nations Convention on the rights of a child (1990), play is a central feature of children's everyday life. Through outdoor play activities, children learn skills necessary for adult life, such as social competence, problem solving, creative thinking, safety skills, risk-taking, self-confidence, being independent and social, collaboration, and teamwork. Playing in outdoor spaces is a natural and critical part of a child's healthy development in different aspects, including cognitive development, physical development, socio-emotional development, and language development. The outdoor play environment can be a powerful tool to support and enhance children's play. An outdoor playground is an equipped open space which provides playing facilities for children under adult supervision. Playgrounds with their equipment/settings play an important role in a child development.

Playgrounds as the outdoor spaces where children play and interact should be accessible and carefully planned to meet the needs, wants, and values of a wide range of children with different interests, skills, and abilities. Looking at a playground through the eyes of children as end users should be of prime importance for designers, since it is the participation of individual users that gives a design its meaning and enables the researcher/designer to fill in gaps or indeterminacies.

This study presents a new framework and methodology for exploring design parameters based on users' real needs and wants and finally designs a child-friendly outdoor public playground for children aged 4-8. Existing problems, gaps, and opportunities in Wuppertal's playgrounds – especially in the Nordbahntrasse and Parkour Park area – provide the rationale and need, as well as the potential, for developing such a facility in this area (see Chapters 1 & 6).

To achieve this objective, an extensive literature review was conducted in urban design and its sub-fields, play-spaces and playground types in different eras, children's play and development, types of play from birth to age eight, boys' and girls' playing styles, playground equipment and settings, materials, and colors. From this review, some parameters could be derived regarding the necessary qualities and features for developing a quality playground (Chapters 2-5). Other sources and also observation provided an understanding of the contexts of the Parkour Park area, the Norbahntrasse, Wuppertal and Germany (Chapters 6 & 7); also, UCD approach, the co-creation mindset (as a form of UCD), and the phases of co-creative

design process (including 1. 'Exploration/Inspiration', 2. 'Problem Solving/Ideation/Design', and 3. 'Evaluation') were studied and described (Chapters 8 & 9). This extensive literature review (Chapters 2-9) can be considered as part of 'Exploration Phase' in this study.

As stated, the co-creation mindset was selected as a suitable approach for leading this study and exploring user-friendly/child-friendly design parameters to design the future playground for children aged 4-8 in Wuppertal on the Nordbahntrasse. Through this co-creative design process, different actors[1] (mainly children aged 4-8 and adult stakeholders like parents, grandparents, kindergarten/school teachers, and pedagogues) got involved in different phases of the process from exploration, through extraction of design parameters, to the generation of an applicable playground design concept, and its final evaluation.

In addition to the literature review[2] in Exploration Phase, different *methods* were applied for understanding potential users (including children and adults) and exploring design parameters such as: observation, holding innovative method called *'Creative Sessions'* (involving around 100 children aged 4-8 in Wuppertal and Tehran), holding *'group interview sessions'* with adults, and presenting a *'questionnaire'* to adult stakeholders (Chapters 10-12).

Considering design parameters found in Exploration Phase, different play ideas, concepts of playground equipment, and complete playground (conceptual) designs were generated ('Ideation Phase'). Among various primary designs, the final whole playground design was selected and developed (Chapters 13 & 14).

The final 'whole playground design' includes several innovative playground settings called 'Peace under Sky', 'Sense of Sea', 'Hill of Flying Balls', 'Tree of Adventure', and 'Clouds of Joy' (Chapter 13). These playground zones/structures offer different types of play experiences and activities (based on design parameters) to potential users. The design of the whole playground, is presented for an empty space next to the Parkour Park on the Nordbahntrasse in Wuppertal which is a potential site for developing such a facility.

Finally in Evaluation Phase, the whole playground design and its playground settings/zones were evaluated – through asking 16 questions relevant to previously explored design parameters— by 11 adult stakeholders who understand children and/or interact with

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[1] i.e. co-creators.
[2] Which is a usual method to understand the field of study, users and context.

playgrounds (Chapter 14). The evaluation results showed that the final playground design and its settings could meet children's and adult stakeholder's needs, wants, wishes, and values to a high extent (see Chapters 14 & 15). Thus, the designed playground can be considered as a *child-friendly* outdoor playing environment for children aged 4-8 which contributes to their development.

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Chapter 1

Introduction

1.1. Introduction

This chapter states the research problems and objectives. It also presents an overview of the study, its approach and its contribution to knowledge.

1.2. Research Problems and Opportunities

Several problems, gaps, and opportunities arise in connection with Wuppertal's playgrounds, Nordbahntrasse, and Parkour Park. These provide the reason, need and potential for developing a child-friendly playground for children aged 4-8 in the Nordbahntrasse/Parkour Park area. Some of the main problems and opportunities – to be discussed in detail in Chapter 6 – include:

– Obsolescence in the concept of play and its equipment and types: Concepts of play and the settings and equipment appropriate for it have changed a lot in recent years; but many playgrounds in Wuppertal have remained unchanged.

– Lack of variety in playground design: The affordances/opportunities in most playgrounds in Wuppertal are somehow similar. Hence there is a need and opportunity for an innovative playground offering a new, wide range of play affordances to encourage children to use their creativity and imagination.

– Role of color in designing the future playground: The main colors of many public play environments in Wuppertal are brown and grey (neutral colors). Though in some playgrounds these colors make the space boring and less encouraging to the users, in other spaces using natural and neutral colors in designing could be practical. As stated in Section 5.5.13., for designing a good play space, colors must be applied carefully to support the intended activity of play, social interactions, and opportunities for child development while paying attention to the requirements and characteristics of the playground location and surroundings.

– Considering the identity and features of the context in designing future playing space: Contextual characteristics have not been considered in designing many playgrounds in Wuppertal. Thus, for developing a new playground it is important to consider this gap and create a play space which has its own identity and is in harmony with its surroundings.

– Planning an inclusive co-creation research and design process: Developing a child-friendly playground needs to involve children in the design process. However, the equipment and play settings of many playgrounds have been designed, purchased and installed by adults[1] in a way that they thought would be useful and enjoyable for children (see Section 3.6.1. in Chapter 3).

While adults can identify and create 'places for children', 'children's places' (e.g. a child-friendly playground) can only come from children. Hence playground designers/researchers should actively involve children in the design process from the beginning (see Section 3.6.1. in Chapter 3) (Bhattacharya et al., 2003, p. 41; Meire, 2007, p. 33; Siu, 2003).

– Offering free play in the playground: Children learn best through discovery and free play, which is typically pleasurable, self-motivated, imaginative, non-goal-directed, spontaneous, active, and free of rules imposed by adults. This view is often skewed when the needs, wants, and wishes of the child are ignored (Bhattacharya et al., 2003, p. 41). To explore children's true wishes and wants, the approach of this study has been based on a co-creation mindset and an innovative method called 'Co-creative Session' designed and performed in kindergartens and schools (see Chapters 9, 10, & 11).

– Because of the special potential of the Nordbahntrasse for investing in projects and developing public facilities such as playgrounds, it was selected as an example for presenting the final overall child-friendly playground concept (see Section 6.2.7.2. in Chapter 6). Some of these potentials are:

- popularity with easy access
- offering various opportunities and public facilities to its users
- having different types of users from different socioeconomic status groups (SES).

The potentials, and also shortcomings and gaps, in the Parkour Park area provide opportunities and motivation to develop a new playground in the neighborhood[2], e.g.:

- lack of suitable play equipment for small children in the Parkour Park area

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[1] For example by the members of relevant organizations, experts, planners, decision makers, designers, and architects.

[2] Offering the concept of a child-friendly playground for this area as an example.

- color and appearance of the Parkour Park are not visually appealing to small children, especially girls
- Parkour and physical activities are the main concerns of the Parkour Park
- vandalism in the Parkour Park area.

1.3. Research Objective

This study aims to design a child-friendly playground in Wuppertal for children aged 4 to 8 based on users' (including children and adults) wishes and values by holding *Creative Sessions* (for children), and performing *group interview sessions* or presenting a *questionnaire* (for adults) (see Chapters 10, 11, & 12). This playground should also contribute to the child's development (considering age and gender). Since the end users of the playground are children aged 4-8, their needs and wishes are the priority. The preliminary concepts/ideas/designs, and final overall holistic design for the future playground, will be presented in Chapter 13.

1.4. Review of the Study and Research Approach

In order to understand available studies relevant to this project and achieve the objective, an extensive literature review was conducted in various relevant fields (Chapters 2 to 8).

Apart from this Introduction, the 14 remaining chapters of this study can be summarily presented as follows:

Chapter 2 – will review the relevant literature on urban design and allied subjects, because designing a playground – as part of an urban space – is considered an urban design process.

Chapter 3 – will review the literature on playgrounds which covers a broad domain of play-spaces in different contexts. However, in this research, 'playground' refers to a public outdoor play-space as an element of urban space. In this review, various types of playground and classification will be described and discussed. Understanding the main types of playground in their different eras – see Table 3-1 – leads us to the natural-environment-focused play design of the early 21st century, the so-called postmodern era.

Chapter 4 – To design a quality child-friendly playground that offers play equipment and opportunities which support *children's play* and their *development*, it is important to understand these fields. Chapter 4 reviews the relevant literature on subjects such as: the concept of play and its benefits, child development in different domains (cognitive, physical, social, emotional, and language development), types of play from birth to age eight, and the concept of gender and boys' and girls' playing styles.

Chapter 5 – first describes children's right to play and the role of the playground in supporting it. This chapter will review the literature on some of the qualities and features that need to be considered and understood for developing a *quality* playground (e.g. affordance, natural elements, loose parts and fluctuating environments, universal playspace, safety, parenting and supervision style in the playground, sociocultural factors in Germany and German parenting style, age- and gender-appropriate playground design, selecting a site to create a playground). This chapter also reviews literature on playground equipment and settings, such as swings, slides, climbing equipment, merry-go-rounds and spinners, seesaws, combined play structures, and abstract shapes and undefined spaces.

Chapter 5 also discusses different materials that can be applied in playground equipment and flooring/paving/surfacing of its area. In Section 5.5.13., the role of color in developing a good playspace, is stated. Color must be used carefully to promote the intended types of activity or mood, social interactions and child development. Different combinations of texture and color can be applied in order to inspire users, achieve specific effects, and support special functions. The features and qualities stated in this chapter can be considered and used in developing a quality playground.

Chapter 6 – To develop a design process for the project, it is necessary to understand three contextual elements (Parkour Park area, Nordbahntrasse, Wuppertal). Chapter 6 explores the opportunities and potentials, as well as gaps and shortcomings, which show the need and relevance of the design project (see 1.2). This, as previously stated, concerns an empty space next to the Parkour Park on the Nordbahntrasse in the Oberbarmen district of Wuppertal as a potential area for presenting the holistic design of a child-friendly playground for children aged 4-8. The

chapter also presents examples of play spaces and playgrounds in Wuppertal which have been either observed directly or explored in the literature.

Chapter 7 – reviews the literature about the quality of life in Germany. This chapter covers subjects such as criteria of better life index, children and family in Germany, and educational system (babysitting, kindergarten, and school system). This chapter shows an important role of a child-friendly playground to influence and increase the score of Germany in different topics of the 'better life index'.

Chapter 8 (Choosing the Research Approach) – To create a high quality public playground which meets its potential users' and related stakeholders' needs and wants, it is important to plan an 'inclusive' design process that actively engages a number of related actors with different skills, interests, and objectives working in collaboration with each other through design process. This chapter describes the User-Centered Design approach (UCD) and its forms including: traditional UCD, Active User Involvement, and Co-creation (Figure 8-2). The discussion of these forms will indicate why the approach of this study is based on the co-creation mindset (participatory design approach). The co-creation mindset is a form of UCD approach with high user involvement in the design/research process (Figures 8.1. & 8.2). It is, then, particularly suitable for designing a playground that aims to meet its child-users' real needs, wants, and values.

Chapter 9 (Describing the Design Process) – In this chapter, the design process of this study which is called 'co-creative design process' is shown and the co-creators/actors involved in the process are identified. The main phases of this research/design process include: 1) inspiration and exploration (understanding the context and co-creators); 2) ideation (synthesis; generating ideas/concepts/designs); and 3) evaluation (evaluating the final playground design) (Figures 9-1 & 9-2).

Also, the domains of potential co-creators include: 1) domain of users; 2) domain of relevant experts, communities, fields and disciplines; 3) domain of organizations and institutes responsible for public playground. The potential actors/co-creators of the co-creation chain are shown in Figure 9-3 (parts 1 & 2).

The methods and toolkits of the exploration phase, including 'Creative Sessions' for understanding children and 'group interview sessions' and 'questionnaire' for understanding adults, will be described in detail in Chapters 10, 11 & 12.

Chapter 10 – is dedicated to the description and explication of the creative session method applied in the exploration phase of the co-creative process[3]. Creative Sessions were held by the author in kindergartens and primary schools for understanding children aged 4-8 in Wuppertal, Germany and in Tehran, Iran. The features and qualities of the creative session have been described in Section 10.2.1 (e.g. number of children in each session, approximate duration, session supervisors, main activities, setting).

Creative sessions are concerned with understanding children's experiences, wishes, and values through their *drawings* and *stories*, which are the sessions' main activities. Each creative session has 7 main phases including:

1. Greeting & Introducing
2. Preparation
3. Imagining & Creating Stories
4. Facilitating
5. Drawing
6. Reinforcing Stories and Developing Drawing
7. Communication: Narrating, Exploring the Stories and Naming the Stories

In total, 22 main creative sessions were held, 100 children aged 4-8 were involved in these sessions, and 165 drawings were collected (see Section 10.2.4).

The aim of creative sessions is to enable children to express themselves and explore the experiences they enjoy, and their wishes and values. The findings of creative sessions (from children's imaginary stories and drawings) will be described and analyzed in Chapter 11.

Chapter 11 – In Chapter 11 the necessary data, experiences and findings of the creative sessions are categorized (see Table 11-1). Among all the data from children's stories and drawings in these sessions, what is most important (see Appendix 4 on the attached CD) is the principal experiences, wishes, and values expressed in the stories, categorized and set in different groups by content

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[3] The name given to the research-design process (see Chapter 9).

and subject[4]. These groups (higher-level experience groups) are then defined (Table 11-2). Each higher-level experience group is analyzed, with particular reference to experiences mentioned more frequently in stories/drawings (Table 11-3 (from (a) to (z)). Section 11.7 presents the design parameters for developing the future playground, explored and derived from favorable experiences and enjoyable wishes in children's drawings/stories.

Chapter 12 – In Chapter 12, the methodology for understanding adults (as stakeholders of playground) is described. This includes group interview sessions and a questionnaire. Stakeholders mainly include parents, grandparents, local playground sponsors, teachers, educators, or babysitters who bring children to the playground. To gain the requisite information, a list of 13 questions was prepared in this project phase and 17 adults responded in group interview sessions or by filling out the questionnaire. Their answers to questions were categorized and the relevant design parameters were derived from these answers.

Chapter 13 – This chapter presents designs for a future playground generated on the basis of design parameters discussed in previous chapters (Chapters 11 & 12). The final design is presented as a child-friendly playground for children aged 4-8 and offered as an exemplary solution for the available empty space next to the Parkour Park on the Nordbahntrasse in Wuppertal.

Chapter 14 – This chapter presents the evaluation phase for the final playground design and its play settings/zones. For this purpose, 16 questions were designed relating to aspects based on design parameters explored in previous chapters. Some of these evaluation questions are relevant to individual playground zones ('Peace under Sky', 'Sense of Sea', 'Hill of Flying Balls', 'Tree of Adventure', and 'Clouds of Joy') and some are about the whole playground. In total, 11 participants (who interact with children and/or use playgrounds in some way) answered the 16 evaluation questions. The results of the evaluation are analyzed in Chapter 15.

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[4] The experiences, events, and values with similar content and subjects are categorized in the same group (higher-level experience groups). These fields may overlap and be relevant to each other (see Table 11-2).

Chapter 15 – presents and analyzes the specific as well as overall results of the evaluation phase and offers a concluding summary in light of the main aim of the PhD project: to create a child-friendly outdoor public playground for children aged 4-8 on the Nordbahntrasse in Wuppertal[5].

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[5] As will be explained in future chapters, this site has been selected as an example of a potential area for developing public spaces. However, the playground settings designed for this site could be installed in any suitable space in Wuppertal or other cities.

Chapter **2**

Review of Literature on Urban Design and Public Environment.
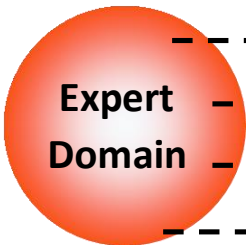
Expert Domain
— — — — — **Urban Design**
— — — — — **Urban Landscape**
— — — — — **Street Furniture and Public Playground**
— — — — — **Public Realm, Public Environment, Public Life**

2.1. Introduction

An outdoor public playground is an open public space with various facilities such as play settings and benches to serve the users. Since designing a playground – as part of an urban space – is considered an urban design process, this chapter will review the relevant literature on this subject. This review includes aspects such as urban design, urban design as process and product design, good urban design, good urban environment, designer of urban places, urban design as joining-up, elements of urban landscape, street furniture, public life, and public space and its dimensions.

2.2. Urban Design

The term 'urban design' was coined in the late 1950s in North America and is often associated with Josep Lluís Sert, Dean of Harvard´s Graduate School of Design, where an urban design conference was convened in 1956 (Carmona et al., 2010, p. 3; Carmona et al., 2003, p. 3).

Urban design is a growing interdisciplinary area of practice that has recently been the subject of considerable attention. It is as an integrative and integrating discipline at the core of creative, problem-solving, planning disciplines and relevant professions. While the scope of urban design may be broad and its boundaries are often fuzzy, its core concern is to make better places for people (Carmona et al., 2010, p. vii, p. viii & p. ix). Urban design is primarily concerned with public spaces and places. It considers both the physical and sociocultural qualities of space, and aims to make (i.e. design), remake (i.e. redesign) and develop public spaces for people to use and enjoy (Carmona et al., 2010, p. 3; Carmona et al., 2003, p. 3).

2.2.1. Defining Urban Design

'Urban design' is in both its elements inherently ambiguous; considered separately, the two words 'urban' and 'design' can be explained more clearly. 'Urban' has an inclusive meaning entailing the characteristics of a large domain, including cities, town, villages, and hamlets. 'Design' denotes a creative, analytical, problem-solving activity in which opportunities are explored, objectives defined, possible solutions and constraints weighed and balanced, and finally

optimal solutions derived (Carmona et al., 2010, pp. 3-4 & p. 71; Carmona et al., 2003, pp. 3-4; Carmona & Tiesdell, 2007, p. 1).

Design is a holistic process of exploration and discovery. In a design process, the whole to be created matters most. Designers should consider that the process of design should add value to the system as a whole; because considering an individual component or part of a system separately – without paying attention to the whole – may result in reducing the total quality of the system. What finally matters most is the quality of the whole system as experienced by the users (Kasprisin, 2011, p. 1; Carmona et al., 2010, p. 71; Carmona & Tiesdell, 2007, p. 1). Thus, in urban design, the most important thing is the overall quality of a place and how well it functions for its users (Adams & Tiesdell, 2013, pp. 12-13).

Like other design process, urban design has no right or wrong answers, only better and worse answers; and this quality is experienced and known over time. Since the aim of the urban design process is to enhance the quality of places/spaces, it is necessary to have a continually questioning and inquiring approach (Carmona et al., 2010, p. vii; Carmona et al., 2003, p. vii). In this sense, urban design is conceived as an activity that aspires to make better places through conscious interventions (Adams & Tiesdell, 2013, p. 13). Urban design can be considered an important part of all urban development, renewal, management, planning, and conservation processes (Carmona et al., 2010, p. vii).

Urban design refers to both product and process: creating successful spaces is a design challenge on both levels, generating different outcomes during the design process and in the final product. This will be clarified in the following section (Adams & Tiesdell, 2013, p. 13; Madanipour, 1997, p. 17).

2.2.2. Urban Design as Process and Product

The definition of urban design in the previous section covers (1) the design process, (2) interventions in this process, and (3) the product[6] (Carmona & Tiesdell, 2007, p. 1; Madanipour,

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[6] The 'product' here refers to different types of outcome – e.g. data, findings, insights, ideas, concepts, final designs, created place – experienced by users and stakeholders.

1997, p. 17; Carmona et al., 2010, p. 4). As a process, urban design includes the set of data, ideas, policies, and images created during the process. Then, within the process, these products form more developed outcomes, concepts, and designs. Finally, in the implementation phase of the design process, the findings form the new design, and the new (or altered) urban place is created. Urban design is defined by both what designers *do* in the design process and what they *produce* through this process (Madanipour, 1997, p. 17).

While, in practice, urban design refers to all the products and processes of development in the urban environment, it should also possess a normative element, expressing the quality added to both product and development process to create a better urban environment (Carmona et al., 2010, p. 4).

Process and product are so closely intertwined as to transcend formal analysis. According to Ronald J. Kasprisin (2011), they are twin aspects of every process, from social interactions to arts and crafts. Always there is an emerging outcome, a product; and any outcome – verbal or visual, behavioral or conceptual – and any created place is inherently a process manifested at a given time as finding and product (Madanipour, 1997, p. 17; Kasprisin, 2011, p. 5).

2.2.3. Definition of Good Design and Good Urban Design in Terms of Product and Process

A definition of good design in 10 key principles was presented by Dieter Rams in the early 1980s. Accordingly, a well-designed product is (1) innovative, (2) useful, (3) aesthetic, (4) intelligible, (5) unobtrusive, (6) honest, (7) long-lasting, (8) thorough down to the last detail, and (9) environmentally friendly; finally (10), it is as little design as possible[7].

As stated above, urban design – creating a successful space – is a design challenge in terms of both product and process:

1) In product terms, the overall quality of the space and its components must simultaneously achieve the criteria of good design. In the urban design field, these are commodity, delight,

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[7] https://www.sfmoma.org/press/release/sfmoma-presents-less-and-more-the-design-ethos-of/, accessed: 17.09.2019.

firmness, and economy. 'Commodity' refers to a design's achievement of the necessary functional criteria; 'delight' entails positive experience and aesthetic appeal; 'firmness' has to do with achievement of the necessary technical criteria; and 'economy' refers not only to respecting budget constraints, but also in a broader sense to minimizing environmental costs (Adams & Tiesdell, 2013, p. 13; Carmona et al., 2010, p. 71; Madanipour, 1997, p. 18). Considering the context and subject of the project, the design process may also have other purposes.

2) In process term, the design challenge is how[8] to meet these multiple objectives of good design simultaneously within a context of uncertainty. This requires designers who are able to make trade-offs intuitively (Adams & Tiesdell, 2013, p. 13; Carmona et al., 2010, p. 71).

2.2.3.1. Good Urban Environment

In terms of adding quality to process and product, Jacobs and Appleyard (1987) posit seven essential goals for the future of a good urban environment:

- Livability – a city should be a place where everyone can live in relative comfort.
- Identity and control – people should feel that some part of the environment belongs to them individually and collectively (some part for which that they care and are responsible, whether they own it or not).
- Access to opportunities, imagination and joy – the city should be a place where people can go beyond their traditional molds, extend their experiences, meet new people, learn other viewpoints, explore opportunities, and have fun.
- Authority and meaning – the city, its basic layout, public functions, and institutions should be understandable to its citizens and even to other people like tourists. They should be aware of the city's opportunities.
- Community and public life – cities should encourage their citizens to participate in community and public life.
- Urban self-reliance – increasingly, cities will have to become more self-sustaining in using energy and other scarce resources.

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[8] This refers to the approach and methodology of the study (planning the framework for the project).

- An environment for all – good environments should be accessible to all. Every citizen should be entitled to have essential level of environmental livability, identity, control, and opportunity (Carmona et al., 2010, pp. 8-9).

In the definition of urban design as the process for creating good urban environment for people, four themes are emphasized: (1) urban design is for people; (2) the importance of place; (3) urban design works in the real world, where its field of opportunity is constrained by economic (market), political (regulatory) forces, and environmental requirements; (4) the importance of design as a process (Carmona et al., 2010, p. 3). To understand urban design as a process that adds value to spaces and produce places for people, it is important to know who is involved in this process and where designers stand (Madanipour, 1997, p. 18).

2.2.4. Who is the Urban Designer?

All who take decisions that shape the urban environment are in some way involved in the urban design process. In this respect, everyday users are as important as designers. Various different individuals and groups, then, are engaged – consciously or unconsciously, in different capacities and with different objectives – in the process of urban design and place-making and influence the design decision. Nevertheless, a distinction can be made between knowing (conscious) and unknowing (unconscious) urban design.

Conscious urban designers are typically professional practitioners with related academic qualifications and professional experience. Unconscious urban designers include everyday users who do not see themselves as designers, though they influence place-making decisions (urban design) and their interventions affect the quality of the urban environment. However, the term 'designer' is generally reserved for the former group, who bring creativity and innovation to the task of solving problems and increasing the quality of urban spaces (Adams & Tiesdell, 2013, pp. 13-14; Carmona et al., 2010, p. 16).

2.2.5. Problems of Place Quality

Problems of place quality are so-called 'wicked' problems which are multi-dimensional and their common characteristics are interconnectivity, complex interdependencies, uncertainty, ambiguity and conflict. Because of these characteristics, recognizing and solving a wicked problem is difficult. The effort to solve one aspect of a wicked problem may reveal or create other problems. Since wicked problems relate to open systems where the problem is continuously changing and evolving, they have only partial solutions: continual questioning and exploring is called for (Carmona et al., 2010, p. vii & p. 14; Sanders & Stappers, 2012, pp. 22-23). Urban design – as the process of making places which meet people's needs and wants over time – doesn't have a definite beginning and an end. It is always open-ended and ongoing: a broad field of activity that intervenes in, or contributes to, other dynamic systems. For example, values, culture, and lifestyle are dynamic realms that change over time and affect the design of a place (Carmona et al., 2010, p. 15; Dobbins, 2009, p. 182)

Since problems of place quality are wicked and design development processes are fuzzy, identifying and solving these problems is challenging for the designer. In the beginning, there is no clear path on how to proceed in the design process. There may be different paths to explore, before realizing any pattern. But the designer can deal with the challenge of wicked problems and fuzzy pathways through collective forms of creativity and generative design thinking (Sanders & Stappers, 2012, p. 22). The response to these problems needs to be comprehensive, holistic, and joined-up (Carmona et al., 2010, p. 14).

These are all reasons for choosing co-creation (i.e. a participatory mindset) – a form of UCD[9] approach – as the approach of this study, which aims to create child-friendly playing equipment and playgrounds for children aged from 4-8 years.

Chapter 8 will discuss the UCD approach and its forms – from traditional to participatory (co-creation) – generally, and in Chapter 9 the co-creation process planned for this study will be described.

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[9] User-Centered Design

2.2.6. Urban Design as Joining-up

Urban design is not, or should not be a particular professional territory, because it should be shared among many actors. Urban design is typically a collaborative and interdisciplinary activity that involves a wide range of actors (co-creators)[10] with different interests, skills and expertise, including researchers, designers, users, and other experts in relevant fields. Thus, the best framework is the one that involves a wide number of people working in collaboration. Since the work context includes multiple clients with various – often conflicting – interests and objectives over time, the designer/researcher must develop a sequence of solutions to a problem rather than a single solution (Carmona et al., 2010, pp. 4-5; Kasprisin, 2011, pp. 1-2 & pp. 10-11).

For a better understanding of urban design, the elements of urban landscape will be discussed in section 2.3. After that, the meaning of public space, which is the key area in urban landscape and urban design/development, will be explored.

2.3. Urban Landscape and its Elements

The basic elements – the physical dimension – of urban design are the elements of urban landscape through which social interaction and communication – the sociocultural dimension (see Section 2.4.) – takes place in public space (Carmona et al., 2010, pp. 3-5; Kasprisin, 2011, p. 10). To understand the vocabulary of urban design, it is important to know the elements of urban landscape.

The urban landscape of a city is a composite of different elements including, architectural elements, open space (i.e. ambient space), and street furniture (Figure 2-1) (Wan, 2007, p. 43; Carmona et al., 2010, p. 5). These elements may be part of public or private space (Figure 2-1) (Madanipour, 2010, p. 1; Akkar Ercan, 2010, p. 25). The following illustration provides examples:

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[10] Considering the approach of this study, which is based on the 'co-creation mindset,' the actors are called 'co-creators' who are involved in the design process to create a child-friendly playground (see Chapter 9).
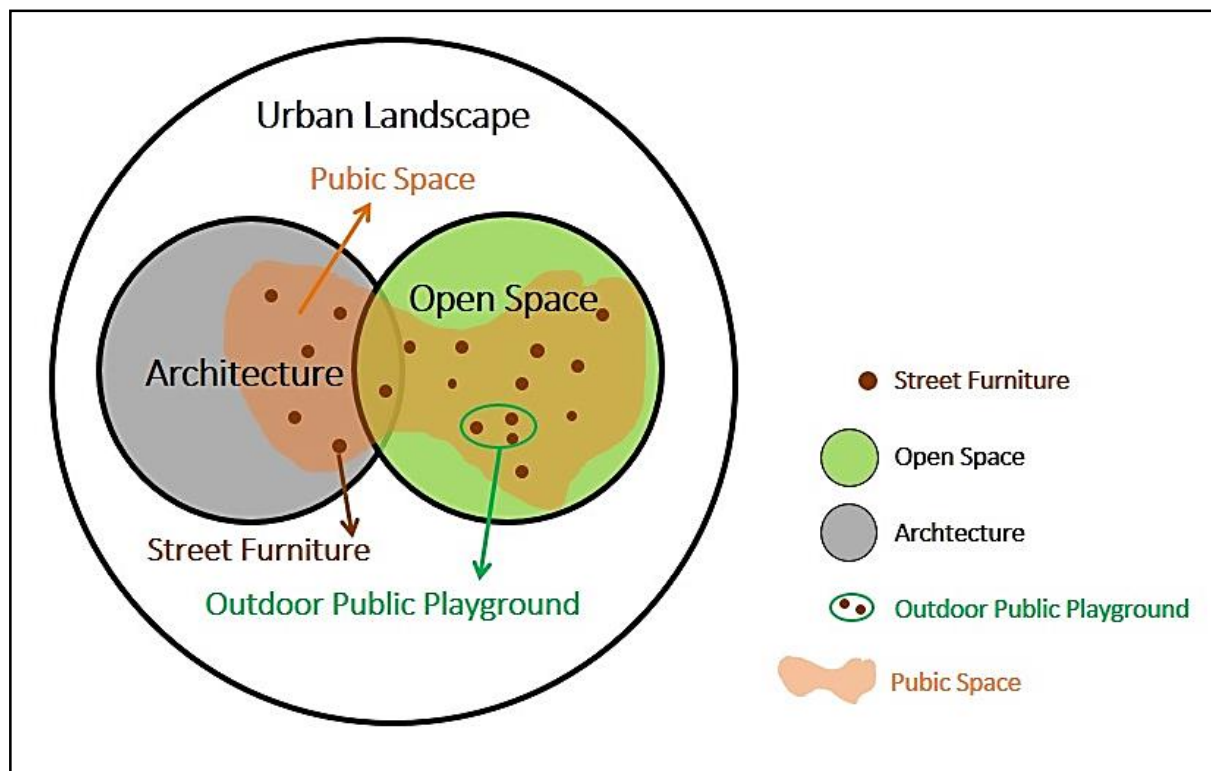
Figure 2-1: *Elements of Urban Landscape and their Relationship.*

Source: *Prepared by the author; data from: (Wan, 2007, p. 44; Carmona et al., 2010, p. 5).*

- **Architectural elements**

  The architectural area includes different types of building (e.g. houses, schools, churches) that may be for either public or private use. For example, an architectural element may be a private house which is for private use or it may be a subway platform or an indoor public playground which are for public use.

- **Open space**

  An open space could be either for public or private use. For example, a private yard or a private garden is an open space for private use, and an outdoor public playground or a public park is an open space for public use.

- **Street furniture**

  Street furniture is installed for public use in public spaces (Figure 2-1). These may be open (i.e. outdoor spaces) or enclosed (i.e. indoor spaces). For example, street furniture like bus stops, bicycle racks, or playground equipment (installed in outdoor public playgrounds) is

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considered street furniture in open spaces. But street furniture like boards or benches of an underground subway platform and buildings or benches and stands installed inside a public building are street furniture in an indoor space. Street furniture is usually presented in open rather than indoor public space.

Considering the elements of urban landscape and their relations shown in Figure 2-1, an outdoor public playground refers to an open public space equipped with various facilities such as play equipment and benches (street furniture) to serve the users (Dewi, 2012). The users of a playground include children (end users) and the adults who accompany them (known as stakeholders). Chapter 3 will discuss several subjects such as the definition of playground, different types of playground, and the history of play-spaces.

2.3.1. Street Furniture as the Main Element of Public Urban Spaces

Public spaces play a significant role in the life of city: they are key in urban design and development (Madanipour, 2010, p. 1; Akkar Ercan, 2010, p. 25). There is an undeniable need for public spaces which let cities work. In modern cities, the role of public spaces – and therefore their nature – has radically changed. The development and use of these spaces mirror the way a society has been organized and shaped (Madanipour, 2010, p. 2).

Street furniture is a significant element in public urban space. It has a close relation with users, and plays an important role in shaping urban life (Wan, 2007, p. 271; Song, 2011, p. 16). Street furniture is generally defined as facilities or equipment installed in public urban space for public use and enjoyment. The situation of street furniture reflects the public life and development of a society (Song, 2011, p. 16).

In the following sections, the definition of public space will be explored more deeply in terms of the public realm, public life, and the concepts of public and private.

2.4. The Public Realm and Public Life

As an integral part of the public realm, public space is currently receiving increased attention across the social sciences and humanities (Carmona et al., 2010, p. 137). In any discussion of urban

design and place-making, it is important to review the concepts of public realm and public life. The public realm has two dimensions, the physical (i.e. space) and the social (i.e. activity) (Carmona et al., 2010, p. 137; Madanipour, 2010, p. 2):

- The *physical* public realm is the series of spaces and settings that support or facilitate public life and social interaction. They may be owned publicly or privately.
- The *sociocultural* public realm is the activities and events that occur in and through those spaces and settings (i.e. public life).

According to Loukaitou-Sideris and Banerjee (1998), *public life* involves relatively open and universal social contexts, while *private life* is intimate, familial, and shielded (i.e. controlled by the individual) (Carmona et al., 2010, p. 137).

2.5. Defining Public Space

2.5.1. 'Public' (noun or adjective) and 'public space'

The word 'public' originates from the Latin and refers to people. In this sense, a public space may be interpreted as one that is open to people as a whole, and/or is controlled by the state (Madanipour, 2010, p. 8). The concept of 'public' is rich in meaning: as noun or adjective it occurs in a wide range of contexts (Akkar Ercan, 2010, p. 22).

'Public,' as an adjective means concerning the people as a whole, open to all, accessible to or shared by all members of the community, and performed or made openly. 'Public' also describes something – here, urban space – that is provided especially by the government for the use of people.

As a noun, 'public' refers to people as a whole. It also means a group of people who share a particular interest or who have something in common. In this sense, public space means a space that (Akkar Ercan, 2010, pp. 22-23):

- concerns people as a whole and is open to all;
- is accessible to or shared by all members of the community;
- is provided by public authorities for the use of people in general.

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2.5.2. Public vs Private

Public has been defined as the opposite of private. The private realm is the realm of individuals and their intimate relationships. In this sense, public space is often defined by its distinction from the private (personal) realm of the household. Hence, public is equated with impersonal, collective, and the realm of the non-intimate other (Madanipour, 2010, p. 8; Carmona et al., 2010, p. 137).

The relation between public and private space is a continuum, not a dichotomy, since the boundaries between the personal and impersonal, private and public, can be blurred. Thus, an urban environment is a composite not of absolutely public or private spaces but of spaces with different degrees of 'publicness' and 'privateness' (Madanipour, 2010, p. 8; Akkar Ercan, 2010, p. 25; Carmona et al., 2010, p. 137; Erlhoff et al., 2008, p. 12).

2.5.3. Dimensions of a Public Space

The relative publicness of a space can be defined according to the criteria of 'actor,' 'access,' and 'interest' (Table 2-1) (Akkar Ercan, 2010, pp. 23-25; Carmona et al., 2010, p. 137).

Table 2-1: *Criteria of 'publicness': 'access,' 'actor,' and 'interest'.*

'Public' Dimensions of a Public Space		
Criteria of 'Publicness'		**Criteria of 'Public Space'**
Actor/Agency	Ownership	A space that is owned by the government and public authorities (i.e. publicly owned)[11].
	Maintenance, Management, and Control	A space that is managed and controlled by the public actors.
	Using and Interaction	A space that is used by the public.
Access	Physical Access	A space that is physically accessible to all.
	Social Access	A space that is socially accessible to all.
	Access to Activities and Discussions	A space where the activities and discussions on its development and use processes are accessible to all.
	Access to Information	A space where the information regarding its development and use processes is accessible to all.
Interest		A space that serves the public interest which means it meets people's values and wishes and is desirable to the public.

Source: *(Akkar Ercan, 2010, pp. 23-25; Carmona et al., 2010, p. 137).*

- **Criteria of 'Actor'**

"Public actors means agents or agencies that act on behalf of a community, city, commonwealth or state, while private actors refers to agents or agencies that act on their own account" (Akkar Ercan, 2010, p. 24). The relative 'publicness' of a space can be defined according to the public-private nature of the *actors* engaged in the following activities (Table 2-1) (Akkar Ercan, 2010, pp. 23-25; Carmona et al., 2010, p. 137):

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[11] In the definition of public space in our research, this criterion is not important: it means the space could be owned publicly or privately but it is for public use, public accessibility, and serving the public interest.

- ownership

- maintenance, management, and control

- usage and interaction.

- **Criterion of 'Access'**

Access (public accessibility) entails four qualities (Akkar Ercan, 2010, pp. 23-24):

1) Physical access: i.e. access to the physical environment. Public space is physically accessible and open to all.

2) Social access: social access involves a set of cues in the form of people, design and management elements which suggest who is, and is not welcome in the space. Thus, it is important to improve the (environmental and social) image and ambience of a public space to make it more welcoming and less intimidating to a wider range of social groups.

3) Access to activities and discussions, or intercommunication.

4) Access to information.

'Public space' is, for instance, where communication activities on the development and use of the space are open to all and the public can get involved in different phases of the decision-making and design process (Akkar Ercan, 2010, pp. 23-24). Hence the third and fourth criteria of access (i.e. access to activities, discussion, and information), enable the meanings and functions of a public space to change in conformity with the needs, wants and interests of users and stakeholders (Akkar Ercan, 2010, pp. 23-24). Thus in this study, actors are viewed as co-creators who will be engaged in the research/design process (by applying new methodology) to develop a child-friendly playground in Wuppertal for children aged 4-8 years (see Chapter 9).

- **Criteria of 'Interest'**

The 'publicness' of a space can be described in terms of the criterion of interest. Thus the level of publicness of a space depends on the extent to which the space, the activities occurring in it, and the discussions on and information about its development and use processes, are open to all, are managed and controlled by public actors, are used by the public, and serve the public interest (Akkar Ercan, 2010, pp. 24-25).

2.6. Summary

Since outdoor playgrounds are part of the urban landscape, playground design can be considered as an urban design process. Different aspects of the urban design realm have been discussed in detail in this chapter.

An important aspect is inclusive process. To plan an inclusive research/design process, the planned framework should involve people with different skills working in collaboration, regardless of (possibly conflicting) interests and objectives. To create an accessible place, researchers/designers need to develop a multiple sequence of solutions to a problem rather than a single solution (Carmona et al., 2010, p. 5).

Public design means design for the public, in the public realm, and engaging the public (Erlhoff et al, 2008, 44). In design projects related to the public interest (e.g. designing a playground), a co-creation mindset (i.e. participatory design approach)[12] is appropriate: it promotes a sense of community by bringing people[13] together. In order to create a child-friendly playground, the approach of this study has been based on a co-creation mindset. The co-creation mindset as a form of UCD approach will be discussed in Chapter 8. The co-creation design process planned for this study will be presented in Chapter 9.

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[12] Participatory design approach or co-creation mindset is a form of UCD approach with high user involvement (see Chapter 7).
[13] The people who get involved in a co-creation design process include users, stakeholders, experts, and responsible organizations and are called 'co-creators' or 'actors.'

Chapter **3**

Review of Literature on Public Playground and History of Children's Play and Play Environment.

Expert Domain
- - - - - - **Defining 'Playground'**
- - - - - - **Types of Playground**
- - - - - - **History of Playground and Children's Play**
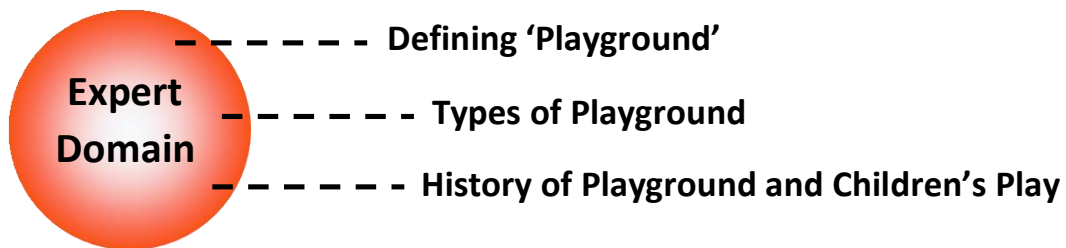
3.1. Introduction

This chapter reviews the literature on playgrounds. The term 'playground' covers a broad domain of play-spaces in different contexts. However, in this research, 'playground' refers to a public outdoor play-space as an element of urban space (see Figure 2-1, Section 2-3, in Chapter 2). In the following review, various types of playground and classification will be described and discussed.

Playgrounds fulfill an important role in supporting children's play. However, the physical play environment (including natural and constructed play settings) does not entirely hold the key to play. As in the theater, play settings support the action of play but the story is created by the children as actors (Cummins & Masiulanis, 2017, p. 4).

Children's play and the play environment are two interdependent entities. The main part of this chapter is about tracing the history of play and the children's playground over the centuries – a traditional approach to exploring values for the design and development of future playgrounds (Frost, 2010, p. xvii) and elucidating their background. Understanding the main types of playground in their different eras – see Table 3-1 – leads us to the nature play design of the early 21st century, the so-called postmodern era. Nature play provides children with the opportunity to engage in unstructured play activities in natural environments[14] (Cummins & Masiulanis, 2017, p. 4; Frost, 2010, p. 174).

Playgrounds reflect the cultural characteristics of their contexts. Hence the historical overview of the literature will cover the following sociocultural areas:

- sociocultural-historical characteristics, time, and space
- places for children vs. children's place
- collectivist culture vs. individualist culture
- influences of sociocultural ethos on playground designs and guidelines.

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[14]
https://natureplayqld.org.au/#:~:text=%E2%80%9CNature%20play%20is%20when%20children,to%20conventional %20manufactured%20play%20equipment, accessed: 14.02.2021.

3.2. Defining Playground

Children's playgrounds are constitutive elements of the urban landscape (Chapter 2, Figure 2-1). Playgrounds can merge with open space or natural environment either within or outside built-up areas (Minguet, 2011, p. 7). The term 'playground,' as used here, denotes an outdoor public play-space equipped with specifically constructed and/or natural elements as playing facilities for children, as well as benches for adults or children to rest (Dewi, 2012).

Terms like 'playground,' 'play environment', 'playscape,' 'naturescape' (natural playscape), 'built playground,' and 'grounds for play' are used to describe spaces where children (or sometimes even adults) gather to play. Nowadays, terms such as 'naturescape' and 'playscape' are becoming more common, since interest in getting children back to nature is increasing: the natural environment provides much for children's play and learning (Frost, 2010, p. xviii; Dewi, 2012). But the term 'playground' is most frequently used of specially constructed outdoor spaces – schoolyards, parks, gardens, backyards, etc. (Frost, 2010, P. xviii; Dewi, 2012). The following sections describe different types of playground.

3.3. Types of Playground and their Features

Children's play environments have taken many forms over the past centuries, evolving across time. For centuries, children's only playground was the outdoor environment, including wild parts of the countryside for rural children, and the lots, streets, and surrounding countryside for children in towns and cities (Frost, 2010, p. 198). This has resulted in various types of play environment. These types differ substantially in accordance with their philosophical attitude and background discipline, play equipment and materials, space and geography, end users and target groups, play leadership or supervision, and owner or manager, as well as the idea of their creator (Frost, 2010, p. 174).

In view of these criteria, some types of playground are (Frost, 2010, p. xviii; Pascoe, 2017, p. 19; Dewi, 2012):

- Intergenerational playground – includes people of all ages as its users including children and adults.

- Integrated playground – a combination of natural and built spaces and elements. This combination can reinforce children's healthy development and well-being.

- Inclusive/accessible playground – a safe place for children of all abilities to play together; developmentally appropriate for children with and without disabilities[15].

- Cyber playground – an electrically powered play environment (e.g. indoor environment for playing video games).

- Water playscape – offers opportunities and water-based equipment to play with water (e.g. at theme parks).

- Adult playground – this entertaining playground offers play opportunities and settings specifically for adults.

3.3.1. Outdoor and Indoor Playgrounds

Regarding the criteria of space, a playground can be outdoors or indoors (Frost, 2010, p. xviii; Minguet, 2011, p. 7).

Other categories of playgrounds are as follows:

3.3.2. Private and Public Playgrounds

The publicness or privateness of a space can be defined by different criteria (see Section 2.5.3. in Chapter 2). Regarding the criterion of ownership, playgrounds can be owned publicly (i.e. belonging to the government and public authorities) or privately (i.e. belonging to individuals or private agencies) (see Section 2.5.3. in Chapter 2). However, in most cases, as in this research, 'public' and 'private' denote publicness or privateness of use, access, and interest. Thus playgrounds can be either for public or private use/access. A 'private playground' is for private use, private accessibility, and serving private interests. In this study, 'public playground' refers to a play-space that is for public use, public accessibility, and serving the public interest (Akkar Ercan, 2010, pp. 23-25; Carmona et al., 2010, p. 137).

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[15] http://info.mayrecreation.com/blog/what-is-an-inclusive-playground, accessed: 18.1.2018.

3.3.3. Natural Playgrounds, Built Playgrounds, and Integrated Playgrounds

Regarding the type and materials of play-space and playing equipment, playgrounds are categorized as 'built playground,' 'natural playground,' or 'integrated playground.'

Natural playgrounds emerged in the mid-1800s, e.g. in the backyard of Froebel's German kindergarten, where children could play with a wide variety of plants and other features. A natural playground or natural playscape is an environment where children can play and interact with natural elements and materials such as sand, water, wood, hills, animal habitats, butterfly gardens and living plants[16] (Frost, 2010, pp. 173-174).

The settings of natural playgrounds support some types of play – which are important for children's development – such as: imaginary, socio-dramatic, and constructive play (manipulating and building). Types of play will be presented in Section 4-5 and Table 4-2 in Chapter 4. Natural playgrounds encourage children to use their imagination and senses. It supports them to experience the smells, texture, and wonders of the natural world through work and play[17] (Frost, 2010, p. 174).

A 'built playground' is an environment with play equipment designed by architects and designers or produced by manufacturers. Children may also be involved in the design process. Built playgrounds are commonly seen in backyards, child care centers, schools, and city parks (Frost, 2010, p. 173). The equipment of built playgrounds can integrate with *natural* materials, settings, and spaces, where a combination of natural and built elements promotes motor skills such as climbing, sliding, and brachiating[18], as well as providing props for make-believe play (Frost, 2010, p. 174).

Both natural and built play areas are necessary for (Frost, 2010, p. 195):

- child health development
- physical fitness
- improving children's knowledge especially about nature

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[16] http://www.naturalplaygrounds.info/, accessed: 7.10.2019.
[17] http://www.naturalplaygrounds.info/, accessed: 7.10.2019.
[18] Brachiating means moving by using the arms to swing from branch to branch.

- providing play opportunities for spontaneous play on physically challenging equipment and spaces.

Play environments should be created in a way that reflects children's natural play tendencies and enhances their developmental needs. For this aim, a selection of various materials and equipment including natural and built settings should be provided. This type of playground, providing a combination of natural and built elements, is called an 'integrated playground' (Frost, 2010, pp. 195-196).

3.3.4. Traditional Playgrounds vs Adventure Playgrounds

Considering types of play equipment and the experience they offer to children, playgrounds are categorized into two main types: 'traditional'/'conventional' and 'adventure' playground. These then form the basis for sub-types like 'creative,' 'designer,' and 'educational' playground (Bhattacharya et al., 2003, p. 8).

- **Traditional Playgrounds**

The traditional playground typically includes jungle gyms, swings, slides, and teeter-totters. Play equipment and settings in traditional playgrounds are often arranged in circular style, with a sandbox at the center. The traditional playground emphasizes exercise and physical development; its focus is on active and gross motor play. However, there are several critiques of the traditional playgrounds such as (Bhattacharya et al., 2003, p. 8)[19]:

- its one-dimensional style
- poor response to children's individual needs and wishes
- limited opportunities to foster other critical skills beyond physical skills like socialization, creativity, and imagination.

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[19] http://www.naturalplaygrounds.info/, accessed: 7.10.2019.

- **Adventure Playgrounds**

In Europe, the hardships of World War II produced a new type of playground called 'junk' or 'adventure' playground (Pascoe, 2017, p. 16; Frost, 2010, p. 183). These playgrounds were not the invention of one individual. Their growth can be traced in several countries to the efforts of many individuals and groups who cared about children's welfare (Frost, 2010, p. 184).

For centuries children themselves discovered and created play environments from junk; and adults concerned about children's play needs supported their drive for creative play with malleable materials (Frost, 2010, p. 184).

A Danish landscape architect Carl Theodor Sorensen established the first junk playground (i.e. adventure playground[20]) in Emdrup, Copenhagen in 1943. Years before setting up his playground, he had developed the concept of a junk playground in his book, *Open Spaces for Town and Country.* He aimed to give the children who lived in towns the same chance for creative play as those in the country. Reflecting his observation of children building play-spaces and hideouts, his junk playground provided fragments of wood, metal or masonry and the tools to put them together. His concept included trained play leaders who facilitated children's activities (Pascoe, 2017, pp. 16-17; Frost, 2010, pp. 183-184; Bhattacharya et al., 2003, p. 9). Junk or adventure playgrounds were a kind of junkyard that placed children in the role of designer and creator playing and interacting with leftover materials (Pascoe, 2017, p. 17). According to the London Adventure Playground Association, an adventure playground can best be described as a place where children are free to do many things that they are not able to do easily elsewhere in crowded urban society (Frost, 2010, p. 185).

The adventure playground is usually an informal, large, fenced-in play area where children can use various tools, scrap materials and junk in order to create their own environment under the watchful but non-interfering eye of a play leader or playworker[21] (Bhattacharya et al., 2003, pp. 8-9; Frost, 2010, p. 185; Solomon, 2014, pp. 26-27). An adventure playground needs employed leaders who offer opportunities and facilitate children in their imaginative and creative play, and

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[20] Later, Lady Allen of Hurtwood, who introduced the 'junk playground' concept in the U.K., coined the name 'adventure playground,' and created several adventure playgrounds for handicapped children.
[21] In Europe, a 'play leader' is called a 'playworker'.

organize their activities. In an adventure playground various activities can be undertaken, such as hut building, cooking, carpentry, painting, and tunnel digging. A play leader supervises and helps children in their activities, ensures safety and fosters their development. However, he does not hinder children's own creativity and does not initiate or direct their activities (Bhattacharya et al., 2003, pp. 9-10).

The play leader role includes (Frost, 2010, p. 188):

- "supporting play in unrestrictive settings
- refereeing when conditions warrant
- being friends but maintaining order
- ensuring that the playground is well equipped with tools and materials
- attracting volunteers to assist on the playground
- allowing children to pursue their own play agendas
- introducing flexibility and adaptability
- teaching skills when asked
- talking to children whenever needed
- making suggestions without demanding".

According to Bill Michaelis, adventure playgrounds have some basic values in comparison with traditional playgrounds. Some of these values are (Bhattacharya et al., 2003, p. 10):

- no/less adult-prescribed structure encourages social and moral development.
- the atmosphere provides change and flexibility.
- they empower fantasy making rather than fantasy feeding.
- they provide opportunities to foster physical and psychological development through self-selected risk taking.
- they provide opportunities for mainstreaming and integration of diverse groups with various abilities and interests.
- they offer creative settings for the modeling of play behavior for children by adults.

Adventure playgrounds attract children by making them believe that they have entered a forbidden zone, gaining access to materials and tools that seem inappropriate for them to use and play with. The illusion of danger makes adventure playgrounds so enchanting. This has been

an important advantage of these playgrounds and played a role in attracting a wide range of age groups and a relatively large number of children to comparatively small lots. The facilities of these playgrounds, which are inexpensive to launch and maintain, provide a wide variety of activities without concern for vandalism (Solomon, 2005, p. 13).

3.4. What holds the key to play – the physical play environment or children's action?

Playgrounds fulfill an important role in supporting children's play. Play contributes significantly to a child's healthy development and well-being. This will be discussed in detail in Chapter 4 (Doctoroff, 2001; Talay et al., 2010). Through playing, children can manipulate the world in ways that may not be available to them later as adults. In short, play is the opportunity to practice life and the play environment is a microcosm of the world where life unfolds (Cummins & Masiulanis, 2017, p. 4).

The physical play environment (including natural and built play settings) does not entirely hold the key to play. The playground and its settings like decks, mounds, rocks, logs, climbing frames, slides, swings, sand, water and plants are merely the physical stage on which play occurs. Like a theater scene, play settings support the action of play but the story is created by the children as actors (Cummins & Masiulanis, 2017, p. 4).

3.5. History of Playground and Children's Play

Play and the play environment are two interdependent entities that fulfill an important role in a child's development and well-being. The play and playground movements are closely linked (Frost, 2010, p. xvii & p. 84). Although children's play has existed across every human culture and time period, the history of play environments specially designed for children is relatively short (Pascoe, 2017, p. 13). It is important to trace the concept of play and play environments across the centuries, in order to explore clues and values for the preservation and enhancement of future playgrounds (Frost, 2010, p. xvii).

3.5.1. An Introduction to the History of Play Environment (Playground)

In this section, the playground history from its beginning in the natural world until the time of rising the 'designed' or 'created' playspace (playground) is presented. Children's found, built, formal, or designed play environments have taken many forms over the past century. This historical chain leads us to the design of the recent playground which has turned back to 'nature play'. Nature play is when children are provided with the opportunity to engage in unstructured play activities in natural environments[22] (Cummins & Masiulanis, 2017, p. 4; Frost, 2010, p. 174).

Table 3-1, shows the main eras in the history of the playground (Frost, 2010, p. 174).

Table 3-1: *Main types of play environment and related eras in the history of the playground.*

Era	Types of Play Environment
Natural or wilderness era: from the beginning to the present	**Natural play environments:** wilderness, vacant lots, habitats, gardens
Manufactured appliance era: evolved around the beginning of 20th century and continued through the adventure playground era	**Manufactured apparatus playgrounds:** steel and stone, traditional iron and steel fixtures
Adventure playground era: popular in Europe since World War II	**Adventure playgrounds:** tools, pets, junk, loose parts, gardens
Novelty era: 1950s –1960s	**Innovative built playgrounds:** novelty or fantasy playgrounds with imaginative designs
Modern era: 1970s–1980s	**Standardized playgrounds**
Postmodern era: re-emergence of play in natural environments in the 21st century.	**Back to Nature:** habitats, gardens, wild places, and nature areas integrated into a defined play-space.

 Source.: *Data adopted from (Frost, 2010, pp. 173-197).*

3.5.2. The Natural or Wilderness Era (from the beginning till now)

The idea that children need separate places for their playing had been unknown before the 19th century. Before the early 1800s, children were considered as small adults capable of adult

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[22]

https://natureplayqld.org.au/#:~:text=%E2%80%9CNature%20play%20is%20when%20children,to%20conventional%20manufactured%20play%20equipment, accessed: 14.02.2021.

responsibilities like working. Because of that, offering a special area for children to play in was thought unnecessary. At that time, play occurred sporadically and only after completing chores and work. Most western children used public spaces like the street for playing. Children also played in wilderness and farms, vacant spaces and nearby forests, waterways, and the fields of city dwellers. Actually, they played anywhere and everywhere and appropriated their own play-spaces that were informal, fluid, and seasonal (Pascoe, 2017, p. 13; Bhattacharya et al., 2003, p. 7; Frost, 2010, p. 174).

3.5.3. Main Branches of the Play and Playground Movement

From about 1800, adults became concerned about children playing street games (Pascoe, 2017, p. 13). Increasing immigration and industrialization, the increase of child labor, and the stress of caring for children on overworked parents had become an issue. In the late 1800s, the child-saving movement developed, led by a group of upper-middle class women who were concerned about the future of children[23]. In the early 1900s, the reform movement sought to free children from labor and the hardships of industrialization that prevented play (Bhattacharya et al., 2003, p. 7). Play and playgrounds were a fundamental focus of the child-saving movement, which peaked in the USA between 1890 and 1920 (Frost, 2010, p. 84). The American play and playground movement branched into two related movements which emerged in parallel, each with distinct philosophical sources and influences that survived into the 21st century (Frost, 2010, p. 5, p. 89 & p. 111).

1) First Branch: Physical Fitness Tradition

One branch of the play movement, rooted in the German physical fitness tradition, was advocated in the works of Charles Darwin, Karl Groos, Herbert Spencer, and G. Stanley Hall. This branch, originated and developed early in 19th century Germany, where outdoor gymnasia and sandpits were created to help children's physical development and reduce disease. This movement broadened to include sports and recreation and found expression primarily in public schools, city parks, and recreation areas (Frost, 2010, p. 89; Pascoe, 2017, pp. 13-14; Bhattacharya et al., 2003,

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[23] Child-savers believed that a better future would be secured for the country by protecting children from issues such as poverty, abandonment, child labor, and lack of education.

p. 8). During the second half of the 19th century the movement spread across several countries (Frost, 2010, p. 90).

2) Second Branch: Child Study and Child Development Tradition

This movement grew during the scientific era and was fostered by philosophers, scholars, leading educators, and psychologists like the Swiss Johann H. Pestalozzi, the German Frederick Froebel, and later the American John Dewey, who recognized the importance of play for child development. This branch of the play movement found expression primarily in early nursery schools and kindergartens and it still influences early childhood programs in the 21st century (Frost, 2010, p. 5, p. 89 & p.112; Pascoe, 2017, pp. 13-14).

Friedrich Froebel's work at Pestalozzi's school led him to open the first German kindergarten, which played an important role in the growth of scientific child study (Frost, 2010, p. 111). In 1840, Fröbel coined the word *kindergarten* (literally 'children's garden') for the Play and Activity Institute for young children that he had founded, together with his faithful colleagues Wilhelm Middendorf and Heinrich Langethal, in 1837 in Bad Blankenburg, Germany (Frost, 2010, p. 79 & p. 112)[24].

In all aspects of his educational program, Froebel placed emphasis on faith and God. Froebel's philosophy of education was religious in nature and was rooted in laws, including (Frost, 2010, pp. 27-28):

-   harmony in thinking, feeling, willing, and doing
-   subordination of self to the common and all-pervading good
-   leading man to an inner harmony and unity with God.

Froebel's curriculum was based upon unfolding children's potential like a young plant, through tender care and nourishment rather than force, control and restraint (Frost, 2010, pp. 27-28). Thus Froebel's kindergarten was based on children's inner urges and native impulses, and intended to develop from children's natural interests and motivation. The children were placed in a stimulating environment and were led toward self-direction and self-control by their teachers. Play was Froebel's main means of instruction (Frost, 2010, p. 28, p. 31, p. 112 & p. 113).

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[24] https://en.wikipedia.org/wiki/Friedrich_Fr%C3%B6bel, accessed: 21.12.2017.

Froebel's playgrounds included nature and gardens set in schoolyards. Although these were by no means the first play environments, it seems they were the first to be called playgrounds. If this is correct, contrary to modern thought, the term 'playground' antedates the advent of manufactured play equipment.

Froebel's influence on the role of play, nature, and the outdoors reached the American education and child study movement in the early 20th century and appeared especially in kindergartens and child development centers (Frost, 2010, p. 30).

3.5.4. The Manufactured Appliance Era

In the early 19th century, while the German play movement was gaining strength (i.e. the first branch of play and playground movement), playgrounds in schools and parks were being introduced into the USA (Frost, 2010, p. 92). The earliest playgrounds arose from indoor gymnastic apparatus[25] transported to the outdoor environment and called "outdoor gymnasia" (Figure 3-1). In the earliest record, in 1821, a simple outdoor gymnasium was set up in a Latin School in Massachusetts, without supervision or instruction (Frost, 2010, p. 92; Pascoe, 2017, p. 15).
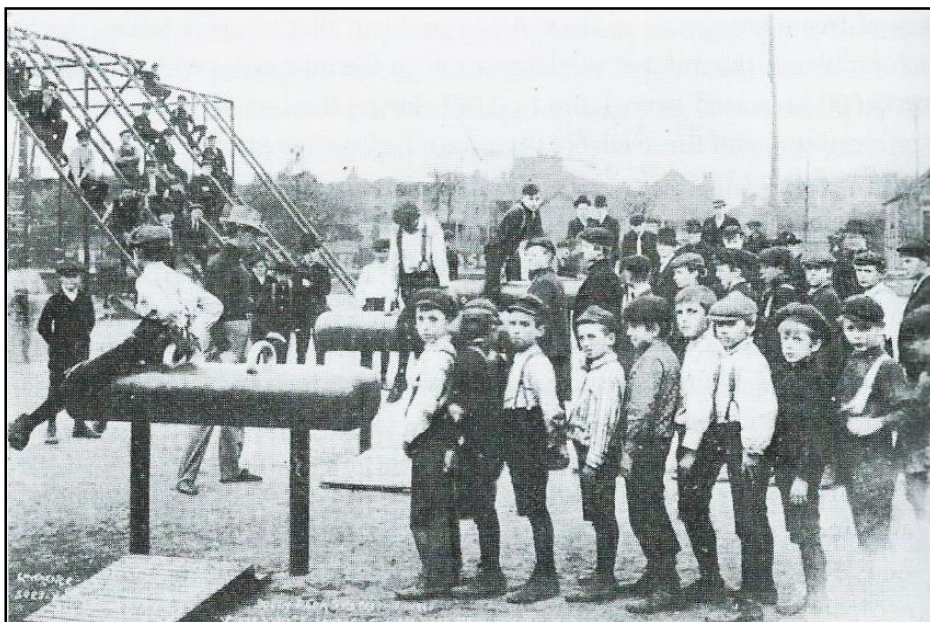
Figure 3-1: *The first manufactured outdoor playgrounds in America —"outdoor gymnasia"— were influenced by the German physical fitness movement.*
Source: *(Frost, 2010, p. 92).*

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[25] Each apparatus was a single structure including many parts.

Despite the early outdoor gymnasium in Massachusetts, the introduction of a sand garden in Boston in 1886 is often considered the beginning of the playground movement in the USA (Frost, 2010, p. 92). Some of the first play areas that included sand gardens – adopted from Germany – were quickly copied in the United States before reaching other countries (Pascoe, 2017, p. 14). In the early stages of the sand garden, the main advantage of playgrounds was their contribution to physical development, especially for boys (Figure 3-1). This narrow focus began to broaden when sand play areas and other features were added to playgrounds in other environments (Figure 3-2) (Frost, 2010, p. 95).

Figure 3-2: *A group of children playing in a sand pit at a new playground in South Australia, circa 1918.*

Source: *(Pascoe, 2017, p. 15).*

In the USA, model playgrounds began to develop in the 1890s in parks and schools (Pascoe, 2017, p. 15)[26]. According to Rainwater, the term was first used in connection with playground provisions made by Jane Addam in the famous Hull House in Chicago. In 1892 this model playground covered nearly an acre of open space and was open to children and adolescents. It contained a supervised playground with indoor gymnasium, sand piles (i.e. sand play areas), swings, building blocks, organized sports areas (e.g. handball and baseball courts), and a piece of playground equipment

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[26] https://www.pgpedia.com/p/playground-movement, accessed: 24.10.2019.

called the Giant Stride: a tall pole from which ropes were suspended from a revolving disk. Gripping a rope, each child could take great strides around the pole (Frost, 2010, p. 96)[27]. Figure 3-3, shows an example of a giant stride.

Figure 3-3: *An example of a 'giant stride'.*

Source: *https://www.hhhistory.com/2017/09/fun-filled-danger-of-giant-stride.html, accessed: 15.02.2021.*

In the early 20th century in the USA, reformers who attempted to aid and orchestrate the lives of immigrants, were the first ones to push public playgrounds (Solomon, 2014, p. 23). Founded in 1906, the Playground Association of America (PAA)[28] was instrumental in creating thousands of city parks and playgrounds focusing mainly on the German physical fitness movement (Frost, 2010, p. 5 & p. 95; Pascoe, 2017, p. 15). During the early 20th century, similar organizations were founded in other countries, and the importance of public playgrounds for children was acknowledged worldwide. As a result, similar play facilities emerged in countries as far apart as Australia, Palestine, and Britain (Pascoe, 2017, p. 15).

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[27] https://www.pgpedia.com/a/jane-addams#:~:text=The%20Hull%20House%20playground%20was,suspended%20from%20a%20revolving%20disk., accessed: 15.02.2021.

[28] https://socialwelfare.library.vcu.edu/organizations/playground-association-of-america-earlly-days/, accessed: 10.12.2017.

During the first decades of the 20th century, playgrounds were expected to protect children from street hazards, offer advanced physical fitness opportunities and equipment, develop acculturation processes for immigrants, and provide a distinct place where children could, according to John Dewey, do "their own work" (Solomon, 2014, p. 23). These playgrounds were fenced areas including field houses, sports and playing fields, running tracks, and even community buildings like libraries or clinics. These sites were furnished e.g. with seesaws, giant strides, monkey bars, rings, slides and ladders. To us these settings may seem flimsy and dizzyingly high (Figure 3-4) (Solomon, 2014, p. 23; Pascoe, 2017, p. 15). These Reform Era playgrounds also had exercise equipment for adults (Solomon, 2014, p. 23).

In the early 20th century, children abandoned Reform Era playground – which had gender- and age-segregated spaces – in order to seek "danger and adventure". When the immigrant population had become accustomed to American ways, the Reform Era began to ebb and the child-centric public play-space emerged. In the 1930s, playground equipment specifically for children came into its own (Solomon, 2014, p. 23).
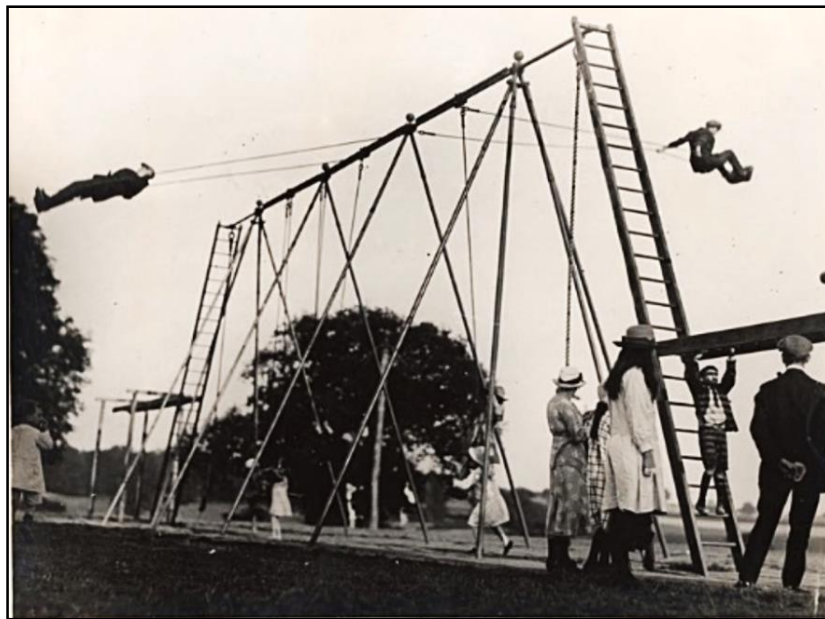
Figure 3-4: *Children playing on swing at Wickstedd Park in 1913, in Kettering, in Northamptonshire, United Kingdom.*

Source: *(Pascoe, 2017, p. 15); https://collections.slsa.sa.gov.au/resource/PRG+280/1/17/329, accessed: 15.02.2021.*

3.5.5. The Child-Centric Playground

Throughout the 20th century, the desire to create safe and contained play areas for children continued to grow in developed western countries. It found expression in school and kindergarten playgrounds. But playground development slowed during the 1930s and 1940s, due to World War II and the Great Depression (Pascoe, 2017, pp. 15-16).

In the United States, the government attempted to remedy Depression-era unemployment by planning public programs. These public works programs included the creation of parks and playgrounds. By the 1930s, most playgrounds were child-centric and designed only for children's recreation. Instead of presenting structures with many parts like the early apparatus, playgrounds were designed to offer separate pieces of equipment such as swings, seesaws, slides, sandboxes and climbing frames. Since public authorities preferred playgrounds with minimal maintenance, most of these pieces were constructed from undecorated metal, with wooden seats for the swings and seesaws. These play settings included fantastical and themed pieces too, but the underlying form was usually swing, slide, or occasional child-powered merry-go-round (Pascoe, 2017, p. 16; Solomon, 2014, p. 23).

3.5.6. The Adventure Playground Era

In 1939, because of the eruption of global warfare, the priorities of many nations changed. Many parks fell into disrepair as raw materials and human resources were diverted to the war effort. As stated in Section 3.3.4., the difficulties of war led to a new type of playground in Europe created by Carl Theodor Sorensen. In 1943, he created a junk playground in German-occupied Copenhagen (Pascoe, 2017, p. 16; Frost, 2010, pp. 183-184).

The idea of the junk playground soon spread across Europe, North America and the Asia-Pacific region. For some, these play areas were a reaction against overly organized and regimented playgrounds that dictated possible types of games to their users (Pascoe, 2017, p. 17). Lady Allen of Hurtwood introduced the concept of junk playground in the UK and named these playgrounds, adventure playgrounds. She was able to create several adventure playgrounds for handicapped

children. Adventure playgrounds continued to be built in the 1970s (Pascoe, 2017, p. 17; Frost, 2010, p. 184; Solomon, 2014, p. 26).

In the USA, the first adventure playground opened in Minneapols in 1950. In the 1970s, these playgrounds were popular in the U.S. and were operated in many states. However, most of them survived only for short periods due to concerns about their untidy appearance, fear of possible injuries, lack of funding and shortage of play leaders. The adventure playground in Berkeley, California, in 1979, is one of the few that has still remained open (Pascoe, 2017, p. 17).

3.5.7. The Novelty Era

After the end of WW2 in 1945, playground design and its construction flourished. The optimism, economic growth, increased leisure time, and the increased number of children in many countries like America, encouraged societies in public recreation. During this time, educators found that children need to have opportunities to increase their creativity and for this aim, they need open-ended objects that might stimulate original thinking (Pascoe, 2017, p. 17; Solomon, 2014, p. 23).

According to Joe L. Frost, the 1950s and 1960s are the 'novelty era' of playgrounds. During this era, architects, landscape architects, and artists (e.g. sculptors) got involved to create inventive playgrounds. Thus, trends in architect and art began influencing the playground design. The designs shifted from traditional equipment to the colorful and imaginary shapes such as rockets, vehicles and animals that were influenced by the popularity of television, space travel, westerns and Disneyland. Some of the designers of this era were: Aldo van Eyck (architect), Isamu Noguchi (sculptor), Louis Kahn (architect), Richard Dattner (architect) and M. Paul Friedberg (landscape architect) (Figures 3-5 & 3-6) (Frost, 2010, p. 174; Pascoe, 2017, p. 17; Solomon, 2014, pp. 23-26).

Figure 3-5: *Playground designs by Aldo van Eyck.*

Source: *https://merijnoudenampsen.org/2013/03/27/aldo-van-eyck-and-the-city-as-playground/, accessed: 27.10.2019.*
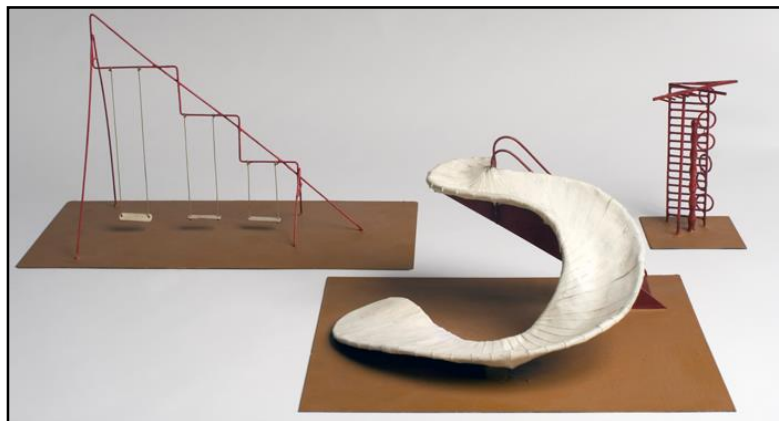
Figure 3-6: *Isamu Noguchi, Playground equipment for Ala Moana Park, Hawaii, circa 1940. Courtesy of the Isamu Noguchi Foundation and Garden Museum, New York /Artists Rights Society (ARS), New York. Photography by Kevin Noble.*

Source: *https://www.interiordesign.net/articles/13659-isamu-noguchi-s-creative-playground-designs-exhibit-at-sfmoma/, accessed: 27.10.2019.*

3.5.8. The Modern Era: Standardized Playgrounds

By the beginning of the 1970s the generally unsafe and developmentally sterile playgrounds in preschools, schools, and parks led designers and manufacturers to reconsider their imaginative play structures and rethink their manufactured equipment (Frost, 2010, p. 191).

At that time, the design of school playgrounds was suited mainly for exercise or motor play and had multiple hazards and shortcomings for the broad developmental play needs of children. Designs of public park playgrounds followed essentially the same pattern as for school playgrounds. They included collections of swings, seesaws, jungle gyms, and merry-go-rounds. In these playgrounds, there was really little thought for material and space to accommodate symbolic or imaginative play, play with natural material, or constructive play[29]. Preschool playgrounds were generally safer and more appropriate for developmental needs, though there were deficiencies in areas such as accident potential, sterility, basic suitability for children's play, and inability to support all fields of child development (Frost, 2010, pp. 190-191).

From the 1970s, national standards for the safety of playground equipment were adopted in wealthy countries (e.g. the United States, the United Kingdom and Australia) and playgrounds partially changed. Play equipment known as the four S´s (swings, slides, see-saws and superstructures) was standardized (Pascoe, 2017, p. 18). In 1981, the US Consumer Product Safety Commission released the Handbook for Public Playground Safety, marking a turning point in the safety of play equipment (Pascoe, 2017, p. 19).

There were reports that in 1980 children were avoiding traditional standardized equipment that was too safe, oversimplified everything, and limited playing for them (Solomon, 2014, p. 28). During the 1980s, modular designs, composite units, and superstructures grew in size, expense, play function, and popularity. Jay Beckwith is one of the "fathers of the modern playground" with a background in art, design, and child development. As new materials came into use in the early 1980s, he designed one of the earliest "post and deck" play structures, which quickly became a trend. He is an inventor of post-deck-attached play structures that feature modular equipment (Figure 3-7). This equipment links play events and lets active children move continuously. This

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[29] Types of play will be discussed in Chapter 4.

pattern of design replaced traditional swings, slides and climbers and created new standards for playground equipment. Beckwith emphasized the need for creative play and listed the qualities that good playgrounds should exhibit; these include complexity, linkage, social function, flexibility, developmental challenges, durability, and safety[30] (Frost, 2010, p. 191).

Figure 3-7: *An example of "post and deck" playground structures, designed by Jay Beckwith.*

Source: *https://designmuseumfoundation.org/san-francisco/2017/06/13/meet-junes-unite-why-play-panelists/, accessed: 3.11.2019.*

3.5.9. The Postmodern Era: Back to Nature

Whilst many play environments still feature traditional equipment, there has been a growing trend to diversify playgrounds. In response to concerns about the nature deficit disorder from which some urban children suffer, recent playgrounds are often designed in a way that includes natural features like plants, sand, water, rock and even animals. This pattern of design can satisfy nature-starved city kids and get them back to nature. It also preserves the planet (Pascoe, 2017, p. 19). Beginning early in the 21st century, the design of play environments has shifted to what has been called the postmodern era, focusing on child development, the natural play tendencies

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[30] https://playgroundprofessionals.com/contributors/jay-beckwith, accessed: 16.02.2021; https://www.pgpedia.com/b/jay-beckwith, accessed: 1.11.2019.

of children, and getting them back to nature – i.e. outdoor play in natural environment (Frost, 2010, p. 192, p. 193 & p. 196).

In the postmodern era, the realization of the value of preserving nature and the well-being of children has led to valuing free, spontaneous, self-chosen outdoor play in natural environments and the corresponding integration of natural elements and spaces (e.g. animal habitats, gardens, and wild places) into play environments (Figure 3-8). This supports children's need for nature study and free spontaneous play on physically challenging spaces and equipment (Frost, 2010, pp. 193-196).

Figure 3-8: *A Sample of 'natural playground' in Melbourne, Australia.*

Source: *https://www.childrenandnature.org/2016/06/03/a-melbourne-natural-playground-named-australias-best-playground/, accessed: 4.11.2019.*

Research into children's play spaces has consistently shown that throughout history children have always been interested in appropriating their own play-spaces (Pascoe, 2017, p. 19). Thus, in designing a playground it is important to consider that it should be a children's place (i.e. it should meet children's real needs, wants, and wishes). Some researchers even suggest that children do not need adult-designed playgrounds.

This historical overview of play environments makes clear that playgrounds have never been just physical settings; they reflect the cultural concepts of their contexts (Pascoe 2017, p. 20). Hence in designing a playground it is important to consider the sociocultural and environmental characteristics and context of its users.

3.6. The CTS Dimensions (Sociocultural/Historical Characteristics, Time, and Space)

The everyday life of people, including children, takes place in a physical dimension of concrete, physical spaces. Children's everyday life finds new forms, meanings, and spaces over time. Social relations and cultural and historical contextual characteristics also play a powerful role in conceptualizing everyday life. Thus, space, time, and sociocultural/historical characteristics of the context (CTS dimensions) are important for conceptualizing everyday life. This means that it is important to consider CTS dimensions in designing any public place (Rasmussen, 2004; Kasprisin, 2011, pp. 1-2) (see Section 2.4. & 2.2.6., in Chapter 2).

3.6.1. Places for Children vs Children's Places; Playgrounds for Children vs Child-Friendly Playgrounds

In 2004, Kim Rasmussen described the general pattern of everyday life for Danish children aged 6 to 10. His empirical research showed that children's everyday life in the modern Danish welfare state is formed on an institutionalized triangle of home, school and recreational institutions. In everyday life, children spend much time in these so-called 'places for children.' These places are created by adults, architects, and planners especially for children (Rasmussen, 2004; Meire, 2007; Pascoe, 2017, p. 19).

Rasmussen found a disparity between the places for children made by adults and what he called 'children's places' – i.e. places which children themselves create or prefer. These 'children's places' often seem messy, dirty, or dangerous to adults (Pascoe, 2017, p. 19). While adults can identify and create places for children, children's places can only be shown and told about by children themselves (Meire, 2007). This has led some researchers to point out that children need spaces for play that they themselves can adapt, create, and control instead of adult-designed playgrounds (Pascoe, 2017, p. 19).

Looking at a playground and playing experiences through the eyes of a child and an adult can reveal two very different views. An adult sees the playground as a tool to support children's development; as such it has to look nice to be effective. Developing a playground through adult eyes results in a playground for children. A child sees a playground as a device to play with and explore that offers many opportunities for fun and discovery. Developing a playground through the eyes of children, results in children's playgrounds or child-friendly playgrounds (Bhattacharya et al., 2003, p. 41).

As stated in Chapter 2, to achieve a child-friendly playground that meets children's real needs, wants, and wishes, an inclusive design process is necessary, in which children express their own ideas and wishes. Hence this study has been based on a co-creation mindset – an approach that will be discussed in Chapters 8, 9, and 10.

3.6.2. Playgrounds Reflect Culture

Public playgrounds as part of the public space of a city reflect the complex characteristics of urban societies, both physical (i.e. spatial) and sociocultural – i.e. the behaviors, values, and attitudes of a society (Carmona et al., 2010, p. 3 & p. 133; Madanipour, 2010, p. 1; Solomon, 2014, p. 28; Childs, 2012, p. 10). According to Susan G. Solomon, "Playgrounds were, and remain, microcosms of the values and interests of a country at a particular time" (Pascoe, 2017, p. 20).

The physical environment has a determining influence on human behavior. Also, people are not passive and they influence and change the environment. Thus it is a continuous two-way process in which people create and modify spaces whilst being influenced by those spaces in various ways. By shaping the public built environment like playgrounds, designers influence patterns of human activity and people's public social or urban life (Carmona et al., 2010, p. 133 & p. 137).

3.6.2.1. Collectivist Culture vs Individualist Culture

Differences between the cultural values of *collectivist* – as opposed to *individualist* – societies clarify why many examples of the best playgrounds exist in collectivist societies (Solomon, 2014, pp. 28-31). Some of the characteristics that reflect a *collectivist* society's ethos (e.g. in Scandinavia and Northern Europe) are (Solomon, 2014, pp. 28-31)[31]:

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[31] https://en.wikipedia.org/wiki/Collectivism, accessed: 3.01.2018.

- supporting and assisting each other

- emphasizing life skills and socialization in public spaces like playgrounds

- considering public spaces as a training ground for social interaction and the sense of common responsibility

- investing in public experiences for small children[32].

Some of the characteristics that reflect an individualist society's ethos (e.g. in the United States and Australia) are[33] (Solomon, 2014, pp. 28-31):

- each person watches out for himself

- emphasis on independence, self-reliance, and self-responsibility

- promoting the exercise of one's goals and desires

- focus on an early education model that values content and testing more than socialization and collective understanding.

Collectivist thinking goes beyond educational issues and extends to a sense of common responsibility. For example in Sweden, all citizens are responsible for all children. This collective view reassures parents that their children are watched by other adults as well. It also comforts kids by letting them know that they are being monitored in any extreme or unsafe situation. In such a trusting atmosphere, children are encouraged to be self-reliant in different contexts. The United States presents a notable contrast to collectivist thinking. It emphasizes self-reliance, self-responsibility, self-governing, and self-protection. Ironically, this may result in nurturing dependency (Solomon, 2014, p. 29).

3.6.2.2. Influences of Sociocultural Ethos on Playground Designs and Guidelines

The distinctions between the sociocultural ethos in collective and individualist societies are evident in how various national guidelines for playgrounds have different emphases. When one compares the 2008 voluntary European Playground Equipment Standards with the American CPSC's guideline of the same year, it is evident that Europeans accept risk and possibility of injuries, while Americans try to control all vulnerability. Europeans offer their children greater

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[32] In these societies teaching academics starts when children reach the age of seven.
[33] https://en.wikipedia.org/wiki/Individualism, accessed: 3.01.2018.

latitude and freedom, while Americans offer their children the promise of total individual protection. Both guidelines have to accommodate a wide range of regional, sociocultural and organizational requirements (Solomon, 2014, pp. 29-30).

Japan also has its own collective spirit that has affected the social attitude and design of public environments. In Japan, the concept of *uchi* (in English: inside) starts with the family and expands into a wider and more diverse but also supportive system including kindergartens, schools, play-spaces, and other public environments. When children start school they are expected to cooperate with each other while they are all equal and part of a new wider *uchi*. In this system, shared responsibility refers to mutual help, mutual trust and concern for people younger than themselves. This system aims to create harmony and balance in society (Solomon, 2014, pp. 30-31).

In such a society, it makes sense when small children (i.e. kindergarteners) play outside their houses by themselves (in the less dense area of the city), walk to a fixed spot to meet other children, or walk together to class. In Tokyo, part of the first grade curriculum is learning to get to school alone. This journey that might include crossing streets or riding a subway or bus, is supported by an orchestrated civil society (Solomon, 2014, pp. 30-31).

As another example for the influences of sociocultural values on the design of public environment, we can consider spreading rate of adventure playgrounds in different societies. Adventure playgrounds have been more common in Europe and Japan than in the USA. Since American society is more worried about safety and visual aesthetics, they have not accepted these unstructured junk piles as readily as European or Japanese societies (Bhattacharya et al., 2003, p. 9).

3.7. Summary

In this chapter, the term 'playground' as an open public space equipped with various built and/or natural playing facilities (e.g. sand, hills, slides, and swings) and other elements (e.g. benches for adults or children to rest), has been explicated, and a classification based on various criteria discussed and described. The history of play environments from their beginning in the natural world till the time of the designed or created playground was traced.

A child-friendly playground that aims to meet children's and other stakeholders' needs, wants, and values should as far as possible be an integrated playground offering various play materials and settings including natural and built elements and spaces. The design should, therefore, consider the values of postmodern era playgrounds (back to nature play) like considering the natural play tendencies of children, enhancing their broad developmental needs, and getting them back to nature. A high-quality playground reflects and also improves the sociocultural characteristics of its context.

Moreover, in order to be accessible to its users and to meet their true needs, wants, and wishes, the playground should be developed through an inclusive design process. The approach of the study will, therefore, be based on a co-creation mindset.

Chapter 4 will discuss definitions of play, child development, and the types and forms of play that evolve as children grow. Chapter 5 will then be devoted to the necessary design characteristics and qualities for a successful playground.

Chapter **4**

Review of Literature on Play and Child Development.

Expert Domain
- Play
- Domain of Child Development and Play
- Types of Play and Child's Developmental Growth
- Context of Development
- Individual Differences
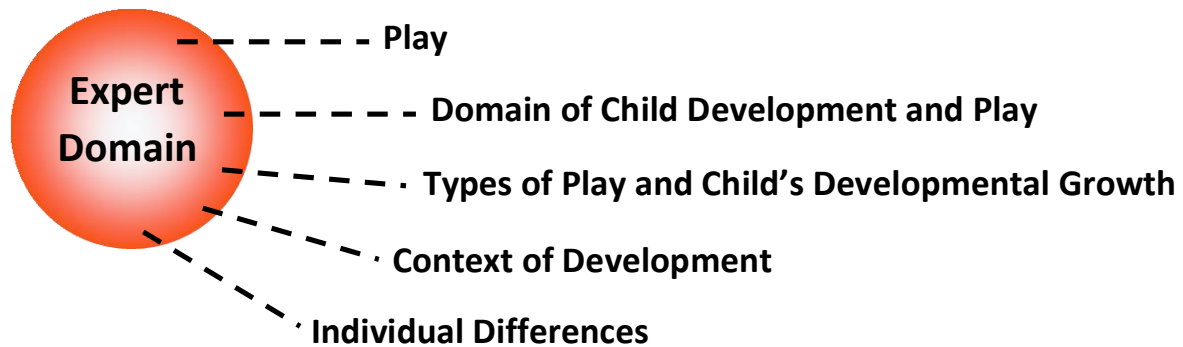
4.1. Introduction

To design a quality child-friendly playground that offers play equipment and opportunities which support *children's play* and their healthy *development*, it is important to understand several subjects in these fields. This chapter reviews the relevant literature and covers subjects such as:

- the concept of play, its features and benefits, the importance of play
- children's development in different domains (cognitive, physical, social, emotional, and language development)
- types of play from birth to age eight (i.e. developmental forms of play: functional play, physical play, constructive play, dramatic/socio-dramatic play, and games with rules)
- context of children's play and development
- the concept of gender and boys' and girls' playing styles in different types of play.

4.2. Playground and Play

Outdoor playgrounds are important spaces where children play (Talay et al., 2010). The concept of playground and play are inextricably interrelated (Frost, 2010, p. xviii). An outdoor playground can be a powerful tool to support and enhance children's outdoor play and reinforce their development (Doctoroff, 2001). The quality of play is fundamentally shaped by the environments it happens in (IPA World, 2016). Thoughtful design and arrangement of playing space and its materials can encourage children's participation in play. It contributes to children's efforts to organize and utilize materials, engage peers, and persist in play and learning (Doctoroff, 2001; IPA World, 2016). In many instances, environmental enrichment or modification results in behavioral change and increases learning levels[34]. High quality developmentally appropriate playing space serves sustained complex play for all children (Doctoroff, 2001). The more responsive affordances (i.e. possibilities for action) there are in a child's environment the more likely the child is to have the selection of challenges and opportunities that fits its needs, wants, and wishes at a particular

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[34] When the learning level is increased, it means children need less effort or less intrusion (adult's direct interventions) to interact with play space, its elements, and other children.

time (IPA World, 2016). The qualities and requirements to be considered in designing and developing a play environment will be discussed in Chapter 5.

4.3. Play

4.3.1. Concept of Play: Elusive Play and the Conceptual Problems

Play is chaotic and transformative (IPA World, 2014). It is often remarked that play is a complex matter and extremely elusive (Cummins & Zamani, 2017, p. 37; Meire, 2007). Play manifests itself in various forms – truly a wide domain. Play can be active, such as chasing, rough-and-tumble, and hide-and-seek; but thinking, wishing or day-dreaming can be play too (Lester & Russell, 2010, p. 7; Meire, 2007). Play, in its ambiguity and variability, slips away from being conceptualized or theorized. Various theoretical approaches have attempted to understand and identify the concept of play (Meire, 2007). Regarding the complexity of play, it is hard to make ontological claims about playing; because of that, Harker suggests modesty in theorizing. According to him, playing has more to do with *becoming* than with *being*. Playing has no identity (i.e. being) itself. The identity of playing can only be considered as a secondary characteristic of its differentiation (i.e. the identity of becoming and difference). To put it simply, play gets a specific form and function only in a specific time-space-culture context and in a particular process of performance[35] (Figure 4-1). This means that play can only be defined fleetingly. This description outlines the elusive or fleeting characteristics of playing but the concept remains empty in substance (Meire, 2007; IPA World, 2014; Harker, 2005).

The following section (Section 4.3.2.) seeks to add substance to the play concept by identifying the qualities and characteristics of play. It proposes that play is a behavior, activity or process that is distinguished by specific features which represent a unique way of being, including a way of perceiving, feeling and acting in the world. During play, children appropriate time and space for their own needs and desires. Understanding play and children is valuable in order to develop a high quality play environment that reinforces child development and meets children's needs, wants and wishes (IPA World, 2014; Lester & Russell, 2010, p. 7).

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[35] Ethnographical studies of play are strongly embedded in various contexts of time, space and culture (including routines in a child's day).

4.3.2. Understanding Play: Distinctive Features of Playing and Main Qualities

Play is important for developing complete human beings. It is a vital and fundamental part of the human experience. The experience of play starts immediately after birth and lasts through adolescence and adulthood in various forms. Play is what children and young people do when they follow their own ideas and interests, in their own way and for their own reasons (IPA World, 2016; Cummins, 2017, p. 21; Bhattacharya et al., 2003, p. 4; King & Howard, 2014, p. 116).

Play is an integral experience of children's everyday life. Children's play is a process including any behavior or activity which is intrinsically motivated, initiated or chosen freely, and structured and controlled by children themselves. Through the free, open, boundless, and self-controlled activity of play, children discover the differences between themselves, others and the world in which they live (Figure 4-1) (IPA World, 2016; King & Howard, 2014, p. 116; IPA World, 2014).
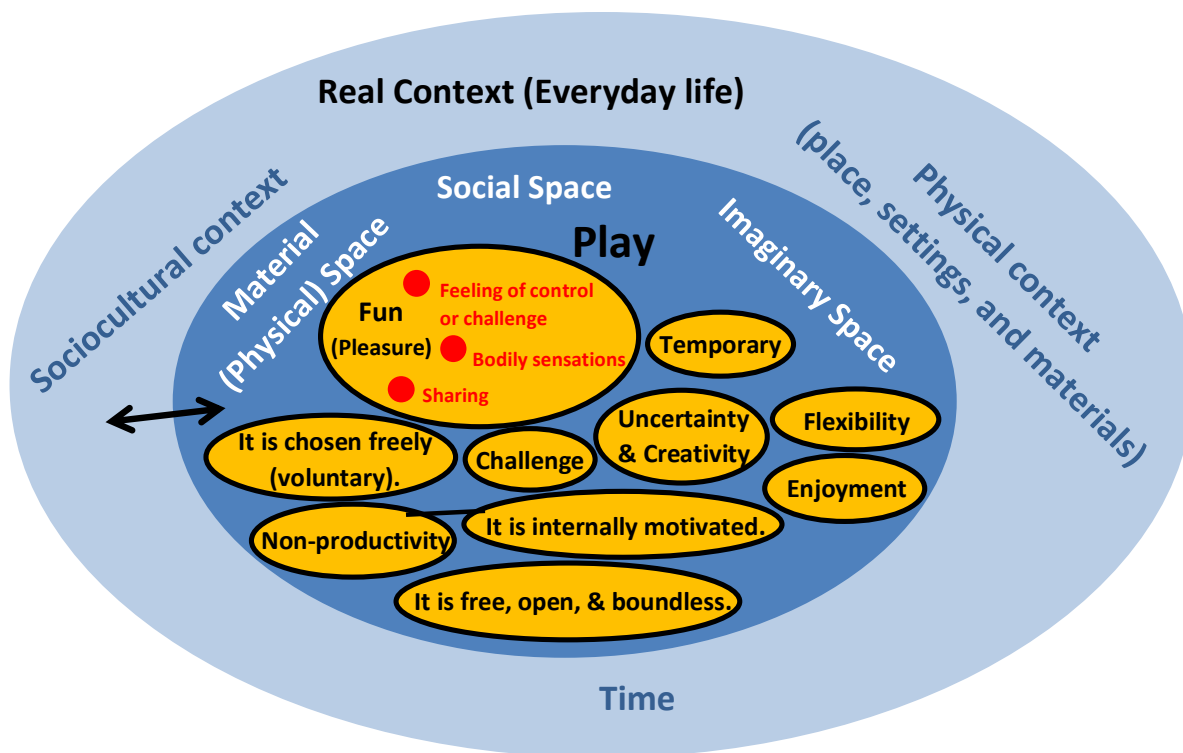
Figure 4-1: *The intersubjective space of play and some of its qualities.*

Source: *Prepared by the author (Neda Batenipour).*

Play is undertaken for its own sake wherever and whenever opportunities arise. Play is internally motivated and is enjoyable in itself, even when it is serious. Play is pleasurable for each child. The pleasure of playing lies in the playing itself, from spontaneous fantasy play to games with rules. Play is chosen freely (either individually or collectively). The freedom of play – in choosing and performing— is really important; without it, the activity of play is empty and reduced in meaning and significance. Play is a valued part of childhood that gives enjoyment, satisfaction and fun in the moment of playing. Satisfaction through play is defined by the player and has no extrinsic purpose (IPA World, 2014; Meire, 2007).

Play is not inherently without purpose. According to Lindquist (2001), play serves apparent or immediate pragmatic purposes[36] that are inherent in play and its 'lived experience'[37]. Put more precisely, play has no purpose outside its own context; its purpose lies in the intersubjective space of play itself. From the player's perspective, play can be purposeful, and can be considered as a serious activity (Figure 4-1) (Meire, 2007).

Play is as if behavior, both set apart from reality and also having some relationship to it (Figure 4-1) (Lester & Russell, 2010, p. 7). Play is a more or less distinct intersubjective space or happens in it. The mental and physical space of play is communicated and defined by the players. The meaning of players' actions in their intersubjective space of play could be different from what they would mean outside of that, for example in mock fighting (I fight with you, but I am not angry or hostile towards you). Or a child that believes itself to be Ronaldinho while playing football shows that even a strongly rule-governed game like football still leaves room for imaginative playfulness. Playfulness is not an activity but an attitude towards activities in which routines or expectations are manipulated and disrupted (Meire, 2007). Playfulness is an attitude which is taken during an activity (Meire, 2007). Playing opens up worlds of possibility and experiences that are seen as mysterious and magical by children (IPA World, 2014). Players have to know, make clear, and communicate that they are playing and acting in a distinct social frame. The intersubjective space of play is temporary and voluntary. According to Huizinga this space is

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[36] This is what sets play apart from other activities that serve no apparent or immediate pragmatic purpose, like art or ritual.

[37] "In qualitative phenomenological research, lived experience refers to a representation of the experiences and choices of a given person, and the knowledge that they gain from these experiences and choices" (https://en.wikipedia.org/wiki/Lived_experience, accessed: 18.02.2021).

considered as a magic circle of play since a new reality is created. Play and reality are not always clearly divided, because of which it is not always easy to realize whether this is (still) play or not (Meire, 2007).

Saying that play occurs in a distinct context does not mean it has no influence on the world outside play, or that this outside world has no influence on play. Even though play happens in a distinct interactive space, it does not stand apart from the real world and everyday life (Figure 4-1). Meire (2007) describes play as a form of everyday participation, interwoven into the cultural, social, and physical fabric of everyday life (Figure 4-1) (Meire, 2007; Lester & Russell, 2010, p. 7 & p. 27; IPA World, 2016).

Play involves autonomous physical, mental, or emotional activities in groups (i.e. socially) or alone (i.e. individually). Considering the unlimited activities that players can do during play, it can take infinite forms, which change as children grow and their abilities develop[38] (Meire, 2007, p. 5; IPA World, 2014, p. 1 & p. 3; IPA World, 2016, p. 1). Though play can be defined in many different ways and can take many forms, its key characteristics are pleasure and fun. These are important components of learning, too (Bhattacharya et al., 2003; IPA World, 2016; Lester & Russell, 2010, p. 10; Meire, 2007).

The intersubjective space of play is a composite of social space, physical space, and imaginary space (Figure 4-1) (Meire, 2007):

- social space of play includes relations[39] with other people
- material (i.e. physical) space of play includes relations with places and objects such as toys, play equipment or the play environment itself
- imaginary space of play includes relations with imaginary elements (e.g. dreams and wishes) as in fantasy play and role play.

Fun in play has three interrelated main sources (Figure 4- 1) (Meire, 2007):

- the feeling of control or challenge
- sharing or being part of the social, material and imaginary environment of play

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[38] Play evolves through bodily actions, social interactions and the development of symbolic thinking.
[39] Relations of inclusion and exclusion.

- bodily sensations.

The first two sources reflect the two main themes that Willam Corsaro (2005, p. 134) identifies in children's peer cultures (Meire, 2007):

- children make persistent attempts to gain control over their lives

- children always attempt to share this control with each other.

One of the most fundamental appeals of play, is the feeling of agency or control. This power can be felt individually or in a group. For example, it can be felt in basic climbing or jumping, in facing challenges, in competing in verbal discussions, in the joy of winning a game, or even in being bold while taking risks. It is important to know that power and control in play can also be experienced imaginarily (e.g. for example in toddlers' superhero play) (Meire, 2007; Lester & Russell, 2010, p. 35).

The elements of uncertainty and unpredictability in play can make the elements of control and power even more attractive, especially for older children. In an uncertain context in play, children try to determine how far their sense of control goes; what is still predictable? The meaning and the limits of agency are explored while in playing children take risks, experiment, try to predict their future or fortunes, allow creativity, and improvise (Meire, 2007). While playing, children can develop a wide set of flexible responses – using their own creativity— to the situations that they create and encounter (Lester & Russell, 2010, p. x).

A certain degree of unpredictability evokes creativity and makes play fun, which is crucial. As stated by Lindquist (2001) play is so often associated with creativity (Meire, 2007). Creative activity happens when people create and construct something that did not exist before, at least not in its current configuration[40]. Creativity can be seen as personal and collective improvisation (Henricks, 2018).

Besides the feeling of control and power, sharing is an important experience that engenders fun. Being engaged together in the same activity (e.g. in play activities like hopscotch, playing football, and building a hut) is really fun. This *enjoying doing things together* is often facilitated by *sharing routines* which provide (common) excitement or emotional security. Protecting the enjoyment of doing things together means protecting the *intersubjective space* of play (Meire, 2007).

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[40] Usually creativity is considered in qualities of stable outcomes or products like a drawing or a sand castle; but it can be considered in more fluid expression like speaking, singing, or dancing too.

The third main source of fun is bodily experience. As Harker states (2005), "playing involves sights, sounds, smells, touch and tastes to varying degrees" (Meire, 2007).

In short, fun in playing is present when the joys of control, sharing, and/or bodily sensations create a feeling of being absorbed in the game (Meire, 2007). However, play is more than mere fun and indulgence; it is essential to children's healthy development and well-being. Play offers a context for developing motor and cognitive, as well as emotional and social skills. This will be discussed in the next section (Lester & Russell, 2010, p. x; Meire, 2007).

4.3.3. Importance and Benefits of Play

As stated, play gives children pleasure and it is also essential to their well-being and healthy development. It develops children's physical, social, cognitive and emotional strengths and skills. It enhances their ability to function in the culture and society in which they are born and live. In the activity of playing, children create time, space, and culture of their community (the intersubjective world of play) that is within their control and allows for the subjective expression of their bodies, senses, feelings and actions in different ways. Play promotes creativity, imagination, self-confidence, and self-efficacy (IPA World, 2016; Lester & Russell, 2010, p. 12).

Due to children's limited vocabularies and understanding of emotions, they cannot often express their feelings verbally. However, playing is children's natural form of communication and expression. It combines thought and action and gives them the opportunity to verbalize. It is a means of reducing anxiety and stress, and a way to understand traumatic experiences. In a play context, when a child has expressed her/his negative feelings like fear and aggression, she/he is able to move on to more positive feelings such as joy and satisfaction (Bhattacharya et al., 2003, p. 5)[41].

Play has a key role in learning. Through play children interact with objects, environments, and other children. This lets them learn and develop some of the skills (e.g. social competence, problem solving, creative thinking, and safety skills) that are necessary in adulthood (Bhattacharya et al., 2003; Clements, 2004).

During childhood, children learn social norms and values through play with other children and socialization with peers, especially more mature peers (Bhattacharya et al., 2003). Children play

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[41] https://www.pgpedia.com/d/dramatic-play, accessed: 7.10.2018 & 2.1.2020.

an important role in social reproduction; through play they establish social relations with peers and contribute to their communities' culture (IPA World, 2016).

"The defining and distinctive features of play lie with its novelty, uncertainty, unpredictability, and as if nature" (Lester & Russell, 2010, p. 12). Play helps children be spontaneous, creative, original, and open. Since playing connects to threshold experiences and opens up worlds of possibility, it contributes to developing effective learning systems (IPA World, 2014).

To understand the critical role of play in child development, the domains of development will be discussed in the following section.

4.4. Domains of Child Development

Child development involves systemic changes that occur from birth to young adulthood. Domains of development include: physical, social-emotional (i.e. social and emotional), cognitive, and language development. There is a continuous interplay among these domains and development in one domain often impacts development in other domains (Levine & Munsch, 2014, p. 7, p. 8, & p. 289; Yawkey & Pellegrini, 1984, p. 24).

Physical development enables the child to develop and extend the range of its cognitive and linguistic activity. The advent of operational thought and the refinement of linguistic abilities makes communication with others possible. This helps social interaction, which is the basis for developing the sense of self and emotional growth (Yawkey & Pellegrini, 1984, p. 24).

4.4.1. Physical Development: Physical Health and Sensorimotor Development

"Physical development includes the biological changes that occur in the body in size and strength, as well as the integration of sensory and motor activities. It involves the development of both fine motor skills (e.g. writing) and gross motor skills (e.g. running and jumping)" (Levine & Munsch, 2014, p. 7). Through playing, children learn how to experience their senses and use their bodies. Physical play reinforces children's fine and gross motor skills, and helps children with flexibility, balance, coordination, strength, agility and satisfaction. Active playing especially in outdoor environments like playgrounds serves as physical exercise and promotes children's health (Meire, 2007; IPA World, 2014).

To avoid inactivity, children's obesity, and promote more healthy lifestyles, the physical fitness benefits of play have become important, especially in Western societies, in promoting play, play environments, and play policies (IPA World, 2014; Meire, 2007, p. 6).

According to Gallahue (1993) physical development has four main phases that depend on the age and maturity of each child. These phases are: 1) reflexive movement; 2) rudimentary movement; 3) fundamental movement; and 4) specialized movement (Table 4-1) (Bhattacharya et al., 2003, pp. 25-26).

4.4.2. Social-Emotional (Socio-emotional) Development

4.4.2.1. Emotional and Psychological Development

The early years of an individual's life are crucial in forming its personality. These years affect a child's future interpersonal interactions and psychological health (Bhattacharya et al., 2003, p. 28).

Socio-emotional development includes all the ways that an individual understands and regulate its own emotions and the emotions of others, and how to interact effectively with others (Levine & Munsch, 2014, p. 8). The interactions that are experienced during the early period of a child's growth are dominated by play (Bhattacharya et al., 2003, p. 28). Play aids emotional regulation and helps children to understand, moderate and deal with their emotions. For instance, children re-enact stressful situations in playful contexts or they take different roles in play to work through complex experiences (Meire, 2007; IPA World, 2014). Through play and interacting with peers or adults, children are socialized into their cultures and learn about the world around them (Bhattacharya et al., 2003, p. 28).

4.4.2.2. Development of Sociality and the Self

One needs to be socialized in childhood to become an active and productive member of one's culture. The experiences of childhood create the foundation of a child's personality and have significant effects on its psychological health (Bhattacharya et al., 2003, pp. 16-17; Yawkey & Pellegrini, 1984, p. 19; Meire, 2007). Playing is one of central social arenas that facilitate a child's interactions with other children (Meire, 2007; Bhattacharya et al., 2003, p. 16). During childhood

the influence of play on social development is especially evident, though social development continues throughout life (Yawkey & Pellegrini, 1984, pp. 19-20). In plays such as socio-dramatic play (i.e. pretend play), children can try out different identities and social relationships, while in games with rules children get a better understanding of right and wrong (by taking on a role of generalized other) (see Table 4-2, in Section 4.5.1.) (Meire, 2007; Evaldsson & Corsaro, 1998).

4.4.3. Cognitive Development and Learning

According to Levine & Munsch (2014) "Cognitive development includes changes in the way we think, understand, and reason about the world". It contains the accumulation of information and knowledge as well as the way that this information is used for problem solving and decision making (Levine & Munsch, 2014, p. 8). During play – which often involves problem solving and trial and error – children develop intellectually and learn (Meire, 2007).

As stated in Section 4.3.3., playing connects to threshold experiences and opens up worlds of possibility. Play is linked to experimenting, both exploring possible worlds and trying to control them. Playing and experimenting offer opportunities for learning and teaching (IPA World, 2014; Meire, 2007). A child learns much by observing and imitating others. The learning is enhanced greatly in the mixed-age groups of children (e.g. children learn from older children who help them). As stated by Stone & Lozon (2004), "Multi-age groups are a natural learning environment which is positive to younger and to older children, both on cognitive and social levels" (Meire, 2007).

Jean Piaget, developed a stage theory[42] to describe the development of cognitive abilities in children; this is directly related to how they play. His theory, concentrated more on positive outcomes for the individual child – which directly affect psychological health – rather than the process of socialization (Table 4-1) (Bhattacharya et al., 2003, p. 17).

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[42] Stage theories are theories of development in which each stage in life is seen as qualitatively different from the ones that come before or after (Levine & Munsch, 2014, p. 9).

Piaget believed that children think differently from adults[43]. He argued that children's thinking changes in qualitative ways as they move through four stages of cognitive development: 1) sensorimotor stage; 2) preoperational stage; 3) concrete operations; 4) formal operations (Table 4-1) (Levine & Munsch, 2014, p. 221).

Table 4-1: *Piaget's stage theory.*

Stage	Age	Description
Sensorimotor stage	Birth to 2 years	Infants understand the world through the information they take in through their senses and their actions in it.
Preoperational stage	2 to 7 years	Young children do not yet think logically, and their thinking is egocentric.
Concrete operations	7 to 12 years	Children now think logically, but their thinking is concrete, not abstract.
Formal operations	12 years and older	Adolescents can think both logically and abstractly.

Source: *(Levine & Munsch, 2014, p. 221).*

In Piaget's theory, he saw the child as an active but largely independent learner. In contrast to Piaget, Lev Vygotsky's theory of cognitive development begins with the social world, and differs in that respect from Piaget's theory. According to Vygotsky, all learning and ideas begin in the interaction between a child and those it contacts. As a result, all learning is culturally-based, since all people are set within their own culture. "The tools, language, and actions of a particular culture are transmitted to the children and serve to shape their cognitive abilities" (Levine & Munsch, 2014, p. 236).

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[43] That is, not only children have less information/skill in thinking than adults do (quantitative differences), but, more importantly, there are qualitative differences.

4.4.4. Language Development

From their first cries, infants begin to communicate with the world through sounds and body language. However, sometime between 8 and 18 months of age, when an infant begins to use words, a major milestone in development occurs. Words are symbolic representations. Language can be defined as a system of symbols that is used to communicate with others or ourselves in our thinking. The way we use words influences the way we think about and understand our experiences (e.g. the experience of play) (Levine & Munsch, 2014, p. 289).

Like the relationship between play and cognitive development, play and language development are mutually reinforcing. While play precedes the advent of language, it is in one sense itself a form of language since it embodies a form of symbolic representation. The ability to represent objects, actions, and feelings in symbolic play is paralleled by an ability to represent these phenomena in language (Yawkey & Pellegrini, 1984, p. 17).

4.5. Types of Play and Child's Developmental Growth

Understanding how children play helps to understand their development (Bergin & Bergin, 2012, p. 444). In order to make some distinction in the broad domain of play, researchers have made various typologies or classification. These systems classify play in diverse ways: by form (what children do), content or developmental function like social, emotional, motor, and cognitive dimensions (Meire, 2007; Fromberg & Bergen, 2006, p. 13). Actual play is more complex, and most classifications dissolve, mix or transform when children's actual play is observed (Factor 2004: 145); but classification brings at least some order into the chaos (Fromberg & Bergen, 2006, p. 13; Meire, 2007).

4.5.1. Cognitive and Social Forms of Play

Play varies along two dimensions: (1) low to high cognitive development and (2) low to high social involvement (Table 4-2) (Bergin & Bergin, 2012, p. 444). All types of play involve cognition, though the level and type of cognition depend on age, maturity, gender and individual differences between children. For example, preschool and primary-grade children exhibit different types and levels of cognitive play (Fromberg & Bergen, 2006, p. 17). The cognitive categories of play were

derived from Piaget's work (1962) by Sara Smilansky (1968) (Johnson & Ershler, 1985)[44]. In the cognitive domain, functional play is the least and games-with-rules the most mature form of play (Table 4-2). In the social domain, the most advanced forms of play (games-with-rules and dramatic play) involve more social coordination among children. When dramatic play involves cooperation with other children, it is called socio-dramatic play. The types of play will be discussed in detail in the following section (see Section 4.5.2.) (Table 4-2) (Bergin & Bergin, 2012, p. 444).

Table 4-2: *Cognitive and social dimensions of play from least to most mature.*

Least Mature		→		Most Mature
Cognitive Dimension of Play				
Functional Play (Practical Play)	**Physical Play**	**Constructive Play**	**Pretend Play (also called Role Play, Imitative Play, Dramatic/Socio-dramatic Play, Make-believe Play, or Fantasy Play)**	**Games-with-Rules**
Simple movement (motoric exercise) or reparative practice-like behavior; use of objects in stereotyped manner; language play; preparation for constructive play. Examples: shaking a rattle, jumping up and	Large movement for the joy of movement. Examples: climbing, running, or chasing.	Goal directed play; creating or building something with a goal in mind (putting meaningless objects into a meaningful whole). Conversing during ongoing constructive activity; reading or listening to a story. This prepares children for symbolic play. Examples: building with blocks, drawing with	This involves children using their imaginations. It includes pretending with objects, actions and situations (pretense and transforming objects and identities). As children grow, their imaginations and their play become increasingly complex. They make up stories and scenarios. Children act out real events and they take part in fantasy play about things that are not real, such as fairies or super-heroes.	Explicit prearranged rules where children must adapt their behavior to the rules, such as hopscotch or checkers.

[44] https://www.pgpedia.com/f/functional-play, accessed: 1.11.2018.

down, walking backwards.		crayons, making a train from cardboard boxes.	Examples: Imaginary friends/role are a type of pretense like playing Batman and Robin with friends; or pretending that a banana is a telephone handset.	
Social Dimension of Play				
Unoccupied and Onlooker	**Solitary Play**	**Parallel Play**	**Associative Play**	**Cooperative Play**
Following others around or watching their play, perhaps even talking to them, but not joining the play.	Playing alone when playmates are available, with no reference to what others are doing.	Parallel play is a form of play in which children play adjacent to each other, but do not play with each other or not try to influence one another's behavior. In parallel play, children play near others with similar toys, but they do not seek to interact; they play beside each rather than with others.	Borrowing toys or following each other, but children do whatever each wants to.	Group is organized around a goal, or a formal game, and division of roles (e.g. "I'm the mommy and you're the doggie"). It is clear who belongs to the group and who does not.

Source: *(Bergin & Bergin, 2012, p. 445; Johnson & Ershler, 1985; NCCA., 2009; Waite-Stupiansky, 1997, pp. 67-73);*
https://en.wikipedia.org/wiki/Parallel_play#:~:text=Parallel%20play%20is%20a%20form,what%20other%20children%20are%20doing., accessed: 19.02.2021.

Figure 4-2: *Social Forms of Play.*

Source: *https://www.verywellfamily.com/types-of-play-2764587,*

accessed: 20.10.2018 (Illustration by: Joshua Seong).

Stages of play (i.e. social forms of play) is a theory and classification of children's participation in play developed by sociologist Mildred Parten Newhall (Table 4-2 & Figure 4-2). In her dissertation (1929), she conducted research on the social interactions of preschool age children (ages 2 to 5). She observed American preschool children at free play. In 1932, she recorded the changing nature of children's play between the ages of 2 and 5. In doing so, she described a series of play stages (six types of play) that a child will take part in, depending on age, mood, and social setting. These stages increase in level of sophistication, starting with the solitary behavior (typical of 1- and 2-year-olds) and progressing to cooperative play[45] [46] (Table 4-2 & Figure 4-2) (Vorsah, 2015; NCCA., 2009, p. 55; Waite-Stupiansky, 1997, pp. 71-74; Johnson & Ershler, 1985; Bergin & Bergin, 2012, pp. 444-445; Hughes, 2010, pp. 101-103):

- **Unoccupied (play)** – unoccupied play refers to activity when a child actually isn't playing, just observing. He may be standing in one spot or being engaged in seemingly random movements, with no objective. Despite what it may seem, these activities are play (called unoccupied play) and set the stage for future play exploration[47].

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[45] https://en.wikipedia.org/wiki/Parten%27s_stages_of_play, accessed: 22.10.2018.
[46] https://www.verywellfamily.com/types-of-play-2764587, accessed: 22.10.2018.
[47] https://en.wikipedia.org/wiki/Parten%27s_stages_of_play, accessed: 22.10.2018.

- **Solitary (independent) play** – in solitary play the child plays alone without the company of others; often very young children play alone independently.

- **Spectator (onlooker) play/behavior** – spectator play happens when a child is in a group and simply watches others playing without joining in. It is common for younger children who are in the process of developing vocabulary.

- **Parallel (adjacent) play** – parallel play occurs at the age of two. It happens when the child plays side by side with another child or other children, often by using similar materials and resources, in similar ways but yet without interacting. During parallel play children may engage in conversation, imitate each other, and watch each other closely, but yet do not coordinate their efforts or share materials in a cooperative way. It seems each child is involved in their individual activities despite the presence of other children.

- **Associative (partnership) play** – Parten called the last two forms of play (associative and cooperative play) group play because they involve groups of two or more children (Figure 4-2). Associative play happens with children of three and (particularly) four. In associative play each child still focuses on the separate activity and has its own play ideas and agenda as in parallel play, but in associative play there is a considerable amount of sharing, lending, taking turns, and attending to the activities of peers. It involves more give-and-take between the players than parallel play, yet it lacks coordination of the players' efforts toward a mutual goal. In associative play children develop interactions:
- through verbally shared communication
- through gestural communication
- through doing the same activities or playing with similar equipment
- and by imitating.

   Through associative play children begin to make real friendships[48].

- **Co-operative play** – children between the ages of four to five engage in a good deal of cooperative play. This is group play and represents the highest level of child's social maturity and independence. Cooperative play occurs when two or more children are engaged in an organized play activity that has a common goal and each participant carries

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[48] https://www.verywellfamily.com/types-of-play-2764587, accessed: 31.10.2018.

out its individual assigned role to achieve that goal. Children take turns, share and decide how and what to play. They interact and collaborate with each other and develop and negotiate ideas. There is increased self-identification with a group, and a group identity may emerge. For example, consider a play when several children playing in a sandbox decide to build a city; each child carries out a special role; one child works on the road and others work on a bridge or dig a tunnel.

The following section represents and describes main types of children's play from birth to age 8.

4.5.2. Types of Play (from Birth to Age 8)

As children grow and go through different developmental stages, their ways of playing evolve as well. Below, the main play types of children aged 0 to 8 years are described.

4.5.2.1.   Sensorimotor (Functional) Play: Practice Play & Play with Objects

Sensorimotor play or functional play has been described as the first play of children that begins in infancy. According to Psychologist Sara Smilansky, functional play is a child's repetitive behaviour in physical actions, language, and manipulation of objects, based on its need for physical activity. The repetitive nature of functional play is how children discover their world while learning about physical objects and cause and effect. Through repeating a behavior and practice, children also develop their gross and fine motor skill that prepare them for discovering and learning new and more complex skills (Hughes, 2010, p. 63; Fromberg & Bergen, 2006, pp. 4-5)[49]. In the first few months of an infant's life, practice play – a type of functional play – takes place when the child focuses on the body as the object of the play. By the age of 4 months, when the focus of a child's attention moves from the activities of its own body to the events of the outside world, the stage is set for play with objects (Fromberg & Bergen, 2006, p. 4; Hughes, 2010, pp. 66-67).

As stated, functional play is the least mature form of play in the cognitive domain, though even adolescents engage in functional play like simply bouncing a ball (Table 4-2) (Bergin & Bergin, 2012, pp. 444-445).

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[49] https://www.pgpedia.com/f/functional-play, accessed: 1.11.2018; https://happychildren.life/4-types-of-childrens-play/, accessed: 1.11.2018.

1) Practice Play

According to Piaget (1962), practice play is the sensorimotor, repetitive type of play that predominates in infant and toddler play (Waite-Stupiansky, 1997, p. 67). Infants repeat over and over again the motor behaviors that cause an interesting sensory or motor experience related to their own body. This primary period of development and the earliest forms of sensorimotor play, was called primary circular reaction by Piaget (1962) (Fromberg & Bergen, 2006, p. 4; Hughes, 2010, p. 65).

2) Play with Objects

Infants are uniquely motivated to explore objects. By the age of 4 months, infants' interests begin to shift away from primary focus on the body to external things like objects and people. Another obvious requirement for object play is motor skills to grasp and handle play materials. These skills will also appear in the second trimester of the child's first year (Fromberg & Bergen, 2006, p. 4; Hughes, 2010, pp. 66-67).

After 4 months, children continue to engage in circular reactions but now they become more interested in the external results that their actions produce. These repetition behaviors that cause pleasing effects on their surrounding world, were called secondary circular reactions by Piaget (Hughes, 2010, p. 65).

Between 4 and 12 months, the infant achieves some motor developmental milestones that allow it to access more interesting events in its surroundings. For example, when the infant can sit, it has visual guidance to grasp objects and bring its hands to midline for object exploration (Fromberg & Bergen, 2006, p. 4).

Between 7 and 12 months, infants' manipulative skill increases and they can use both hands independently for exploration. As cognitive development advances, the property of the object influences play. In order to make the infant able to manipulate the object, it should have movable parts. Through object play, infantile concepts of causality and object properties (e.g. stability and movability) can increase (Fromberg & Bergen, 2006, pp. 4-5).

The 1-year-old child goes a step further. Now instead of the precise repetition in the previous stage, the repetition is accompanied by an attempt to vary the activity. This new behaviour and cognitive stage was called tertiary circular reaction by Piaget. The playful element in these

activities is very clear, as the child appears to enjoy novelty and actively looks for new ways of producing interesting experiences (Hughes, 2010, p. 66; Fromberg & Bergen, 2006, pp. 4-5).

During the second year, play's major focus remains objects, though the patterns of actions change. Manipulative play is predominant while the child seems to enjoy novelty and new experiences. In the second year, the frequency of mouthing – as a form of exploration – decreases and after the second year it is rarely seen. Between 1 and 2 years, which is the age of experimentation, infants seem to ask, "What can I do with this object?" They experiment to discover what the objects can do and also learn what they can do with the objects (Hughes, 2010, p. 66; Fromberg & Bergen, 2006, pp. 4-5).

Often the objects that are given to infants for play are toys. A good toy for infants should stimulate as many of the senses as possible and should have variety in colour, shape, texture, and sound (Hughes, 2010, pp. 66-67). In short, the most successful toys for any age are the ones that are developmentally appropriate. Table 4-3 presents the information about the preferred and most appropriate toys for the first two years of a child's life.

Table 4-3: *Appropriate Toys for the First Two Years of Life.*

Age	Play Materials
Birth to 3 months	Toys that are primarily for sensory stimulation, since the infant is not yet ready to grasp objects: rattles, bells, colorful pictures and wallpaper, crib ornaments, mobiles, music boxes, and other musical toys.
3 to 6 months	Now that a primitive grasp has been acquired, the appropriate toys are the ones for grasping, squeezing, feeling, and mouthing: cloth balls, soft blocks, and teething toys.
6 to 12 months	Colorful picture books, stacking toys, nesting toys, sponges for water play, mirror, toy telephones with dials that move, toys that react to the child's activity.
12 to 18 months	Push toys, pull toys, balls to throw, plain and interlocking blocks, simple puzzles with large and easy-to-handle pieces, form boards, pegboards, stacking toys, and riding toys with low wheels to the ground.
18 to 24 months	Toys for the sandbox and for water play: spoons, shovels, and pails of various sizes. Storybooks, blocks in a variety of sizes, dolls, stuffed animals, puppets, and miniature life toys.

Source: *(Hughes, 2010, pp. 68).*

- **Functional Play in the Playground**

Some activities and elements of playing in a playground can be seen as functional play since they are repetitive such as: repeatedly sliding down the slide, playing on a seesaw, pushing a merry-go-round, and swinging on a swing[50].

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[50] https://www.pgpedia.com/f/functional-play, accessed: 15.11.2018.

4.5.2.2. Examples of Object Play: Treasure Baskets (especially for infants aged 5-10 months) and Heuristic Play with Objects (for toddlers under 3 years old and older children)

The treasure basket (which is a form of heuristic play) and heuristic play with objects are both examples of object play for infants and toddlers (Figures 4-3 & 4-4).

In the early 1980s, heuristic play with objects was devised by child educational psychologist Elinor Goldschmied during her collaborative research with Anita M. Hughes into the exploratory play of toddlers (aged 10–20 months). Goldschmied's approach to heuristic play for toddlers revolves around her previous idea, the Treasure Basket. The Treasure Basket was invented in the late 1940s, especially for babies at mouthing age around 5-10 months (Hughes & Cousins, 2017, pp. 33-45)[51].

Heuristic play refers to a process of internal search through which one discovers the nature and meaning of experience. This experience is exactly what toddlers of 10-20 months have while playing with and exploring the properties of objects[52] (Figures 4-3 & 4-4) (Hughes & Cousins, 2017, p. 39; Vorsah, 2015; Goldschmied & Jackson, 1994, p. 118). During heuristic play, children learn about concepts such as rollability, flexibility, rigidity, one and many, size differences, creating patterns, movement, the resistant quality of materials and many other fundamental concepts. The magic is that children understand these concepts even before using expressive language (Hughes & Cousins, 2017, p. 40).

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[51] https://www.under5s.co.nz/shop/Hot+Topics+Articles/Toys+Books+Play/Benefits+of+play/What+is+heuristic+play.html, accessed: 15.11.2018.

[52] https://www.littleacornstomightyoaks.co.uk/blog/2013/12/02/heuristic-play-part-i-the-treasure-basket, accessed: 15.11.2018.

1) The Treasure Basket (for infants aged 5-10 months)

Figure 4-3: *The Treasure Basket.*

Source:
https://www.under5s.co.nz/shop/Hot+Topics+Articles/Toys+Books+Play/Benefits+of+play/What+is+he uristic+play.html, accessed: 20.10.2018;
https://www.littleacornstomightyoaks.co.uk/blog/2013/12/02/heuristic-play-part-i-the-treasure-basket, accessed: 20.10.2018.

Goldschmied believed children could and should learn for themselves. She was keen that children – even before they could move about – should be given the opportunity to reach and choose objects to explore and experiment with. With this mindset, Elinor came up with the idea of the Treasure Basket (Figure 4-3) (Hughes & Cousins, 2017, pp 37-38).

A well-stocked treasure basket, provided by a thoughtful adult is appropriate for babies (aged around 5–10 months) who can sit up but are still rooted to the spot, which can be a time of great frustration (Figure 4-3) (Goldschmied & Jackson, 1994, pp. 87-88; Hughes & Cousins, 2017, pp. 37-38). These children, at the sensorimotor stage of development, use their senses and bodily movement to explore the treasure basket's objects. These are a rich variety of natural, real-world objects made from any material (apart from plastic) that come from around the house. No object in the treasure basket is a bought toy (Figure 4-3)[53] (Goldschmied & Jackson, 1994, p. 87).

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[53]
https://www.under5s.co.nz/shop/Hot+Topics+Articles/Toys+Books+Play/Benefits+of+play/What+is+heuristic+play.
html, accessed: 15.11.2018.

Ideally the basket itself should be a round, low, rigid-sided wicker basket (with no handles) filled with between 80 and 100 different items. The objects of a treasure basket should be safe and have no sharp edges or small parts that can fit into the child's mouth. They must be sturdy and small enough to be grasped in one hand but large enough not to be swallowed. These simple objects should be varied in substance, texture, sound, smell, and appearance (size, color, & shape) to appeal to the five senses and bodily movement that babies initially use for learning (Hughes & Cousins, 2017, p. 38; Goldschmied & Jackson, 1994, p. 87; Hughes, 2010, p. 69). By sucking, mouthing and handling, babies find out about weight, size, shape, texture, sound, and smell (Goldschmied & Jackson, 1994, p. 88; Vorsah, 2015). The concentration of a baby on the contents of a treasure basket can easily last for forty minutes (Hughes & Cousins, 2017, p. 39; Goldschmied & Jackson, 1994, pp. 88-89).

At the sensorimotor stage, while the baby's brain is growing fast, the treasure basket provides a great opportunity for learning. The real-life objects of the basket actively encourage them toward open-ended discovery, develop their senses, and contribute to their healthy development (Figure 4-3) (Goldschmied & Jackson, 1994, p. 87; Hughes & Cousins, 2017, pp. 37-38; Vorsah, 2015). Hence the treasure basket is an effective tool for child play and development, a driving force for making discoveries and exploration. The child should be with someone (a "key person") with whom they have a secure attached relationship. The key person or caregiver should sit in comfort, close to the baby. He/she should be responsive and attentive without unnecessary chatter or intrusive offering of objects[54] (Vorsah, 2015; Hughes & Cousins, 2017, pp. 37-39).

Other factors that can make the treasure basket a beneficial tool for play and child development include[55] (Hughes & Cousins, 2017, p. 39):

- types of objects in the treasure basket
- when, where, how often and how long each play session lasts
- to avoid boredom, the frequency and duration of sessions should not be too great.

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[54] https://www.littleacornstomightyoaks.co.uk/blog/2013/12/02/heuristic-play-part-i-the-treasure-basket, accessed: 15.11.2018.
[55] https://www.littleacornstomightyoaks.co.uk/blog/2013/12/02/heuristic-play-part-i-the-treasure-basket, accessed: 15.11.2018.

2) Heuristic Play with Objects (for toddlers aged 10-20 months and older children)

In the second year of child's life, the central factor in its developing abilities is increasing mobility (Goldschmied & Jackson, 1994, p. 119). When a baby begins to move about, its curiosity about the world of objects and indeed its own body begins to change (Figure 4-4) (Hughes & Cousins, 2017, p. 39). At the age of one to two, it is often observed that infants' concentration on the treasure basket is lost as they can move about. Children (i.e. toddlers) aged 1-2 years old flit from one thing to another and the available play materials do not hold their attention for more than a few minutes. Also, they are not interested in play materials like puzzles or putting pegs in their proper holes. "Their level of competence cannot be satisfied by play material where there is a 'right' answer, determined by adults" (Goldschmied & Jackson, 1994, p. 119).

Heuristic play is not a prescription, it is an approach. There is no one right way to do it. People have their own ideas and collect their own materials for different settings (Goldschmied & Jackson, 1994, p. 120). Apart from the fact that children obviously enjoy interacting and exploring materials, heuristic play can have a major role in developing children's ability to concentrate. This is strongly associated with cognitive development and educational progress (Goldschmied & Jackson, 1994, p. 122).

Figure 4-4: *Heuristic Play with Objects.*

Source: *https://www.communityplaythings.co.uk/learning-library/articles/heuristic-play, accessed: 15.11.2018; https://www.pinterest.de/pin/112449321922508321/, accessed: 2.12.2018.*

Children in their second year feel a great urge to explore and discover for themselves how objects behave in space while they manipulate them. Children need a wide variety of objects for this kind of experimentation (Goldschmied & Jackson, 1994, p. 119).

The objects should be constantly new and interesting. When a good collection of tins, containers and materials has been put together, you can start a heuristic play session. Containers are really important as starting points of play because they are used for activities like filling and emptying, or moving objects from one place to another place. Some suggestions for containers are: cans (of various shapes and sizes), yoghurt pots, egg boxes, cardboard or wooden boxes, handbags, flower pots, baskets (Hughes & Cousins, 2017, p. 40; Goldschmied & Jackson, 1994, p. 119).

The difference between the materials of the treasure basket and materials in heuristic play is that there is only one of each object in the basket, but in heuristic play there are plenty of the same objects. It is necessary to provide a suitable place with open-ended materials to perform heuristic play sessions. Some of the principles of setting up the heuristic play session (for toddlers or even older children) are similar to the treasure basket sessions for seated infants: e.g. involving adults (the key persons) who stay quiet but responsive. The adult role is as organizer and facilitator, but not initiator (Goldschmied & Jackson, 1994, p. 131; Hughes & Cousins, 2017, p. 40).

Heuristic play with objects is a particular way of offering a planned learning experience to children especially in their second age. "Providing heuristic play in group settings needs careful working out of practical details: time, space, materials and management" (Goldschmied & Jackson, 1994, p. 131).

4.5.2.3. Rough-and-Tumble (R & T) Play

Another type of play is rough-and-tumble (R & T) play, or play fighting. During this play, human behavior is similar to the animal behavior of many species (Figure 4-5). According to Pellegrini, R & T play combines pretense and physical play, like sword fighting in class. It consists of play fighting, wrestling, and chasing. It is important to distinguish R & T play from real aggression: all parties know that the goal is not to hurt anyone. Children, especially boys, all around the world take part in rough-and-tumble play: it is a way to express liking for one another. Table 4-4 shows the distinction between R & T play and aggression (Levine & Munsch, 2014, p. 50; Bergin & Bergin, 2012, pp. 444-445).

R & T play is executed in the classroom, home, or playground, where it is common. According to Pelligrini (2002), R & T play accounts for about 5% of free play for preschoolers (3- to 6-year-old children), about 10-17% for elementary children, and about 5% for middle school children. Infants

also play some rough-and-tumble play, but only when it is scaffolded by their parents (especially fathers) (Figure 4-5) (Bergin & Bergin, 2012, pp. 444-446).

Active, physical, competitive games within R & T play with fathers strengthen and enhance the father-child relationship. Rough-and-tumble play benefits a child's development. It stimulates brain development, which leads to improved cognitive performance, promotes the child's social competence, and reduces aggression (Fletcher et al., 2011).

Figure 4-5: *Rough-and-tumble play.*

Source:

https://i.pinimg.com/originals/b1/07/db/b107db6cf203dc3744b7590d58cc4a7a.jpg,

http://albanypreschool.org/2016/06/rough-and-tumble-play/,

https://www.fatherly.com/health-science/6-big-benefits-rough-tumble-play-kid/,

https://embracingroughandtumbleplay.com/2015/12/17/embracing-rough-and-tumble-play/,

accessed: 22.11.2018.

Table 4-4: *Characteristics of rough-and-tumble play compared with aggression.*

	Rough-and-Tumble Play	**Aggression**
Behavior	Soft, open-hand hitting, pushing, chasing, teasing, wrestling. Children help anyone who appears hurt.	Hard hits, shoving, kicking
Emotions	Smiling or laughing	Frowning or scowling
Results	Further shared activities, participants stay together afterward	Participants separate
Intents	Fun, expressing affection	Harm

Source: *(Bergin & Bergin, 2012, p. 445).*

4.5.2.4. Gross Motor or Active Play

Children, from 4-5 and on to 6 years of age achieve considerable gross and fine motor mastery along with active play skill. This emerges in newer and more variegated play forms. This age group often engages in climbing, hopping, running, skipping (especially girls), and chasing (especially boys). Some children ride small bicycles, first with supportive training wheels and later without them. Some children (primarily girls) jump rope and do acrobatics or trapeze tricks. Their muscle development contributes to children's ability to string beads, cut with scissors, paste, trace, draw, and color. They can also use a computer keyboard (Fromberg & Bergen, 2006, p. 14).

From 6 to 8 years, children's physical skills grow and they become more mature and experienced in physical and active play expression. They continue their interest and increasing proficiency in outdoor games and other physical activity like rough-and-tumble play. Roughhousing, daredevil play, and risk taking become very common. Plays like capture and escape, hide-and-seek, cops and robbers, "Tag"[56] and its variants (e.g. dungeon tag & frozen tag) are common. During ages 6-8, children engage in various sports and improve their form in them such as rollerblading, skateboarding, ice skating, swimming, aerobics, acrobatics, and various forms of dance (Fromberg & Bergen, 2006, p. 14).

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[56] https://en.wikipedia.org/wiki/Tag_(game), accessed: 15.12.2019.

Children from 6 to 8 exhibit remarkable skill development in the domain of fine motor activity. This physical and motor development facilitates some types of playing like collecting, building various structures, and making objects (Fromberg & Bergen, 2006, p. 14)[57].

4.5.2.5. Symbolic Play

"Piaget labeled the type of play in which players use one object to stand for or symbolize another as symbolic play" (Waite-Stupiansky, 1997, p. 68). Symbolic play has been most closely linked to early cognitive development by most scholars. It happens when children use their imaginations for pretense. In this play, children use objects, actions, situations or ideas to represent other objects, actions, situations or ideas. For example a child may push a block on/around the floor as a car or put a fruit or an object to his ear as a phone (Figure 4-6) (Fromberg & Bergen, 2006, p. 8; NCCA., 2009, p. 54)[58] [59].

According to Piaget and other researchers such as Smilansky and Shefatya, there are two main types of symbolic play (Figures 4-6 & 4-7) (Waite-Stupiansky, 1997, p. 68; Hughes, 2010, p. 63):

1) constructive play

2) dramatic or socio-dramatic play (aka. pretend, make-believe, role, or fantasy play).

As children's symbolic thinking develops (at around 8 months), they become more familiar with objects, actions, and ideas through observations and exploration. One of the early examples of symbolic play would be when a child makes noise with their baby toys by banging or shaking them[60]. At around 18 months, children begin to engage in pretend play[61]. Piaget identifies pretend play as a necessary ingredient for cognitive development from infancy to adulthood (Waite-Stupiansky, 1997, p. 68; Yawkey & Pellegrini, 1984, p. 1).

As children grow, their imaginations and their play become increasingly complex. When they engage in dramatic play, they create their own fantasies. Children try out roles, occupations and experiences. They make up stories and scenarios based on their fantasies, which may be realistic or unrealistic (i.e. imaginary) (Figure 4-7). When children act out real events, their play is realistic fantasy play, such as dressing for a party or going on a camping trip. Children also take part in

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[57] https://en.wikipedia.org/wiki/Make_believe, accessed: 19.12.2019.
[58] https://en.wikipedia.org/wiki/Make_believe, accessed: 19.12.2019.
[59] https://www.pgpedia.com/s/symbolic-play, accessed: 7.10.2018.
[60] https://www.pgpedia.com/s/symbolic-play, accessed: 7.10.2018.
[61] https://www.pgpedia.com/s/symbolic-play, accessed: 7.10.2018.

imaginary or unrealistic fantasy play. In this play, they create imaginary roles, plots, and scenarios that are not real, such as fairies, superheroes, space aliens or Ninja Turtles (Figure 4-8) (Waite-Stupiansky, 1997, p. 69; NCCA., 2009, p. 54).

Figure 4-6: *Examples of Symbolic Play (Example 1: Constructive Play; Example 2: Dramatic (Pretend) Play).*

Source: *https://www.mrsgreenway.ca/blogs/whats-new/how-imaginative-and-symbolic-play-affects-child-development, accessed: 18.12.2019; https://www.gryphonhouse.com/resources/what-is-symbolic-play, accessed: 7.10.2018.*

Symbolic Play

Dramatic/Socio-dramatic Play (also called Pretend Play, Make-believe Play, Role Play, or Fantasy Play)

a

Constructive Play

During this play children use their imagination to pretend with objects, actions, and situations. It is a loosely structured form of play that generally includes role-play, object substitution and nonliteral behavior.

As children grow, their imaginations and their play become increasingly complex. When they engage in dramatic play, they create their own fantasies. In dramatic/socio-dramatic play, children try out roles, occupations and experiences; they make up stories and scenarios based on their fantasies which could be realistic or imaginary (i.e. unrealistic).

Constructive play includes purposeful activities that result in creation. In constructive play the open-ended materials (natural and manufactured ones) are used for building and representing new things.

Realistic Fantasy Play

b

Unrealistic (Imaginary) Fantasy Play

When children act out real events, their play is 'realistic' fantasy play, such as dressing for a party or going on a camping trip.

Children take part in 'imaginary' or 'unrealistic' fantasy play when they create imaginary roles, plots, and scenarios that are not real, such as fairies, super heroes, space aliens or Ninja Turtles.

a) **Many plays include both, constructive and pretend play.**
b) **Children's pretend play could include both realistic and imaginary fantasies.**

Figure 4-7: *Describing Different Types of Symbolic Play (Dramatic Play and Constructive Play).*

Source: *Prepared by the author (Neda Batenipour).*

Data adopted from: (Waite-Stupiansky, 1997, p. 69; NCCA., p. 54);

https://en.wikipedia.org/wiki/Make_believe, accessed: 7.10.2018.

4.5.2.5.1. Manipulative and Constructive Play

Manipulative play involves practicing and refining motor skills. It enhances physical dexterity and hand-eye coordination. Manipulating objects and materials are needed for this type of play[62]. Experiencing a range of different levels of manipulation refines children's motor skills (Figure 4-8) (NCCA., 2009, p. 54; Hughes, 2010, p. 63).

In constructive play, children manipulate their environment and experiment with materials to create things and represent their own reality (e.g. building towers with blocks or constructing sandcastle in the sand). Sandboxes – in different places like in the playground, class, or schoolyard – offer a great opportunity for constructive play. Children have an endless number of opportunities for exploration while using shovel, buckets, containers and toys. Constructive play encourages children's imagination and creativity, develops problem-solving skills, fine motor skills, and self-esteem. During constructive play children gain basic knowledge about different activities while discovering which combinations work and which don't. In constructive play, children build knowledge through active questioning and gathering information (Figure 4-8)[63] (NCCA., 2009, p. 54; Waite-Stupiansky, 1997, p. 69-70).

By the age of 2, children's play changes from functional play (where the child uses materials in simple, repetitive, and exploratory way) to constructive play (which includes purposeful activity, takes longer, and results in creation)[64].

By the age of 4, most preschool children have reached many developmental milestones. The progress of object play is defined in terms of how many objects young children can incorporate into play, and how well they can use these objects. The play develops from the simple to the complex as children's ability increases to organize objects and actions in time and space. As preschooler's skills develop, they engage more in building complex structures and producing recognizable products. These products are created through drawing, painting, arranging designs, and creating constructions rather than by using toys only in an appropriate or expected manner (Figure 4-8) (Fromberg & Bergen, 2006, p. 14).

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[62] Objects are used in both sensorimotor play and symbolic play, although in different ways.
[63] https://www.pgpedia.com/c/constructive-play, accessed: 10.05.2018.
[64] https://www.pgpedia.com/c/constructive-play, accessed: 10.05.2018.

Children of 5 and 6 continue to engage in a considerable amount of constructive play. In comparison with younger children, the constructive play of this age group is more elaborate and reveals greater social collaboration. Moreover, their constructive play more likely has elements of pretense or dramatic play (Figure 4-8) (Fromberg & Bergen, 2006, p. 15).

5.

Figure 4-8: *Examples of Manipulative/Constructive Play for Preschoolers (from 3 to 6 years of age).*

Source: *The photos have been taken by the author in Tehran's kindergartens.*

For children of 7 and 8 years of age, constructive play continues to include blocks as a dominant medium. As with preschool children, primary-grade school children enjoy playing with Lego blocks, Lincoln Lego, and other assorted playthings that have fitted notches or interlocking pieces (Figure 4-9). This age group generally prefers construction sets with complex interlocking pieces that can result in detailed realistic products. They enjoy measuring and balancing objects and activities that reflect their concrete operational thinking (Figure 4-9). This often occurs in social interaction with peers, which includes pretense. Thus, compared with preschoolers, older children engage increasingly in more scientific and experimental processes using multiple criteria in combination. It is important for them that their play results in a finished product (Fromberg & Bergen, 2006, p. 15).

Figure 4-9: *An Example of Constructive Play Toys for Primary-grade School Children.*

Source: *https://www.educationaltoysplanet.com/autobahn-quadrilla-175-pc-wooden-marble-run.html, accessed: 18.12.2019.*

4.5.2.5.2. Dramatic and Socio-dramatic Play

Pretend play (also called make-believe play, role play, imitative play, or fantasy play)[65] (Waite-Stupiansky, 1997, p. 68; NCCA., 2009, p. 54; Fromberg & Bergen, 2006, p. 14; Hughes, 2010, p. 63) is a form of symbolic play where children use objects, actions, situations or ideas to represent other objects, actions, situations, or ideas. They use their imagination to assign roles to inanimate objects or people (e.g. pretending to feed a doll or drinking from an empty cup) (Figure 4-10). Children's pretend play includes realistic and unrealistic (i.e. imaginary) fantasies (Waite-Stupiansky, 1997, p. 69; NCCA., 2009, p. 54). As children develop linguistically, cognitively, and socially, their pretend play will include more advanced fantasy, drama, and imitation (Figures 4-11 & 4-12)[66].

Considering the social relation in the play, pretend play can be either dramatic or socio-dramatic. As defined by Smilansky (1968), dramatic play is pretend play that children do alone, while socio-dramatic play is jointly constructed pretend play in which children coordinate with at least one other person (Figures 4-10, 4-11 & 4-12)[67]. In socio-dramatic play, children interact socially in their make-believe. Socio-dramatic play is the most advanced form of pretend play and requires the use of imagination to carry out the roles (Waite-Stupiansky, 1997, p. 69)[68].

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[65] https://www.pgpedia.com/p/pretend-play, accessed: 7.10.2018 & 30.12.2018.
[66] https://www.pgpedia.com/p/pretend-play, accessed: 7.10.2018 & 30.12.2018.
[67] When another person join or other children get involved in pretend play, it is called 'socio-dramatic play'.
[68] https://www.pgpedia.com/r/role-play, accessed: 7.10.2018 & 30.12.2018.

Figure 4-10: *Examples of Toddlers' Dramatic Play. The Solitary Pretend Play called 'Dramatic Play'.*

Source: *https://teachmetotalk.com/2017/04/06/pretend-play-skills-an-important-developmental-marker-for-language-development-in-toddlers/, accessed: 26.12.2019;*
https://playgroupwa.com.au/ideas/tea-party-toddler/, accessed: 26.12.2019;
https://whereimaginationgrows.com/dramatic-play-spaghetti-play-for-kids/, accessed: 26.12.2019;
https://www.whattoexpect.com/toddler-behavior/toddler-pretend-play.aspx, accessed: 26.12.2019;
https://www.pgpedia.com/p/pretend-play, accessed: 7.10.2018;
https://www.sciencedaily.com/releases/2012/08/120828152504.htm, accessed: 7.10.2018.

Figure 4-11: *Examples of Preschool Children's 'Socio-dramatic Play' (Role Play); it is a Pretend Play with Social Interactions.*

Source: *https://www.pinterest.de/pin/14918242491434571/?lp=true, accessed: 26.12.2019; https://spongekids.com/fun-pretend-play-ideas-for-kids/, accessed: 26.12.2019; https://www.kindercare.com/content-hub/articles/2018/march/pretend-play-stuffed-animals, accessed: 26.12.2019; https://projectnursery.com/2019/04/diy-backyard-obstacle-course-birthday-party/, accessed: 26.12.2019.*

Figure 4-12: *Examples of Preschool Children's Pretend Play (Socio-dramatic Play) in a Kindergarten, in Tehran.*

Source: *Photos taken by the author in a kindergarten, in Tehran.*

According to Piaget (1962), pretend play is a major form of play that emerges early in the second year of life as children's symbolic functioning develops. Toddlers' pretend play is mostly solitary (dramatic play) (Figure 4-10). They develop their imagination through experiences of pretend play (Fromberg & Bergen, 2006, p. 15)[69].

From ages 3 to 5, children become more capable of imagining roles and situations behind their pretend play and their play becomes more social (Figures 4-11, 4-12 & 4-13). Usually, children of this age group are able to take on a large numbers of pretend characters, ranging from the common familial and everyday occupational roles (realistic fantasy play), to more far-fetched superhero and other fictional roles observed on television or other media (imaginary fantasy play). They use various props and invented objects to support their play episodes, whether they play in social groups or alone (Fromberg & Bergen, 2006, p. 15)[70].

Role play allows children to experience and practice what happens in real life. Since children are unable to imitate exactly the people and situations that they have observed or experienced in real life, elements of make-believe are involved in their role play. This allows them to explore the feelings and actions of others as if they were real[71] [72]. In socio-dramatic play, children slip in and out of their roles as they negotiate and talk about the materials, and about the play and its course as if they were both directors and actors of a stage play (intersubjective space of play) (Waite-Stupiansky, 1997, p. 69).

With experience and exposure to play with different children, the child's dramatic play gets more varied and develops with new ideas and interpretations. Socio-dramatic play supports the development of social skills, creativity, and intellectual growth. During socio-dramatic play, children learn various skills such as skills in negotiation, listening, sharing, taking turns and roles, and respecting others' feelings, thoughts, ideas, and physical space[73].

Although after age 5 or 6 involvement in social make-believe play in public (e.g. in classroom or playground) decreases, children still show a strong interest in it alongside other types of play. In general, older children's pretend play has richer texts, more contoured scripts, and more

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[69] https://www.pgpedia.com/p/pretend-play, accessed: 7.10.2018 & 30.12.2018.
[70] https://www.pgpedia.com/p/pretend-play, accessed: 7.10.2018 & 30.12.2018.
[71] https://www.pgpedia.com/r/role-play, accessed: 7.10.2018 & 30.12.2018.
[72] https://www.pgpedia.com/d/dramatic-play, accessed: 7.10.2018 & 30.12.2018.
[73] https://www.pgpedia.com/d/dramatic-play, accessed: 7.10.2018 & 30.12.2018.

organized plots, and their play episodes are more differentiated and elaborated than younger children's pretend play (Fromberg & Bergen, 2006, pp. 15-16).

Six- to 8-year-olds (unlike 4- and 5-year-olds) are good at dealing with stage managing and directing dramatic performances. Primary school children (6- to 8-year-olds), can use a greater quantity of materials (i.e. role-play materials) and more detailed equipment than younger children. Older children prefer more detail and realism in their imaginative play props (Fromberg & Bergen, 2006, p. 16).

4.5.2.5.2.1. Pretend Play in Playground

In comparison to indoor environments, outdoor play spaces provide greater access to low-structured, low-realistic, spaciousness, and natural environment and materials. When playing in outdoor playgrounds, children have more freedom, more active movement, fuller expression, and louder talk[74].

Some innovative playgrounds have been designed in a way that greatly encourages pretend play. Sometimes playing structure, playing equipment, and components are based on themes like Old West towns, castles, pirate ships, rescue fire trucks, trains, and space ships (Figure 4-13)[75]. The Imagination Playground in New York City is an innovative play space – conceived and designed by David Rockwell — that can support make-believe play (i.e. fantasy play; pretend play). It encourages child-directed, unstructured free play. It provides a flexible environment for many types of play such as constructive play, pretend play, creative play and physical play (Figure 4-14). "With a focus on loose parts, Imaginative Playground offers a changing array of elements that allows children to constantly reconfigure their environment and to design their own course of play" (Broto, 2011, p. 50).

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[74] https://www.pgpedia.com/d/dramatic-play, accessed: 7.10.2018 & 2.1.2020.
[75] https://www.pgpedia.com/d/dramatic-play, accessed: 7.10.2018 & 2.1.2020.
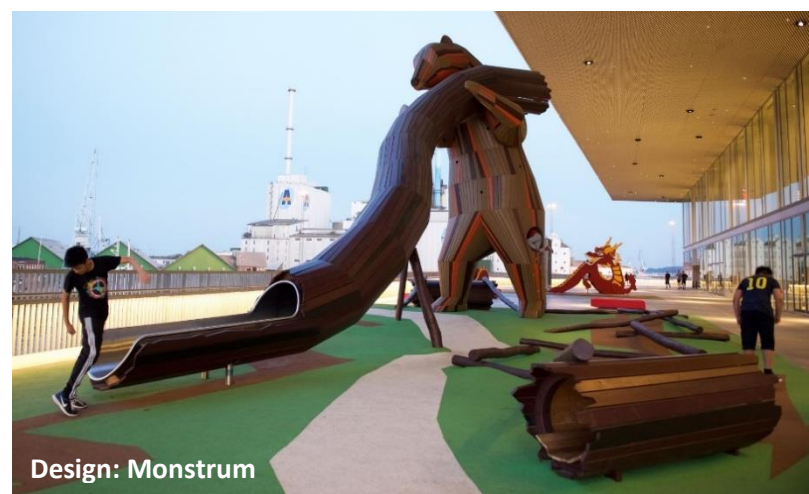
Figure 4-13: *Examples of playgrounds that support Pretend Play. Design: Monstrum.*
Source: *https://monstrum.dk/en/playground/globe, accessed: 2.1.2020.*

Designer: David Rockwell

Figure 4-14: *Imagination Playground in New York City. Design: David Rockwell.*
Source: *(Broto, 2012, p. 51); https://www.iconeye.com/design/features/item/9492-imagination-playground-by-david-rockwell, accessed: 4.1.2020; https://www.pretendcity.org/imagination-playground/, accessed: 4.1.2020.*

Dramatic/socio-dramatic play lets children communicate and express feelings they might not be able to express in other contexts[76]. Imitating, imagining, and dramatizing are all part of this kind of play in which children represent, relive or re-enact their actual experience, using symbols, language, and social skills. Pretense in a play context has an important role in the healthy development and well-being of children especially aged from 4 to 8 (Fromberg & Bergen, 2006, p. 15).

4.5.2.5.2.2. Factures that Influence Pretend Play (Fantasy Play)

Various factors influence fantasy play (i.e. make-believe play) including physical location, spatial density, toys (tools) availability, gender, age and developmental level of the player. The amount and the quality of fantasy or make-believe play depend on various factors (e.g. child's developmental level). Older preschoolers engage in fantasy play to a greater extent and more imaginatively than younger ones (Hughes, 2010, p. 170).

4.5.2.6. Creative Play

Creative play involves children exploring and using their minds (cognitive skill), affections (emotional skill), bodies (physical skill) and environments (including places, props, tools, materials, etc.) to make and do creative things and to express and share their feelings, ideas and thoughts (NCCA., 2009, p. 54; Sanders, & Stappers, 2012, p. 41).

Creative play develops in early and middle childhood. From 4 to 8, it finds expression in various domains. For example, children enjoy being creative while getting involved in playing with junk and recycled materials, working with play-dough and clay, dancing, and painting (Fromberg & Bergen, 2006, p. 16; NCCA., 2009, p. 54).

4.5.2.6.1. Imagination, Creativity, and Play

The relationship between creativity and imagination was theorized by Vygotsky. According to him, 'imagination' serves as an imperative impetus of all human creative activity (Tsai, 2012, pp. 15-16). The operation of imagination and its created materials are formed mainly based on the richness and wideness of an individual's previous experiences (either in play or real world). Individual experience provides the material from which the products of fantasy are constructed

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[76] https://www.pgpedia.com/d/dramatic-play, accessed: 7.10.2018 & 2.1.2020.

(Figure 4-15) (Tsai*,* 2012, p. 16; Vysgotsky, 2004, pp. 14-15). "The richer a person's experience, the richer is the material his imagination has access to" (Vysgotsky, 2004, p. 15). Thus, certainly a child has less rich imagination than an adult. The key difference between their imagination's qualities is rooted in their level of maturity. A child's experience is simpler, more elementary, and poorer comparing with an adult's experience which is subtler, more complex, and diverse (Vysgotsky, 2004, p. 15; Tsai*,* 2012, p. 16).

Besides children's previous experiences (in the play context or real world) and their level of maturity, there are other (internal or external) factors that contribute to shape children's 'imagination' which leads toward creativity and new experiences (Figure 4-15) (Tsai*,* 2012, p. 16):

- individual feelings and needs
- gender and personal characteristics
- contextual characteristics (context of play and real world): individual imagination is also a product of the materials used or interacted with, as well as temporal, environmental, and cultural characteristics.
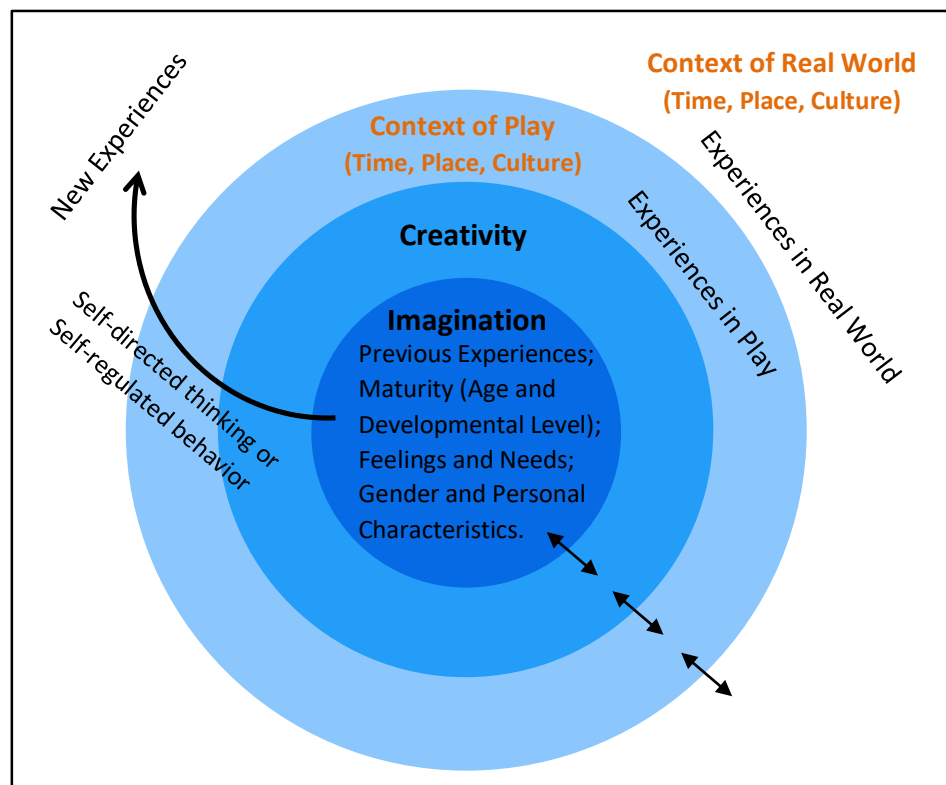
Figure 4-15: *The relationship between imagination, creativity, and play.*
Source: *Author (Neda Batenipour); diagram was prepared based on the literature in Section 4.5.2.6.1.*

4.5.2.6.2. Play and Creative Behavior

Creative behavior usually implies aesthetically or technically original expression. Creativity in children's play is a product of self-directed thinking and self-regulated behavior (Figure 4-15) (Fromberg & Bergen, 2006, p. 16). Children's creativity is based on personal or individual criteria, whereas adult's creativity is subject to societal criteria and can be judged according to social norms (Fromberg & Bergen, 2006, p. 16).

"Play provides an arena for creative activities and processes" (Tsai*, 2012, p. 16). Creative play (e.g. make-believe play) needs time and space. Creative play can encompass and enliven many activities and art forms such as role play, process drama, visual art projects using various media such as painting or sculpture, song, musical games, and collaborative or improvised dance (Smithner, 2011; Fromberg & Bergen, 2006, p. 16).

4.5.2.7. Arts and Crafts

By the age of 4, children's creative drawing and construction has shifted beyond acting on objects and exploration of the medium to concern with the created product, which defines what is important to the child. Children at this age can usually distinguish at least several colors and have achieved the level of fine motor coordination needed to enjoy and create products with paint, finger paints, pencils, large crayons, strings, beads, Magic Markers, scissors, paste, and the like (Fromberg & Bergen, 2006, p. 16).

Four-year-olds can make and represent products, but 5-year-olds go further and can make products that are more realistic and elaborate. Five-year-olds can work more easily with materials like paint, watercolor, smaller crayons, and coloring books. At the age of 6, 7 and 8 children can make better use of all the materials and activities enjoyed by younger children. In comparison with younger children, primary-grade children can come up with more skillful and finished products. They can do and enjoy activities like sewing, woodworking, model building, and using craft kits (Fromberg & Bergen, 2006, pp. 16-17).

4.5.2.8. Miniature Play Scenes (Small World Play)

Miniature play scenes are created when creative play is apparent in the microcosms that young children recreate by constructing miniature worlds or designing small play scenes in the tabletop or on the floor. For this play, they involve various nonrealistic (i.e. unstructured) materials like

pipes and blocks or realistic (i.e. structured) toys like farm sets and other small toys (Figures 4-16 & 4-17) (Fromberg & Bergen, 2006, p. 17).

Figure 4-16: *Examples of Small World Play (Miniature Play Scene).*
Source:
https://www.tts-group.co.uk/outdoor-small-world-wooden-building-blocks/1013574.html, accessed: 12.1.2020; https://teachingmama.org/penguin-sensory-sink/, accessed: 16.10.2018; https://teachingmama.org/what-is-small-world-play-and-why-is-it-important/, accessed: 16.10.2018.

Figure 4-17: *Examples of Small World Play (with Different Sensory Elements).*
Source:
https://teachingmama.org/what-is-small-world-play-and-why-is-it-important/, accessed: 16.10.2018;
http://littleworldsbigadventures.com/how-to-set-up-a-beach-small-world-invitation-to-play/, accessed: 12.1.2020;
https://clareslittletots.co.uk/2016/08/soapy-bubbles-tuff-spot/, accessed: 12.1.2020.

In imaginative or creative play with miniature worlds (either in solitary play or as a form of collective and cooperative play), children act on objects and produce various configurations with them (Figures 4-16 & 4-17) (Fromberg & Bergen, 2006, p. 17). This type of play is wonderful for language building, because while children are imagining and creating stories, they also talk out loud and use varied vocabulary. Their goal is to act out ideas from real life or re-enact stories they know. Small world play can be played independently when a child works on objects and performs activities alone. The child creates dialog between the objects or animals and uses words heard either in the story or in daily life (Figure 4-18) (Fromberg & Bergen, 2006, p. 17)[77].

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[77] https://teachingmama.org/what-is-small-world-play-and-why-is-it-important/, accessed: 16.10.2018.

When a child engages in small world play with others, it learns how to share, how to play with other children, and how to develop its imagination with its playmates. Small world play is a rich time of learning where many sensory elements are often used (Figure 4-17)[78].

By age 5, children like to plan, construct, and play with miniature worlds. Children up to age 6 show peak interest in this form of imaginative play (small play scene), as they do for socio-dramatic play. However, older children prefer very detailed and realistic models in their play with miniature worlds and often combine this form of play with constructive play (Fromberg & Bergen, 2006, p. 17). As with socio-dramatic play, gender differences are usually clear in themes of miniature play and the materials involved. For example, playing house, using a dollhouse and Barbie dolls is common for girls while playing with toy soldiers and superheroes is common for boys (Fromberg & Bergen, 2006, p. 17).

4.5.2.9. Language Play and Musical Instruments

In language play, children play with sounds and words. This includes unrehearsed and spontaneous manipulation of sounds and words, often with rhythmic and repetitive elements (NCCA., 2009, p. 54). Children like language play in different ways. They enjoy patterns, sounds, nonsense words, jokes, and funny stories. During the preschool years, language play includes inventing songs and rhymes (NCCA., 2009, p. 54; Fromberg & Bergen, 2006, p. 17).

Musical and rhythmic instruments are suitable for children across a wide age range. Musical skill increases dramatically during the preschool years. Children can keep time with music during physical activity like jumping, running, and galloping. This leads to real dancing around 5 years of age. They also experiment with various musical instruments (e.g. simple recorder, horn, harmonica, ocarina, drums, and xylophones) and are able to produce sounds (Figure 4-18). "Primary-grade children begin to learn to play real instruments and read music. They show interest in group singing and can use their own song books" (Fromberg & Bergen, 2006, p. 17).

Exposure to, and active engagement with music, supports children's growth and development. During significant stages of brain building, music is essential in order to activate the neural pathways necessary for enhanced learning and brain functioning. Music inspires creativity, stimulates language and auditory development, and encourages physical movements. Aside from

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[78] https://teachingmama.org/what-is-small-world-play-and-why-is-it-important/, accessed: 16.10.2018.

introducing music foundations, music plays an important role in teaching key concepts such as the alphabet, numbers and counting, colors, days of the week, and months of the year (Figure 4-18). Exposing children to music and high-quality educational musical toys enhances cognitive and influences overall development[79].

[79] https://www.educationaltoys.expert/musical-toys-toddlers-headache-head-start/, accessed: 16.10.2018.

Figure 4-18: *Musical Instruments and Educational Toys for Language Play.*
Source:
https://www.educationaltoysplanet.com/musical-library-toddler-electronic-learning-toy.html, accessed: 13.1.2020;
https://www.educationaltoysplanet.com/kids-electronic-drum-set.html, accessed: 13.1.2020;
https://www.educationaltoys.expert/musical-toys-toddlers-headache-head-start/, accessed: 16.10.2018.

4.5.2.10. Game with rules

As children's cognitive ability develops, they become increasingly logical and see the world as a logical and orderly place that is governed by systems of rules. This orderliness appears in children's play in the form that Piaget (1962) described as the major play activity of the civilized being, the game with rules (Hughes, 2010, p. 142).

Games with rules may be sensorimotor in nature (e.g. marble or ball games, tag, hide-and-seek, hopscotch); these games also may be of an intellectual variety (e.g. checkers, cards, or Monopoly and other board games). In both cases, however, they contain two essential characteristics (Hughes, 2010, p. 142):

1) They involve competition between two or more players.

2) They are governed by a set of rules agreed in advance by all players. Players may not change regulations midgame unless they have previously determined that modifications will be acceptable. In a particular game with rules, children may either learn the rules from their older peers or establish their own rules at the outset of the game.

Thus, according to Piaget (1962), the two requirements for participating in a game with rules are: (1) the ability to engage in rule-dominated forms of thinking and (b) the presence of two or more potential players (Hughes, 2010, p. 142).

Most children under 4 years cannot play games with rules, even with adult scaffolding. By the age of 4, however, many children can play when the sit-down games have only a few simple rules, an easy scoring system, and depend on simple chance but not skill or strategy (Fromberg & Bergen, 2006, p. 17). Between 4 and 7 years, both practice play[80] and symbolic play begins to evolve into games with rules. Games with rules especially belong to the ages 7 to 11 years (elementary years) and continue into adulthood (Fromberg & Bergen, 2006, p. 119; Waite-Stupiansky, 1997, p. 71). Table 4-5, briefly describes the types of games with rules considering the skills/ages (maturity) of children (preschool and primary-grade children).

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[80] In the case of practice play, actions are socialized to evolve into games with rules. Consider Piaget's example, when three 5-years-old children whose play at jumping from stairs evolves into rules as they agree to try to jump as far as they can from the same step, and decide that if anyone falls, he will lose.

Table 4-5: *Forms of games with rules for preschool and primary-grade children.*

Age Period	Skills of Children and Characteristics of Games with Rules
Preschool Children (the preschool children who are able to play game with rules; often from age 4)	Preschool children enjoy matching and lotto-type games with pictures and colors; when they get older, they enjoy matching letters and numbers as well. For younger preschool children, games with spinners or colors are easier than those that involve dice. Preschoolers can play games that involve simple fine motor ability such as pick-up sticks.
Primary-grade Children	Interest in games with rules increases during the primary-grade school years. For the typical 6 and 7-year-olds, games must have few rules, remain rather simple and straightforward, and require little skill and strategy. Some children can learn and play more sophisticated games like chess. Around age of 8, or the time when children reach the stage of concrete operations and have the ability to formulate and carry out a plan or strategy, they can enjoy a much broader array of games with rules; their games are rather sophisticated (based on fantasy or adventure themes). Around this age, real cooperation and competition are possible and become important in game-with-rules play. Computer and video games are very popular among children during primary-grade school years and many children play these regularly.

Source: *(Fromberg & Bergen, 2006, p. 18).*

4.5.2.11. Books and Stories

Books and stories elicit cognitive play among preschoolers and primary-grade children. Preschoolers enjoy looking at books; they love having adults read story books to them (Fromberg & Bergen, 2006, p. 18).

4.6. The "Creative Session": an Innovative Method for Understanding 4 to 8 Years Children

Issues of child development and types of play – especially creative play, constructive play, arts, handicrafts, and story – have led the present author to design an innovative method, called "Creative Session" in order to understand children's experiences, wishes, dreams, and values. The

main activities of a creative session (to be described in detail in Chapter 10) include imagining, drawing, and talking about stories – activities which suit the developmental level of 4 to 8-year-olds in various domains of development like: mental or cognitive development to use their imagination/creativity in order to create stories, their physical development for drawing which is a type of constructive play, their socio-emotional abilities to get involved in the session and interact with other children (interaction among peers in kindergartens and primary schools) and the adult (designer/researcher or teacher), and language skill to create communication about their stories. The ultimate aim of the method is to design a child-friendly playground.

4.7. Context of Development and Individual Characteristics in Child's Development and in Play

In many ways, children around the world are similar to one another; for example infants develop emotional attachments to their parents and young children, express themselves and learn through play, no matter where they live. However, a child's development process depends on the context – in which it grows up — and individual characteristics (e.g. age, gender, personality, and especial needs or limitations) (e.g. being a wheelchair user) (Levine & Munsch, 2014, pp. 11-12; Fromberg & Bergen, 2006, pp. 18-19).

4.7.1. Context of Development

In the 1970s, Urie Bronfenbrenner developed an ecological theory to explain the importance of the context in which children develop (Levine & Munsch, 2014, p. 52). In 1977, he proposed that individuals grow and develop within a nested set of influences. In his ecological systems model, he divided these influences into four systems: the microsystem, mesosystem, exosystem, and macrosystem (Figure 4-19). He subsequently added a dimension of time and called that the chronosystem. These systems are embedded one within the other and each system influences the other reciprocally. The relationship among these systems changes as the child grows and develops (Levine & Munsch, 2014, p. 52).

Bronfenbrenner emphasized the importance of understanding the individual within all of these contexts (Levine & Munsch, 2014, p. 53). Also Richard Lerner (1982) points out that human development occurs in multiple contexts that include family, school, neighborhood, peer groups,

community, and culture. For example, a family's financial status is an important context that influences child development (Levine & Munsch, 2014, p. 13).
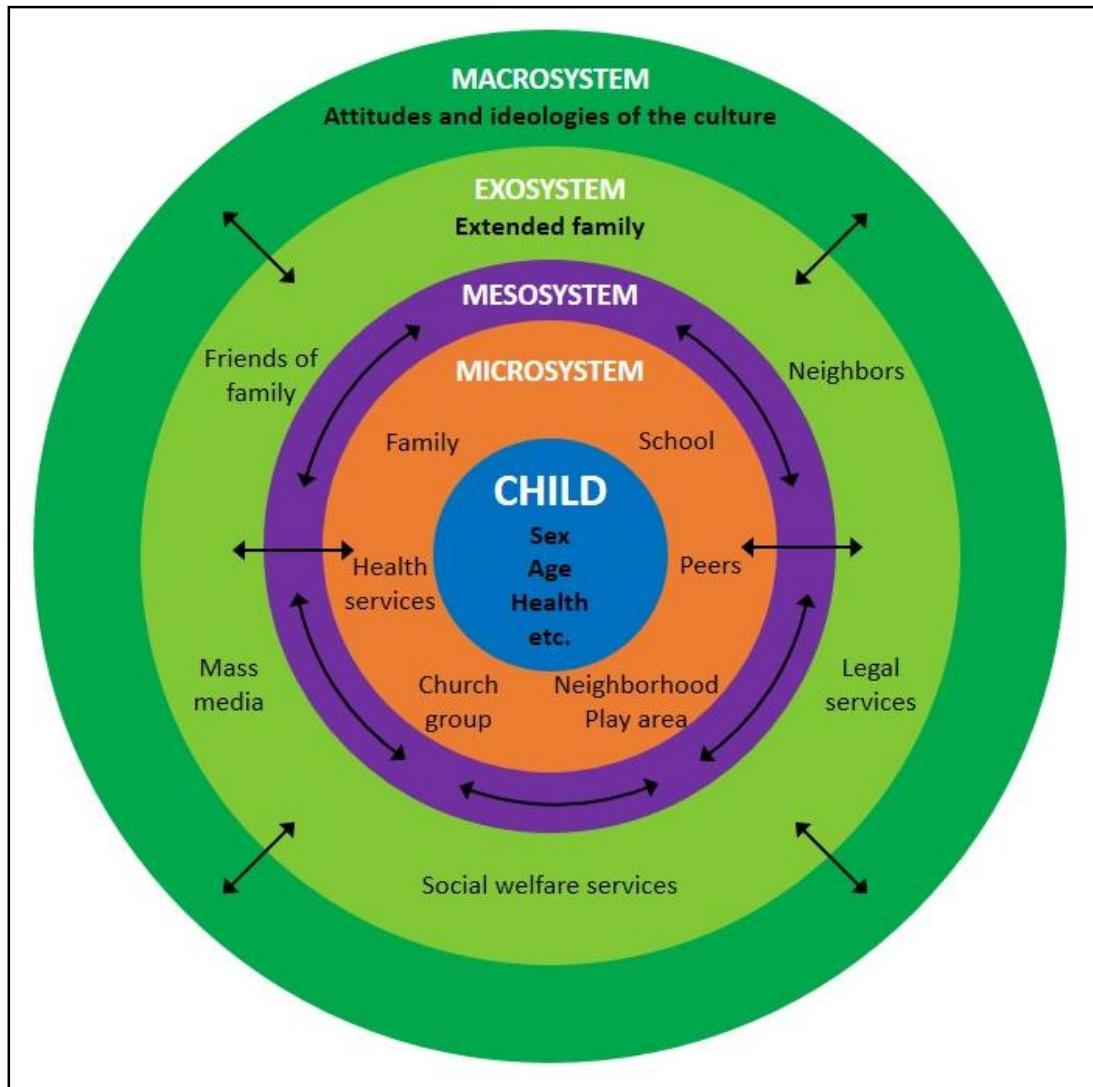
Figure 4-19: *Bronfenbrenner's Ecological Systems Model (showing the context in which children develop)*.

Source: *(Levine & Munsch, 2014, p. 53).*

4.7.2. Culture in Development and Play

Development is influenced by group differences, such as those between different cultures. For example, a very strict parenting style in one culture may be seen as a sign of love and care, while in another culture it is seen as the opposite. In both cultures, the behaviors related to strict parenting might be the same, but the meanings and impacts of these behaviors can be quite different (Levine & Munsch, 2014, p. 13).

Play has been observed in almost every society and human culture. Even in societies in which children have little time to play like in the Kipsigis community in Kenya – where children have numerous chores — they discover various ways to integrate play into their work (Hughes, 2010, p. 43).

There are important cultural similarities in children's playing in different societies. However, cultural differences modulate patterns or regularities in play expressions. Although structural features of play such as sociality, the influence of gender and age, elaboration of language, and the need to use imagination, may not differ across cultures, the amount and frequency of different types of play, as well as themes, and content are often culturally specific. Hence for an understanding of children's play, it is important to be familiar with the social and cultural context in which it occurs (Fromberg & Bergen, 2006, p. 19; Hughes, 2010, p. 44; Bergin & Bergin, 2012, p. 452).

Though children and childhoods are affected by the societies and cultures of which they are members, children do not simply internalize society and culture but actively contribute to cultural production and change (Corsaro, 2012, pp. 488-489). Thus they are influenced by their contexts (e.g. family, peer group, context of play, and society) and also influence them.

4.7.3. Socioeconomic Status in Development and Play

Socioeconomic status (SES) is a combined economic and sociological measure of an individual's or family's income, education, and occupation in relation to others. In general, a higher SES allows a family to have more resources to support their children's healthy development (Levine & Munsch, 2014, p. 13)[81].

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[81] https://en.wikipedia.org/wiki/Socioeconomic_status, accessed: 2.1.2019.

Socioeconomic status (SES) also modulates patterns or regularities in play expression. SES factors, like low income or poverty, may impose limits on availability and accessibility of high-quality play environments and expensive toys and equipment. This may influence and suffer the quality of children's play. When children lack experience with basic play materials (or adult modeling and encouragement), lower levels of play (i.e. exploration, functional play) may predominate over higher forms of play (i.e. constructive, socio-dramatic, and games with rules) (Fromberg & Bergen, 2006, p. 19).

SES affects the amount of play space, the range of choices available for children's play, and the quality of their play. Low-SES children tend to play in less elaborate ways compared with middle-SES children. For example, during pretense play they have shorter episodes, fewer different roles, less imaginative use of props, more aggression, and less discussion. According to Roskos (2000), lower-SES children have lower reading and writing skills, compared with higher-SES children (Bergin & Bergin, 2012, p. 451). "Scientists hypothesized that if low-SES children could be trained to play in more-advanced ways, they would develop better cognitive, language, and social skills" (Bergin & Bergin, 2012, p. 451).

Play should flourish for all children. Providing high-quality playing spaces (e.g. playgrounds) – that are accessible for all potential users (e.g. of different SES) — is a necessary response to support children's play, well-being and healthy development (Fromberg & Bergen, 2006, pp. 19-20; IPA World, 2016).

4.7.4. Individual Differences in Development and Play

Child development and play is influenced not only by the characteristics of the context that the child has grown up or lives in (e.g. cultural factors, ethnic background, and socioeconomic status) but also by individual differences such as age, gender, personality, and special needs (Fromberg & Bergen, 2006, p. 19; Levine & Munsch, 2014, p. 11). The influence of gender on children's play will be discussed in the following section.

4.8.   The Concept of Gender, Gender Segregation, and Gender-Typed Plays/Toys

By the age 3, when children have developed the necessary cognitive skills, they can identify gender in themselves and others (Fromberg & Bergen, 2006, p. 41; Hughes, 2010, p. 157). Starting

from the time of gender identification, gender differences in children's play appear and become increasingly complex (Fromberg & Bergen, 2006, p. 41).

Boy-girl differences in play have been found in research. Gender segregation can be seen from early childhood during play. It occurs when boys play with boys and girls play with girls (Meire, 2007; Bergin & Bergin, 2012, pp. 450-451).

A toy is seen as gender appropriate if children of one sex typically choose to play with it while children of the other sex do not or if adults in general agree that the toy is more suitable for children of one sex than the other (Figure 4-20) (Hughes, 2010, p. 160). Considering the index of gender, toys are categorized as (Hughes, 2010, p. 161 & p. 165):

1) Toys for boys (e.g. road racing sets, cars, trucks, trains, toy guns and weapons, workbenches and tools, walkie-talkies, and action figures).

2) Toys for girls (e.g. baby dolls, doll accessories, doll cradles and carriage, housekeeping and cooking toys like tea sets and toy ovens, and beauty kits).

3) Toys for both or gender-neutral play materials (e.g. art supplies like paints and crayons; musical toys; educational toys like books, puzzles, microscopes, Lego and building blocks, magnetic letters and numbers, and computers). Many toys on the market have been designed beyond stereotyped perceptions about their gender-typed suitability. For example, various dollhouses or workbenches on the market suit both girls and boys.

Figure 4-20: *Examples of Toys for Boys, for Girls, and for Both Genders.*

Source: *https://www.step2.com/p/deluxe-workshop; https://kidstoystalk.com/best-toy-workbench/;*

https://moderndesignnew.blogspot.com/2018/03/kitchen-playsets-for-girls.html;

https://www.playmobil.co.uk/aquarium/9060.html ;

https://www.oompa.com/blogs/oompa-minute/how-to-choose-a-dollhouse-for-kids ;

https://au.yougov.com/news/2017/07/03/gendered-children-toys/ ; https://www.lego.com/en-gb/product/hogwarts-great-hall-75954?cmp=AFC-AFFLIATEDE-22278-54264-267995-0&wgexpiry=1587366467&wgu=267995_54264_15795904671726_cdc6b6ef5c; accessed: 21.1.2020.

Elements that influence the timing and intensity of the process of gender identity and gender-typed play include a child's level of cognitive processing, socialization context, and environmental factors such as peers, parents, toys, and advertisements (Fromberg & Bergen, 2006, pp. 41-42). These factors will be described in the following paragraphs:

- **Child's Understanding and Preferences for Sex-typed Toys and Plays**

Research shows that a child's understanding of gender identity and gender categorization of toys (e.g. dolls are for girls and action figures are for boys) influences sex-differentiated play (Fromberg & Bergen, 2006, pp. 41-42). According to Freeman (2007), most 3-year-olds easily separate stereotypical female from male toys and know which toys their parents would and wouldn't approve of their playing with (Hughes, 2010, p. 159).

- **Parental Preferences for Sex-typed Toys/Plays**

Parenting practices and the provision of sex-typed toys may influence children's preferences for gender-typed play (e.g. footballs for boys) (Fromberg & Bergen, 2006, p. 42). However, evidence shows that children themselves are *more* gender-typed than their parents in their toy preferences. In fact, in most situations, parents simply respond to children's innate gender differences, rather than causing them (Bergin & Bergin, 2012, p. 451; Hughes, 2010, p. 165).

- **Peer Group, Gender Segregation, and Preference for Sex-Typed Toys/Plays**

The presence of other children (e.g. peers and older children) and the choice of playmates is related to gender labeling and play preferences (Fromberg & Bergen, 2006, p. 42). The peer group may even have *more powerful* role in sustaining gender differences in play than parents. For example, children (especially boys) who cross boundaries and play in opposite sex ways, are ignored and rejected by their peer group (Bergin & Bergin, 2012, p. 451).

In the peer group, both selection and socialization are at work. In kindergarten and school, children are exposed to both boy and girl play patterns, but they select playmates who have similar play patterns to themselves. Over time, as children socialize one another within their same-sex play groups, gender differences become more noticeable in play patterns (Bergin & Bergin, 2012, p. 451).

- **Toy Advertisements and Preferences for Sex-typed Toys/Plays**

Television advertising can send powerful messages about the gender appropriateness of toys, though the gender appropriateness of a toy is rarely directly stated. When members of one sex exclusively are shown playing with a toy in a commercial, it seems obvious that the toy is being suggested specifically for children of that sex. For example, consider the first two pictures in Figure 4-20, in which a boy plays with Workshop Playset and a girl plays with Baker's Kitchen Playset (Hughes, 2010, p. 166).

According to Pike and Jennings (2005), when children are exposed to commercials in which only boys or only girls are playing with a toy, they are more likely to define that toy as for girls or for boys but not for both (Hughes, 2010, p. 166).

4.8.1. Playing Styles among Boys and Girls

Boys' and girls' different styles in playing have been found in much research on play (Table 4-6) (Bergin & Bergin, 2012, p. 451; Meire, 2007). Table 4-6, presents the main gender-different styles in playing and compares boys' and girls' playing styles (Meire, 2007; Fromberg & Bergen, 2006, p. 42).

Table 4-6: *Main Gendered-different Styles in Playing (Comparing Boys' and Girls' Playing Styles).*

Girls' Play Styles	Boys' Play Styles
1. Orderly and process oriented play – generally less energetic and quieter.	1. Action oriented play – generally rough and loud.
2. More verbal.	2. Less verbal.
3. More likely to play indoors and near adults or in closed spaces.	3. Boys often dominate most of the (play) space and use large areas for their games like soccer.
4. Girls like to spend one-on-one time with kids.	4. Boys like to play as part of a bigger group.
5. Less likely to take risks.	5. More likely to take risks.
6. Interested in more cooperative sports, less cooperative sport involving mutual support.	6. Interested in more competitive and rough-and-tumble play.
7. Drawn to stereotypically feminine toys such as dolls and domestic toys.	7. Drawn to more stereotypically masculine toys such as trucks and cars.
8. Tend to prefer social play such as role play and make-believe games.	8. Tend to prefer activities that take advantage of their mechanical and spatial skills.
9. Seek out connection (girls' friendships are more intimate).	9. Seek power.
10. Involve in a larger variety of play activities, but usually for shorter periods.	10. Involve in less variety of play activities, but usually for longer periods.

Source: *https://www.beafunmum.com/2011/09/do-boys-and-girls-play-differently/, accessed: 22.03.2020; (Meire, 2007; Bergin & Bergin, 2012, p. 442 & p. 450; Fromberg & Bergen, 2006, p. 19; Carlson & Taylor, 2005).*

In comparison with girls' playing styles, boys' playing styles are more physical, active, and competitive. Boys' play involves more dominance, competition, conflict, and risk-taking with themes of danger, destruction, and heroism. They involve more in rough-and-tumble play than girls. Girls participate more in sedentary games and socializing activities, and their playing is more cooperative. Girls play games that involve verbal interaction, cooperation, discussion, support, and encouragement with themes oriented around safety, domestic or romantic scripts like house play. Preschool girls typically play with only two or three others. They are more likely to play indoors and near adults in comparison with boys. Girls usually prefer to play in smaller groups but

with deeper intimacy with peers (Meire, 2007; Bergin & Bergin, 2012, p. 442 & p. 450; Fromberg & Bergen, 2006, p. 19).

Research on 7 to 8 year-old children by Blatchford et al. (2003), showed that the primary purpose for which boys gather to play is activity, whereas girls are more likely to come together to socialize. Other research showed that girls have a larger variety of play activities than boys; they usually show an interest in a greater variety of toys and play materials in comparison with boys; but usually girls play for shorter periods (Meire, 2007; Bergin & Bergin, 2012, p. 450; Pellegrini et al., 2004, p. 109; Fromberg & Bergen, 2006, p. 19).

In general, boys are more likely to engage in rough-and-tumble play, in dramatic play with themes that are active or adventuresome with pretend violence or aggression, and in various sports or organized athletic team activities (Fromberg & Bergen, 2006, p. 19).

Some play activities are not specifically gendered, like playing tag, building a hut, cycling, roller-skating, counting-out rhymes, water games, chasing, hide-and-seek, and racing (Meire, 2007).

4.8.2. Boys' and Girls' Playing Styles in Different Types of Play

Children's developing gender identity is related to the developmental sequence of their play behaviors. These gender differences in playing style can be seen in the performance of different types of play like functional play, rough-and-tumble play, constructive play, dramatic play, and game with rules (Table 4-7).

Table 4-7: *Comparing Boys' and Girls' Playing Styles in Different Types of Play.*

Type of Play	Playing Styles and Behaviors Influenced by Gender In Different Types of Play
Functional Play	Functional play does not obviously show the influence of children's developing gender identity (Fromberg & Bergen, 2006, p. 42).
Rough-and-tumble Play	Boys engage in considerably more rough-and-tumble play than girls (more in wrestling and in chasing) (Hughes, 2010, p. 175).
Constructive Play	Boys are more likely to engage in constructive play, though that may be the result of type of toys available to boys and girls in play settings (Fromberg & Bergen, 2006, p. 42).
Dramatic Play (also called Pretend Play, Make-believe Play, Role Play, or Fantasy Play)	Girls engage in fantasy play more often than boys. The themes and episodes of girl's fantasy play last longer and are more complex and better developed than those of boys (Hughes, 2010, p. 170). In addition, gender differences in make-believe play can be found in: (a) the props used, (b) the roles assumed, and (c) the themes enacted (Hughes, 2010, p. 170). Boys and girls take very different roles in dramatic play: boys' pretend play often involves danger, combat, and heroic themes, whereas girls' pretend play often involves social, domestic, and familial themes (Fromberg & Bergen, 2006, p. 42; Hughes, 2010, p. 170). Referring to Blatchford et al. (2003), through the observation of children aged 7 to 8, it was found that fantasy play for boys was often a site for rough and tumble play and physical activity inspired by action computer games, films and TV cartoons. Girls' fantasy play was more sedentary and involving themes of family or animals (Meire, 2007).
Games-with-rules	Girl's games may be portrayed as having less complex rules (e.g. in hopscotch or jump rope), being less competitive, and occurring in smaller groups in comparison with boys' games, but ethnographic research has shown a different reality. Referring to Evaldsson (1998), in a Swedish after-school center, girls aged 6 to 10 years routinely played marble games, often together with boys. The girls negotiated complex rules, argued about the outcome of games, collaborated in large groups and displayed competitive skills no less than boys. Moreover, boys also

| | participated in a girls' game like jumping rope, even though this was mostly initiated by girls (Meire, 2007, p. 24). |

Source: *Data adopted from: (Fromberg & Bergen, 2006, p. 42; Hughes, 2010, p. 170 & p. 175; Meire, 2007; Bergin & Bergin, 2012, p. 456).*

4.9. Summary

As stated in the literature, the concept of playground and play are inextricably interrelated. The quality of play is fundamentally shaped by the environment it happens in, as in a playground. Outdoor playgrounds are important spaces where children play. Thoughtful design and arrangement of playing space and its materials can encourage children's participation in play. Understanding the features of play, children's development, and different types of play, is valuable in order to develop a high-quality play environment that reinforces development and meets children's needs, wants and wishes.

Through the free, open, boundless, and self-controlled activity of play, children discover the differences between themselves, others and the world in which they live. Play is undertaken for its own sake, is pleasurable, and is chosen freely. Its enjoyment has three main sources: the feeling of control and power, sharing, and bodily sensation. Play has no purpose outside its own context. Playing opens up worlds of possibilities and experiences that are recognized as mysterious and magical experiences by children. The intersubjective space of play is temporary and voluntary.

Through play, children interact with objects, environment, and other children. This enables them to learn and develop the skills necessary for adulthood. It enhances their ability to function in the culture and society in which they are born and live. It develops children's physical, social, cognitive and emotional strength and skills. The domains of development include physical, socio-emotional, cognitive, and language development. As children grow and go through different developmental stages, their ways of playing also evolve. Child development and play is influenced not only by the characteristics of the context that the child has grown up or lives in (e.g. socioeconomic status: SES) but also by individual differences such as age, gender, personality, and especial needs. The

concept of gender, sex-differentiated toys or plays, and boys' and girls' different styles in playing (i.e. boy-girl differences in play) were discussed in detail.

A quality playground should provide playground settings and equipment that offer play opportunities for both genders, boys and girls, considering their playing styles. It should also support a wide range of play types suitable for children aged 4-8. Providing a wide range of affordances in the playground lets the child have a selection of challenges and fulfills its needs, wants, and wishes at a particular time.

Furthermore, a quality child-friendly playground should contribute to healthy child development in different domains (physical, socio-emotional, cognitive, and language development). Contextual (e.g. sociocultural and environmental) aspects should also be considered in designing a new playground. Chapters 6 & 7 will discuss contextual parameters to an example, the Nordbahntrasse, in Wuppertal, Germany.

Chapter 5

Review of Literature on Playground Requirements.

Expert Domain – – – – – – – **Characteristics of a High-Quality Playground.**

Context (Germany) – – – – – – **Sociocultural Factors and Parenting/Supervision Style in Germany.**
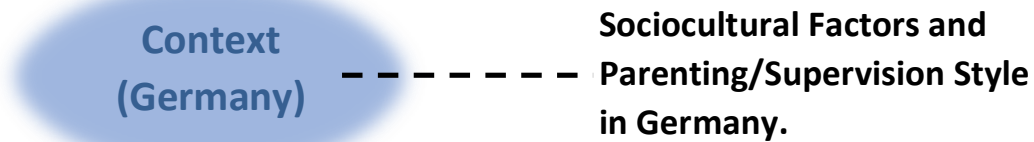
5.1. Introduction

As stated in the previous chapter, play is important for children's well-being and healthy development. The right to play is central to children's everyday life (IPA World, 2014; IPA World, 2016; Talay et al., 2010). For this purpose, it is important to offer high-quality public playgrounds. Successful playground design requires consideration of various indicators, standards, and qualities.

This chapter will first describe children's right to play and the role of the playground in supporting it. Then it will review the literature on some of the qualities and features that need to be considered and understood for developing a *quality* playground. These qualities and features include: affordance, natural elements, loose parts and fluctuating environments, universal playspace, safety (avoiding hazards and possibility of taking risks), risk vs. hazard, parenting and supervision style in the playground, sociocultural factors in Germany and German parenting style, age- and gender-appropriate playground design, selecting a site to create a playground, and playground layout.

This chapter also reviews literature on playground equipment and settings, including swings, slides, climbing equipment, merry-go-rounds and spinners, seesaws, combined play structures, and abstract shapes and undefined spaces; for each range of playground equipment some pictures of available examples are presented.

The chapter also covers literature on related subjects such as surfacing and paving, color in developing a playground, materials, and place identity.

5.2. Children's Right to Play

Article 31 – General Comment No. 17 (2013) of the United Nations Convention on the Rights of the Child (UNCRC) (1990) – was a welcome reminder of the right of children to rest, leisure, play, recreational activities, cultural life and the arts by IPA World (International Play Association for Promoting the Child's Right to Play). These conditions and factors are (IPA World, 2014; IPA World, 2016):

- Freedom from stress, social exclusion, prejudice or discrimination.

- An environment secure from social harm and violence, and sufficiently free from pollution, traffic and other hazards that impede free and safe movement.

- Availability of rest and leisure time, as well as space that is free from adult control and management.

- Space to play outdoors in diverse and challenging physical environments, with access to supportive adults, when it is necessary.

- Opportunities to experience, interact with, and play in natural environments and the animal world.

- Opportunities to invest in their own space and time in order to create and transform their world, using their imagination and languages.

- Opportunities to explore and understand the cultural and artistic heritage of their community, and to participate in creating and shaping their community.

- Opportunities to participate with other children in games, sports and other recreational activities, supported by trained facilitators or coaches where it is necessary.

- Recognition by parents, teachers and society as a whole of the value and legitimacy of the rights provided in Article 31.

The focus of IPA is on children's right to play which is the central feature of children's everyday life. Play has a critical role in children's well-being, healthy development and survival. According to IPA, it is important to promote the right of all children and young people to have enough time, freedom and space for playing in their own way (IPA World, 2014; IPA World, 2016; Talay et al., 2010).

5.3. The Role of the Play Environment in Supporting Children's Play and Development

Promoting the child's right to play is fundamental and critical for both inclusive urbanization and child-centered development. The lack of play (regarding time, spaces, choices, and quality) for low-SES children impacts on their lives (IPA World, 2016).

Also the lack of sensitivity to children's needs and wants in the planning, design and management of playing spaces results in play deficits (IPA World, 2016). Thus, it is important to be sensitive to children's needs and wants in developing a public playground by actively involving children in the

research/design process. That is why the approach of this study is based on the co-creation mindset (i.e. participatory design approach), which is a form of UCD approach. This will be described further in Chapters 8 and 9.

According to Brooker and Woodhead (2012), the quality of play is fundamentally shaped by the environments in which it happens. In other words, children's play and learning, children's close relationships, and their social interactions depend on the quality of spaces they inhabit and use (IPA World, 2016; Brooker & Woodhead, 2012, p. 1).

5.3.1. Where and when does play happen? (Playing Space and Time of Play)

To support children's right to play and their healthy development, it is important to provide play spaces either in natural or urban environments. Both natural and built types of play environment can contribute to children's play and development (see Section 3.3.3. in Chapter 3) (IPA World, 2016; Brooker, 2012, p. 42).

Children use a variety of spaces for meeting, being with friends, and playing. From an early age, children spend much time outdoors and interact with their peers, neighbors, and physical environment. The spaces where children play can take many forms such as parks, playgrounds, school playgrounds, public open spaces, streets, and green spaces. However, a list of places provided for play does not adequately reflect the range of places in which children, through choice or necessity, actually play (Lester & Maudsley, 2006, p. 23; IPA World, 2016; Brooker, 2012, p. 42; Moran, 2012, p. 38). There are places that are not in the list of designated places (by adults) for play but children actually play in them such as:

- spaces temporarily claimed by children as play spaces;
- spaces disregarded by adults or authorities;
- spaces between buildings and settlements.

As stated in Chapter 3, in comparison with places made by adults for children, the spaces that children carve out for themselves are more informal and chaotic (see Section 3.6.1. in Chapter 3). Children from low socioeconomic status (SES)[82] backgrounds are more likely to play on the street (Lester & Maudsley, 2006, pp. 23-24; IPA World, 2016). Children can and will play in most places,

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[82] Children from low socioeconomic status backgrounds refers to children raised in low income communities and families, where there are few alternatives.

but they play more in environments that offer more opportunities (i.e. affordances) for various types of play (IPA World, 2014; IPA World, 2016).

A quality child-centered playground is accessible to all of its potential users (e.g. to children with different abilities, from different ethnic backgrounds, and of different socioeconomic status). Though the creation of suitable environments for children's play by adults can increase the quality of play, play will actually take place whenever and wherever opportunities arise (IPA World, 2016).

5.4. Definition of Play and Outdoor Play (in Playgrounds)

The definition of play applied in this thesis (i.e. playing in playgrounds) is that of the International Association for the Child's Right to Play (IPA)[83] (Bhattacharya et al., 2003, p. 5):

- PLAY, is vital to develop the potential of all children.
- PLAY is communication and expression, combining thought and action; it gives satisfaction and a feeling of achievement.
- PLAY is instinctive, voluntary, and spontaneous.
- PLAY helps children develop physically, mentally, emotionally and socially.
- PLAY is a means of learning to live, not a mere pastime.

The above definition can directly describe play in playgrounds:

If we want children: 1) to know what their bodies can really do; 2) to have strong imaginations and creative minds; and 3) to get along with one another, it is crucial that they are given the opportunity for as much good, fulfilling play as possible (Cummins & Masiulanis, 2017, p. 3).

Since children congregate in playgrounds, play is a form of communication between them. Children play together to explore the equipment and make up their own games (i.e. their intersubjective space of play) (Bhattacharya et al., 2003, p. 5).

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[83] http://ipaworld.org/childs-right-to-play/the-childs-right-to-play/, accessed: 1.1.2017.

In various situations while playing in playgrounds, children acquire a sense of accomplishment like reaching the top of a piece of playground equipment or going down a slide (Bhattacharya et al., 2003, p. 5).

In a playground, children are free to choose the equipment that has been designed for them whenever they want. They can perform their own activities and do free play (Bhattacharya et al., 2003, p. 5). During freely chosen outdoor play, children learn and develop many skills necessary for adult life, including social competence, problem solving, creative thinking, and safety skills (Clements, 2004).

Much research has emphasized the value and important role of outdoor play in children's healthy development (Shi, 2017). In outdoor environment, children have been seen as inherently more active. Outdoor play contributes to active play which is a domain of physical activity and development (Aggio et al., 2017). Between the ages of 3 and 12, the child's body experiences its greatest physical growth, as is demonstrated by the child's urge to run, climb, and jump in outdoor spaces (Clements, 2004).

Through outdoor play, children can experiment and learn many skills to fulfill the fundamental requirements of daily life that are necessary for their adulthood. Outdoor play also contributes to children's psychological health, their social interactions and social networks (Shi, 2017; Clements, 2004). Playgrounds as important outdoor spaces should be accessible and carefully planned and designed to meet the needs of all children to play, spend their free time and reinforce their healthy development (Talay et al., 2010, p. 848).

During outdoor play, children develop an appreciation for the environment, participate in imaginative play, develop initiative, and acquire an understanding of basic academic concepts such as investigating the property of objects and natural elements, and learn how to use simple tools to accomplish a task (Clements, 2004).

Outdoor play also offers children opportunities (Clements, 2004; Bento & Dias, 2017, pp. 157-158):

- to explore their community
- to be exposed to sunlight, natural elements, and open air
- to enjoy sensory experiences with dirt, water, sand, and mud

- to find or create their own places for play

- to collect objects and develop hobbies

- to increase their liking for physical activity

- to experience natural elements – open-ended materials that can respond to children's imagination and needs.

Children's outdoor play is less likely to be under the control of adults, and is noisier and messier than children's play in indoor environments; it also provides children, with a greater and broader range of exploration and experimentation in comparison with playing indoors (Hughes, 2010, p. 123).

To protect children's rights, promote their play and reinforce their development, it is important to provide all children and young people with time, freedom and space to play in their own way (IPA World, 2014; IPA World, 2016).

5.5. How to Develop a Quality Child-friendly Play Environment (Playground)

A high-quality play environment is a powerful tool for supporting and enhancing children's play and their healthy development (Doctoroff, 2001, p. 105).

The relationship between play and place works in a number of different ways. Thoughtful design, arrangement, enrichment or modifications of play space and its equipment contribute to opportunities of play, quality of play and children's behavior (e.g. participation in play, organization and utilization of materials, engagement of peers, persistence in play, and learning with less effort and less support) (IPA World, 2016; Doctoroff, 2001, p. 105).

In the following some of the necessary considerations and qualities of a high-quality playground will be described and discussed.

5.5.1. Affordance

As stated in 5.3.1., children play more in environments that offer more opportunities for various types of play (IPA World, 2014; IPA World, 2016). Since children have different play needs throughout childhood, the environment should offer various stimuli to children's play (IPA World, 2014). A rich play environment includes natural elements, opportunities for risk and challenge,

places to express emotions, stimulus to evoke the senses, chances for social interactions, and various interesting spaces to do what one wants (IPA World, 2014).

According to Gibson (1982), the more responsive affordances (i.e. possibilities for action and play) that are available in a child's environment, the more likely it is to have the selection of challenges and opportunities that fits its needs at a particular time (IPA World, 2016).

The theory of affordance was developed by Gibson (1977 & 1979). The term 'affordance' is often used to describe the possibilities for action that a physical object or space offers to an individual. According to Kyttä (2002), affordances include properties from both the environment and the acting individual. Affordances are always unique and different for each individual or each specific group of people (Lester & Maudsley, 2006, p. 26). Thus, a feature in an outdoor environment may have multiple uses based on children's perceptions; for example, a rock could be perceived as something to throw or to climb over (Flannigan & Dietze, 2017, p. 53; Knight, 2013, p. 22). The interaction between object and individual is mediated by the features (e.g. sociocultural and physical aspects) of the space in which the encounter takes place. Sociocultural aspects include previous experiences, cultural norms, and expectations. Figure 5-1, presents a model of such a space (Knight, 2013, p. 22 & p. 24).
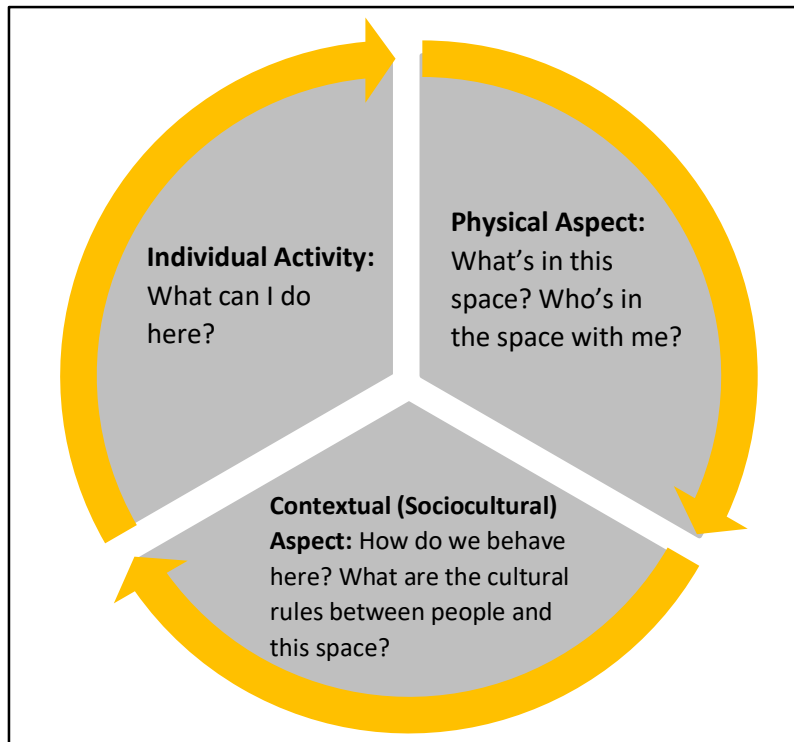
Figure 5-1: *Individual, physical, and contextual aspects of a space.*

Source: *(Knight, 2013, p. 22).*

Through observing children's use of place, Heft (1988) produced an 'affordance taxonomy' of their environments (Table 5-1).

Table 5-1: *Physical Environment and Taxonomy of Affordances.*

Physical Quality of Environment	Affordances (i.e. possibilities for action)
Flat, relatively smooth surfaces	Cycling, running, sports and games (e.g. skating, playing hopscotch, skipping, playing football, playing ice-hockey, playing tennis or badminton)
Relatively smooth slopes	Rolling down on wheels (coasting down) like skateboarding
Graspable, detached objects	Throwing, digging, building, playing with animals
Attached objects	Jumping over, jumping up to and down from, balancing along

Non-rigid attached objects	Swinging and hanging, climbing up
Climbable features	Climbing, looking out from
Shelter	Hiding, being in secret places, quiet and solitude
Moldable material (dirt, sand, snow)	Building, shaping
Water	Swimming, fishing, general water play

Source: *(Lester & Maudsley, 2006, pp. 26-27; Kyttä, 2002, p. 112).*

As well as the physical qualities and their affordances in Heft's taxonomy, Kyttä presents elements associated with the affordance of "sociality"; for example, some features (related to children's mobility) provide opportunity for social play, role playing, games of chase, opportunity to be loud and noisy, etc. (Lester & Maudsley, 2006, p. 27, p. 97, & p. 98).

5.5.2. Natural Elements: the Values of Children's Play in Natural Settings

Forest (1992) developed the concept of 'playscape'. He argues that natural features are important qualities of children's preferred play spaces (Lester & Maudsley, 2006, p. 27). Children's play in natural settings has a wide range of values (Lester & Maudsley, 2006, p. 4). Nature and exploration are a well-matched pair that highlight two strong themes in contemporary design for play. Natural playgrounds have become a backlash against manufactured equipment. Play patrons are seeking solutions that offer opportunities for exploration and experimentation and have been shown to occupy children more successfully than static equipment. Recently many parents and administrators have begun to understand natural playgrounds as a practical solution (Solomon, 2014, p. 122), e.g. forest schools and kindergartens that support children's play and healthy development in a natural environment[84] [85] (see Section 7.4.1.2., in Chapter 7) (Solomon, 2014, p. 123).

Nature and natural materials such as environments that include trees, bushes, streams, rock, sand, water, and mud, offer an affordable way to challenge children with variability and

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[84] Forest Schools were developed in Scandinavia in the 1950s and then in the United Kingdom since the early 1990s.
[85] https://en.wikipedia.org/wiki/Forest_school_(learning_style), accessed: 03.03.2021.
https://en.wikipedia.org/wiki/Forest_kindergarten, accessed: 03.03.2021.

unpredictability (Solomon, 2014, p. 123; NCCA., 2009, p. 123; Nebelong, 2017, p. 106). Figure 5-2 presents the main values and benefits of natural settings and elements for children's play and development.

Figure 5-2: *The Values and Benefits of Natural Environments and Materials to Children's Play and Development.*

Source: *Prepared by the author; data adapted from: (Lester & Maudsley, 2006, pp. 4-5; Solomon, 2014, pp. 122-123; NCCA., 2009, p. 123; Nebelong, 2017, pp. 105-108; IPA World, 2016).*

5.5.3. Loose Parts and Fluctuating Environments

"The quality and depth of outdoor play experiences can be increased when loose parts are added to the outdoor environment" (Flannigan & Dietze, 2017, p. 54). According to Nicholson (1971), the term 'loose parts' refers to play objects and materials that are open-ended and manipulable. They are moveable (i.e. detached), graspable, non-dictated materials and objects that children can use in a variety of ways for interaction, exploration, discovery, and creativity. He asserts that children love to engage with a fluctuating physical environment that includes loose parts. For example, the seashore could be an ideal play environment because of its degree of disorder, the range of found components, variation of living and non-living objects, and constantly changing nature of the environment (Flannigan & Dietze, 2017, p. 53; Lester & Maudsley, 2006, p. 28). Some advantages of loose parts and fluctuating environments are (Flannigan & Dietze, 2017, pp. 53-54):

1) Loose parts offer children the freedom to develop their play experiences based on their own ideas and goals. Materials do not dictate types of play; the children themselves create play episodes based on past experiences, curiosity, creativity, and new ideas.

2) Loose parts offer children opportunities for unstructured play, which is not dominated or limited by adults and rules. Therefore, loose parts allow and encourage children to create their own play activities and evoke a sense of challenge and wonder.

3) Loose parts and a fluctuating outdoor environment create rich and diverse affordances for children. Since loose parts do not have a predetermined use or outcome, children can adapt environmental features, objects, and spaces – based on their perceptions of what they could be – in multiple ways.

4) Outdoor play environments with loose parts support children in having higher levels of engagement in their play than environments with more stationary equipment or materials with defined purposes.

5.5.4. Universal Playspace

A universal playspace is an accessible play environment that works for all children, irrespective of abilities and skills. Optimum universal playground design is capable of integrating children of all

abilities (Nebelong, 2017, p. 107; Bhattacharya et al., 2003, p. 1; see Chapter 5, Section 5.5.4., & Chapter 13, Section 13.2.3.1.).

Inclusive spaces benefit both disabled and non-disabled children. Enabling disabled children and their non-disabled peers and siblings to have access to and use play spaces together, contributes to social inclusion, community building and networking (Casey, 2012, p. 40; Nebelong, 2017, p. 107). Playspaces should therefore accommodate varying degrees of risk and challenge, enabling children to gauge the level of challenge they wish to encounter. This helps children develop their capacities and explore their limits (Casey, 2012, p. 40).

There is no single definition of inclusion. It is important to know that rather than focusing on making every element accessible to every child, access to satisfying play experience is key (Casey, 2012, p. 40). The criteria of accessibility should be considered in different qualities including physical access (enabling children to enter and move around), social access, access to activities and discussion, and access to information (see Chapter 2, Section 2.5.3. and Table 2-1) (Akkar Ercan, 2010, pp. 23-25; Casey, 2012, p. 40). Regarding the criterion of interest, an inclusive public playground should be playable and enjoyable for children. It means public playspace should support children's play in the ways they wish. Hence it is necessary to know the real needs, expectations and wishes of the potential users (children aged 4-8 years old) and also stakeholders (parents, grandparents and other accompanying adults) when designing public spaces for them (Casey, 2012, p. 40; Acar, 2013, p. 291). That is the reason that the approach of this study has been set based on co-creation mindset. The approach and methodology of this study will be described in Chapters 8, 9, 10, & 12.

5.5.5. Safety (Avoiding Hazards and Possibility of Taking Risks)

The factor of safety is really important to parents and supportive adults (e.g. teachers, grandparents, babysitters) who accompany children. According to Richard Dattner (1969) a safe playground frees parents and supportive adults from constant anxious attention to the children's activities and allows them to relax and enjoy their time in the playground too (Bhattacharya et al., 2003, p. 101).

As stated in Chapter 3 (see Section 3.6.2.), playgrounds reflect culture (Solomon, 2014, pp. 28-31), and the safety factor can also be considered in relation to the sociocultural context.

Safety issues in spaces with many and various activities like in a playground are complex and subject to many factors (Broto, 2012, p. 28). Playground safety can be considered under two aspects (Bhattacharya et al., 2003, p. 102):

- children and their guardians must be safe from external threats such as criminals and traffic.
- the children who use the playground space and equipment must be protected from injuries that might occur during play.

Sometimes safety requirements go too far and the child's real needs and wishes for play, and their healthy development are set aside by well-meaning adult intentions. These intentions may even cause more harm. Risk is a matter that needs to be considered in design of a quality playground (Nebelong, 2017, p. 106).

Many standardized playgrounds are problematic, because of their limitations. The standardization simplifies play and the child does not have to worry about its movements. For example, when the distance between all the rungs in a climbing net or a ladder is exactly the same, the child has no need to concentrate on where to put its feet. The ability to concentrate on estimating distance, height and risk requires a lot of practice, which enables the child to learn several skills for the future such as coping successfully with life and decision making (Nebelong, 2017, p. 106). In short, the focus on safety is really important but it should not lead the researcher/designer to forget about the meaning of the design and atmosphere of the playspace (Nebelong, 2017, p. 106).

5.5.5.1. Risk vs Hazard

According to Susan G. Solomon (2014), the concept of 'risk taking' by children is especially problematic in America (Solomon, 2014, p. 32). However, it is important to understand how risks and hazards differ. Activities like walking on unprotected rooftops or chasing a ball into a road with fast-moving traffic are considered hazards:

> Risk means a situation with an unclear outcome; nothing is predetermined. Making choices may be part of risk taking. Hazards, which are never acceptable, also have unclear conclusions but harbor the possibility of life-threatening dangers. Risk, which accepts the possibility of minor injuries, can be a valuable part of every childhood experience (Solomon, 2014, p. 32).

According to Mike Shooter[86], children and adolescents must naturally take risks as they explore the physical world and its emotional relationships (Solomon, 2014, p. 32). If we overprotect children and shelter them from all experience of risk, we protect them from real life learning (Nebelong, 2017, p. 106; Solomon, 2014, p. 32). During play sometimes children get dirty; sometimes they get scrapes and minor injuries; this is a natural part of childhood that teaches children how to take care of themselves, be aware of risks and estimate challenges (Nebelong, 2017, p. 106). Risk taking benefits maturation; lessons from risky experiences can be useful in unexpected situations in the future (Solomon, 2014, pp. 33-34).

5.5.6. Parenting and Supervision Styles in the Playground

Parents used to be on the sidelines of playgrounds but nowadays in many countries they are front and center, hovering over their children, especially young ones. There, the parents can watch every move and tail their children on the equipment (Solomon, 2014, pp. 19-20).

Hovering is especially apparent in the United States and the United Kingdom while in Norway and the Netherlands, just a small number of parents cling to their kids. As stated in Chapter 3 (see Section 3.6.2.2.) children in Japan grow more independent but as part of a society with shared responsibility. When children start school they are expected to cooperate with each other as equals. In this system, mutual help, mutual trust and concern for younger people are key. Japan even coined their own term: "monster parents" for those who cling to their children (Solomon, 2014, p. 19).

In the playground, the quality of the supervision depends on the supervisor's knowledge of safe play behavior. Playground designers should be aware of the type of supervision that is suitable and most probable for their playground (USCPSC[87], 2015, p. 7). Depending on the location and nature of the playground and its equipment, the supervisor could be paid professionals, paid seasonal workers, volunteers, or unpaid caregivers (e.g. parents of the children playing in the playground). Toddlers and preschool-age children require more attentive supervision than older children (USCPSC, 2015, p. 7).

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[86] The former president of the Royal College of Psychiatrists.
[87] U.S. Consumer Product Safety Commission

Parents and playground supervisors should know that not all the playground equipment is suitable for all children. Supervisors should look for posted signs that indicate the appropriate age of the users of each piece of play equipment. They should lead children to the equipment that is appropriate for their age [88] (USCPSC, 2015, p. 7).

Children's freedom in playing is often restricted by the presence of adult. Adults legitimize their territorial control by referring to safety. Reducing adult supervision by thoughtful practical design of the play space and settings can give children more freedom in their play and stimulate interaction between children of different ages (Meire, 2007).

5.5.7. Sociocultural Factors and Parenting/Supervision Style in Germany

The sociocultural factors of the context – e.g. parenting and supervision behaviors and styles – should be considered in developing outdoor public playgrounds and other spaces. The design of such spaces should both: 1) reflect existing cultural factors and 2) promote sociocultural values and fill in gaps. The following discussion relates specifically to Germany:

1. Raising Independent Children

Raising independent babies/children can be seen in most parenting behaviors in Germany. According to German pedagogical professor Dieter Spanhel, "Raising a self-reliant child is a process that begins at birth and continues throughout the child's entire upbringing" (Zaske, 2018, pp. 48-49). It is not unusual in Germany that parents actively encourage even babies to be comfortable by themselves (Zaske, 2018, p. 46).

2. Giving Children the Freedom to Move

As Zaske notes in her book *Achtung Baby* (2018), many parents in Germany allow their children to walk and bike to school on their own by first grade (around age 6). Parents are expected to teach their children the way from home to school. In Berlin, primary schools have a specific curriculum item "traffic and mobility education". Children learn from their parents and teachers how to navigate the streets (Zaske, 2018, pp. 116-117)[89].

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[88] https://www.playlsi.com/globalassets/documents/playguide-bulletin-1--age-appropriateness.pdf, accessed: 17.02.2020.

[89] https://mom.com/momlife/217564-things-american-parents-can-learn-german-parents/, accessed: 29.02.2020.

In Germany, parents are not expected to have their eyes on their children 24 hours a day. If an adult is watching over the child's every movement and constantly directing it, the child doesn't learn as well as when it can explore on its own. In Germany, teaching self-reliance to children is a big priority, since self-reliant kids become self-reliant adults. Figure 6-13 in Chapter 6 shows a number of children playing independently in a parkour park in Wuppertal (Zaske, 2018, pp. 122-123)[90].

In a multicountry survey on children's independent mobility conducted by PSI in 2015, Germany ranked highest out of sixteen countries in the practice of letting children take public buses by themselves. Overall in terms of children's freedom to move independently, Germany was ranked second, only after Finland, where children as young as seven walk and bike alone (Zaske, 2018, p. 122).

3. No Bad Weather: Kids are always be dressed appropriately (for fresh air in open environments)

In Europe, the importance of fresh air has deep roots. Adults make sure that children go outside every day for fresh air, no matter the season. There's a German saying that can translate as "There's no such thing as bad weather, only unsuitable clothing"[91] (Zaske, 2018, p. 102). In Germany, children are almost always dressed properly considering the weather. Temperature rarely prevents German children from going outside, even when it is cold, rainy or snowy (Zaske, 2018, p. 103)[92].

4. Germans' Free Nature and Free Body Culture[93]

According to Zaske, German parents give generally considerable freedom to their children. Though this approach is difficult for them, they think it is necessary for their kids (Zaske, 2018, pp. 107-108). By and large, German culture encourages children to feel free rather than afraid in

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[90] https://www.bigcitymoms.com/parenting-articles/tried-parenting-like-german-happened/, accessed: 21.02.2020.
[91] In German: *"Es gibt kein schlechtes Wetter, es gibt nur falsche Kleidung"*.
[92] https://www.thepiripirilexicon.com/2014/01/5-playground-rules-german-style.html?m=1, accessed: 19.02.2020.
[93] In German: Freikörperkultur (FKK)

outdoor public environments. In summer, many small children run around freely and naked in playgrounds that offer opportunities for water play (Zaske, 2018, p. 108).

Generally, in Germany, nudity in public is more accepted than it is in many countries like the USA. German *Freikörperkultur* (FKK) is a movement that translates as "free body culture" and endorses a naturist approach to sports and community living. For people of this mindset, behind free body culture is the joy of experiencing nature (Zaske, 2018, p. 109)[94].

5. Having an interest in outdoor space

Germans love outdoor and natural environments; the big focus for their vacations is going to the beach, going to the mountains, or into the countryside (Zaske, 2018, p. 102 & p. 109).

In Germany, many restaurants and cafés keep their outside seating open and leave blankets out for the customers who want to eat outside[95] even when it is chilly. Germans also celebrate Christmas outside at open-air fairs called 'Christmas markets' (in German: *Weihnachtsmärkte*)[96] that are usually set in public squares.

Most parents and families use playgrounds as a meeting place to get together with their friends[97]. The value that Germans place on open spaces is reflected in the sheer number of outside places in German cities. For example, a big city like Berlin has about 1850 public playgrounds for children (Zaske, 2018, p. 103)[98] [99].

6. Appreciating Freedom to Play: Letting Kids Play on Their Own, Take Risks, and Experience Self-testing Danger

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[94] https://en.wikipedia.org/wiki/Freik%C3%B6rperkultur, accessed: 29.02.2020.
[95] 'Outside' in German: 'draussen'.
[96] In English: Christmas Markets.
[97] https://www.thepiripirilexicon.com/2014/01/5-playground-rules-german-style.html?m=1, accessed: 19.02.2020.
[98] https://theculturetrip.com/europe/germany/articles/the-top-8-childrens-playgrounds-in-berlin/, accessed: 19.02.2020.
[99] https://www.berlin.de/senuvk/umwelt/stadtgruen/kinderspielplaetze/index_en.shtml, accessed: 19.02.2020.

In Germany, it's absolutely normal and expected to let children play in playgrounds on their own without their parents (Zaske, 2018, p. 126)[100].

According to Peter Gray, a research psychologist at Boston College, the evolutionary purpose of play is to allow children to practice controlling their own behavior, solving their own problems, and planning and carrying out a plan. This approach lets children practice being an adult. According to him, when adults are around, children are not in charge of their own activities, since there is an adult there either telling them what to do, solving their problems, or advising them (Zaske, 2018, pp. 126-127).

As Zaske has found, in Germany most kids are introduced to fire, tools, and many other "dangerous" things very early. It is important to teach children to be aware of dangers without terrifying them; children get prepared to handle dangers on their own. The design of playgrounds should offer interesting opportunities to take risks and enjoy new experiences, but they should be safe enough not to cause hazards. It is important to let children self-test their limits and develop their creativity and skills. In such a playground, there might be a few falls but without real hazards or serious danger (Zaske, 2018, p. 123 & pp. 129-134)[101].

7. Helping Children Stand Up for Themselves and Learn to Say 'No'

According to Becker, it is crucial to help children learn to stand up for themselves, even against their parents. German parents are encouraged to teach their child to say 'no' (e.g. to the touching when they're uncomfortable about receiving a physical affection even from their own parents). In German-style parenting "children belong first and foremost to themselves". If parents want to raise kids who will someday be self-reliant adults, then it's important to let go of the "culture of control" (Zaske, 2018, p. 123)[102].

8. Allowing Kids to Solve Their Own Conflicts; Giving Them Rules but Letting Them Go Off on Their Own

[100] https://mom.com/momlife/217564-things-american-parents-can-learn-german-parents/, accessed: 29.02.2020.
[101] https://www.bigcitymoms.com/parenting-articles/tried-parenting-like-german-happened/, accessed: 01.03.2020.
[102] https://mom.com/momlife/217564-things-american-parents-can-learn-german-parents, accessed: 02.03.2020.

Generally in Germany teachers and parents set a few rules but largely allow kids to set their own. The thinking is that children are the best ones to enforce their own rules and solve conflicts. Kids can learn best from each other what is socially acceptable (e.g. they can learn from each other in the kindergarten or playground). In kindergartens, teachers explain to kids the consequences of their actions and then let them decide the next course of action[103].

9. Letting Kids Play on Their Own (Not Interrupting Children while Playing)

According to Zaske, it's absolutely normal and expected in Germany to let kids play on their own. Parents should not interrupt children when they're already in the middle of play. Obviously parents' interaction is fun and good for the parent-child relationship, but babies also need time to explore on their own and get involved in their own play without parental interference[104] [105].

10. Culture of Observation on Children, Talking to Them, and Democratic Behavior

Generally, in Germany parents give enough freedom to children to play on their own, though normally lots of observation goes on. For example, when kids play freely on the monkey bars or climb on huge and high play equipment on their own, parents watch them from a distance. This is a great opportunity for children to interact and learn social skills from each other[106]. Younger children necessarily need closer support and observation from adults.

In German kindergartens, teachers do not usually force children to play with each other or to get along if they don't want to (Zaske, 2018, p. 79). Also, they never punish children (corporal punishment) (Zaske, 2018, p. 79)[107]. In the German style of parenting, parents are encouraged to focus on talking to their children when they do something wrong. In this situation, it is important

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[103] https://mom.com/momlife/217564-things-american-parents-can-learn-german-parents, accessed: 02.03.2020.
[104] https://www.bigcitymoms.com/parenting-articles/tried-parenting-like-german-happened/, accessed: 02.03.2020.
[105] https://mom.com/momlife/217564-things-american-parents-can-learn-german-parents/, accessed: 29.02.2020.
[106] https://www.mamamia.com.au/what-is-german-parenting/, accessed: 04.03.2020.
[107] https://www.dw.com/en/nearly-half-of-german-parents-hit-their-children/a-15806121, accessed: 04.03.2020.

to take time to talk, to explain, and often to tell the child "how would you feel if that was done to you?" to practice empathy[108].

Children learn social behavior best from each other and influence each other. They impose strong consequences on their peers who do not behave well. For example they say, "I am not going to play with you". This reaction from peers/playmates can change or modify the unacceptable behavior of a child (Zaske, 2018, p. 79)[109].

5.5.8. Age and Gender Appropriate Design of Playground

The design of an age-appropriate playground should accommodate the developmental specifics of each relevant age group. Gender differences in playing style should also be considered in designing a child-friendly playground (see Chapter 4, Section 4.8.1.).

5.5.8.1. Age Groups and Play Habits

As stated in Chapter 4, as children grow and go through different developmental stages, their ways of playing evolves. Children's growth stages (age groups from birth to age 8) and play habits (especially in playgrounds) are broadly described in Table 5-2.

Table 5-2: *Children's Growth Stages (Age Groups) and their Play Behaviors and Habits (Especially in Playgrounds).*

Age Group	Play Behaviors and Habits (Especially in Playgrounds)
0-3 years	▪ acquire formative experiences ▪ learn to control their own movement ▪ usually play alone and tend to experiment with their senses ▪ play in/with sand, clay, water, swings and slides (the last two with the help of an adult).

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[108] https://www.mamamia.com.au/what-is-german-parenting/, accessed: 04.03.2020.

[109] https://www.mamamia.com.au/what-is-german-parenting/, accessed: 06.03.2020.

3-6 years	▪ social awareness begins and children usually play in groups, fostering interpersonal relationships and sociability ▪ this age group enjoys activities which represent something else, e.g. they play with abstract elements as well as with swings, slides, movable equipment, etc.
6-8 years	▪ children gravitate toward physical activities which involve movement and action, developing organizational and physical skills ▪ discover, test, and develop dexterity with relatively complex structures (like climbing nets) that call upon different motor responses.
8-10 years, and upward	▪ children group together without adult supervision or interference from younger children ▪ play structured games with objective rules in groups or teams ▪ also like to demonstrate powers of balance and coordination in more complex climbing equipment.

Source: *Data adopted from: (Broto, 2012, p. 6).*

Table 4-7 in Chapter 4 presents the main gender-differentiated styles of playing to be considered in designing a playground that aims to meet the needs of both genders.

5.5.9. What do Children Play in Playgrounds?

Different types of children's games were described in detail in Chapter 4; these concepts can be applied in designing play settings and developing a child-friendly playground.

In general, children's activities and types of play in playgrounds can be divided into five groups (Broto, 2012, p. 7):

1) keeping active: physical games

2) getting along: social games

3) imagining: creative, manipulative, and constructive games

4) experimenting: sensorial games

5) taking a break or playing in peace and quiet.

1) Keeping Active: Physical Games

Highly physical plays that include activities like jumping, running, cycling, crawling, climbing or sliding often require nothing more than a good safe space equipped with suitable protection against bumps and falls. For example, the traditional game of "tag" is a type of physical game (Figure 5-3). Nonetheless, it is always advisable to provide types of play equipment that offer a

range of possibilities for enjoyable interaction and dynamic games (Figure 5-4) (Broto, 2012, p. 7).

Figure 5-3: *Physical Game, Game of "Tag".*

Source: *(Broto, 2012, p. 7).*

Figure 5-4: *Examples of Play Equipment that Offer Opportunities (i.e. Affordances) for Physical Games. Name of the Playground: The Giant Spider and the Mushroom. Place: Hilleroed. Design: Monstrum.*

Source: *(Galindo, 2012, pp. 44-47).*

2) Getting Along: Social Games.

Social games involve activities like chasing, hiding and role-playing in groups. In such activities, imagination is the primary tool. Stimulating the imagination needs only very basic means: it is more effective to provide abstract, suggestive elements which the children can adopt on their own (Figures 5-5 & 5-6) (Broto, 2012, p. 7; Cummins & Masiulanis, 2017, pp. 3-6; Pascoe, 2017,

p. 17). Some social games are more physical while others are more imaginative (Figures 5-7 & 5-8).
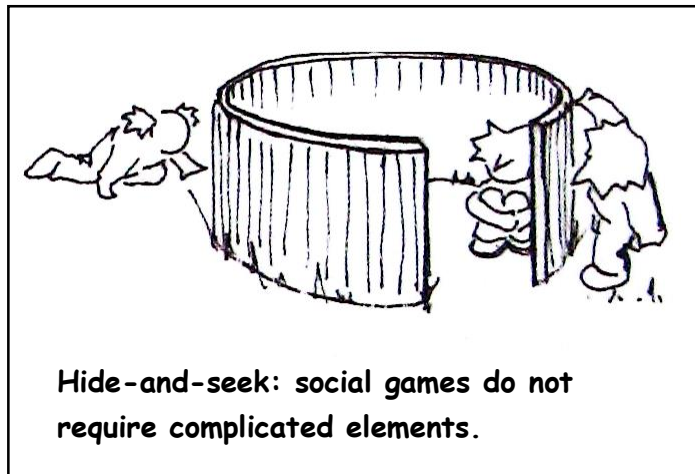
Figure 5-5: *Social Game, Playing Hide-and-sick by Applying a Simple Element.*

Source: *(Broto, 2012, p. 7).*

Figure 5-6: *Social-Imaginary Play by Applying a Simple Abstract Element.*

Name of the Space: Urban Dock LaLaport Toyosu.

Place: Tokyo, Japan. Architect: Laguarda Low Architects.

Source: *(Galindo, 2012, pp. 184-185).*

Figure 5-7: *Social-Physical-Imaginary Play.*

The Name of the Park: The Six Senses Valley (Valle de los 6 Sentidos).

Place: Renedo de Esgueva, Valladolid, Spain.

This children's park is the result of a competition organized by County Council of Valladolid.

Source: *No. 1: (Broto, 2012, pp. 242-243).*

No.2: http://ampacraflecha.blogspot.com/2017/05/fotos-pendientes-de-la-excursion-del.html, accessed: 09.03.2020.

Figure 5-8: *Social-Imaginary-Physical Play.*

Name of the Park: The Six Senses Valley (Valle de los 6 Sentidos).

Source: *http://colegiodenavalmanza no.blogspot.com/2017/06/v alle-de-los-6-sentidos.html, accessed: 09.03.2020.*

3) Imagining: Creative, Manipulative, and Constructive Games.

For this type of play, materials which can be manipulated, molded or transformed such as sand, grass, water, gravel or clay are used (see Chapter 4, Section 4.5.2.5.1.). Children are really interested to interact with these materials. The physical properties of such materials enable children to develop a wide variety of activities while using their imagination and creativity, which are of prime importance in these games. Small children are true masters in these types of play (Figure 5-9) (Broto, 2012, p. 7).

Playing spaces that offer abstract elements, manipulative materials and natural elements provide open-ended and unlimited play opportunities and enable each child to use these elements in its own way (Broto, 2012, p. 7; Cummins & Masiulanis, 2017, pp. 3-6; Pascoe, 2017, p. 17).
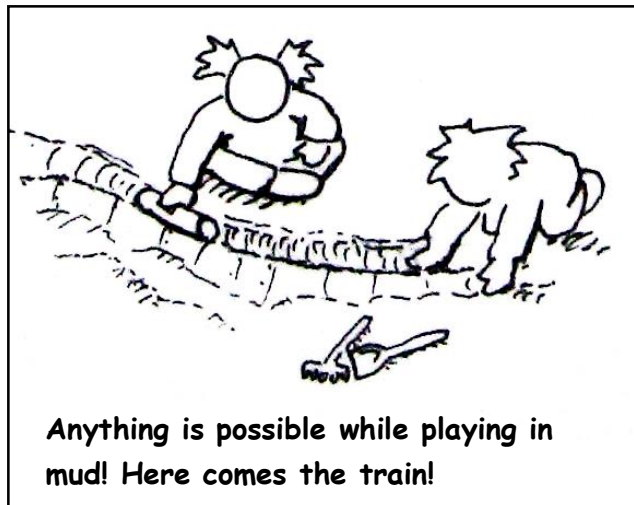
Figure 5-9: *Imaginary Creative Play.*

Source: *(Broto, 2012, p. 7).*

Imagination playground by Rockwell Group, in New York City, is a good example of a playspace which can encourage child-directed, unstructured free play (see Chapter 4, Section 4.5.2.5.2.1. & Figure 4-14) (Figure 5-10) (Broto, 2012, pp. 50-53). This playspace has three key components: an array of loose blocks and tools; sand and water features; and play associates who help children engage in games of their own making (Figure 5-10)[110].

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[110] https://www.rockwellgroup.com/projects/imagination-playground--burling-slip, accessed: 13.03.2020.
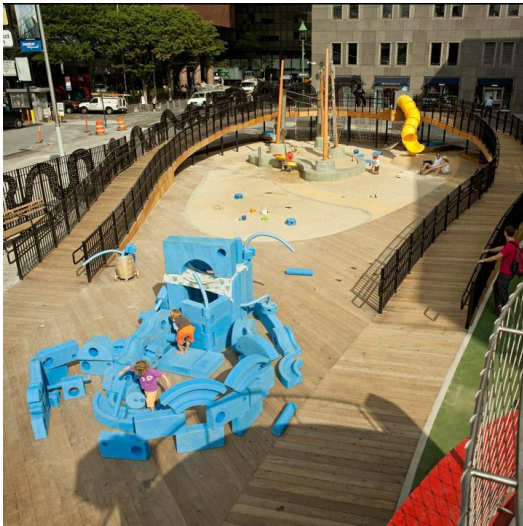
Figure 5-10: *Imagination Playground in New York City. Design: David Rockwell.*

Source: *https://www.rockwellgroup.com/projects/imagination-playground--burling-slip, accessed:*

13.03.2020; (Broto, 2012, pp. 50-53).

4) Experimenting: Sensorial Games.

Sensory play is a type of play that engages one or more senses. Regarding this definition, most play clearly has the potential to be sensory. However, the difference between sensory play and other games is that sensory focus in this game is a significant dimension of the game and plays an important role in play and child development (Gascoyne, 2011, p. 2). According to Usher (2010), sensory play provides opportunities for children to use one or more of their senses as a major factor in play activity (Figure 5-11) (Gascoyne, 2011, p. 2).
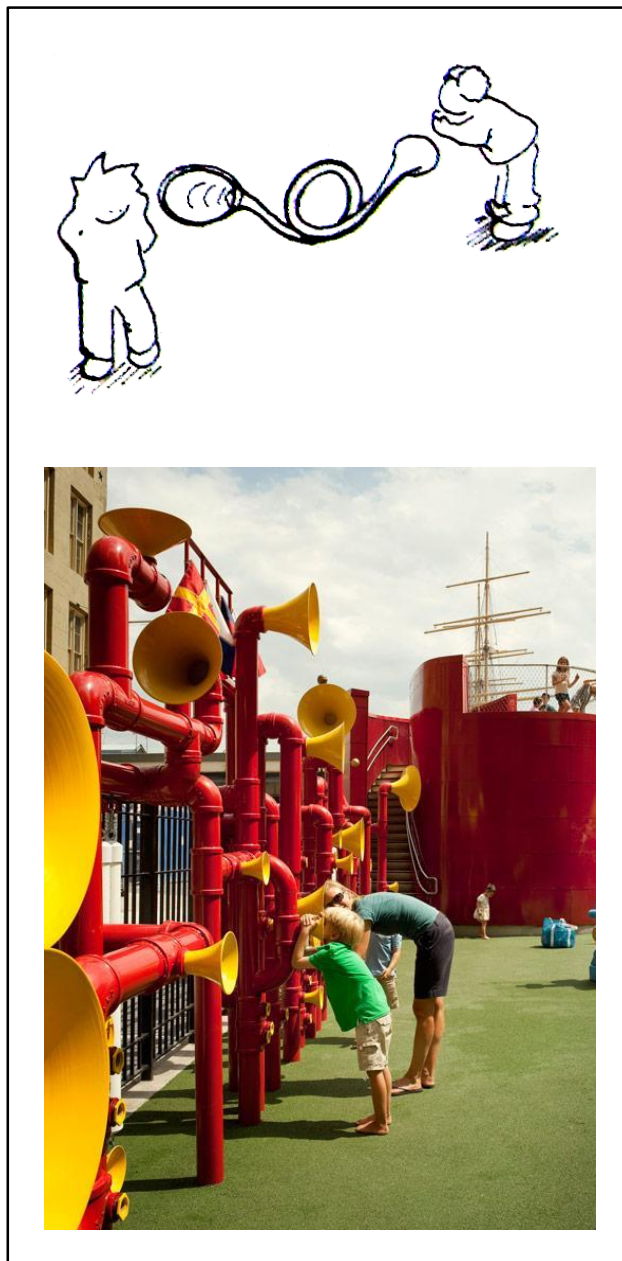
Figure 5-11: *Sensorial Games (called 'Whisper Tubes') in 'Imagination Playground' in New York City. Design: David Rockwell.*

Source: *(Broto, 2012, p. 7 & pp. 50-53); https://www.rockwellgroup.com/projects/imagination-playground--burling-slip, accessed: 13.03.2020.*

The senses are involved in all human activity, but children are true pioneers in experimenting with their senses. Sensory play is so fundamental to children's growth and development. Hence play elements that involve sensorial experiences are especially recommended. These elements can be designed for stimulating the haptic, auditory, visual, and olfactory senses. Sensorial games play an especial role in assisting and stimulating the development of disabled and small children (Broto, 2012, p. 7; Gascoyne, 2011, p. 2).

Sensorial experiences should be enjoyable to encourage children to interact, use and explore them. Besides designed elements/spaces, natural elements/environments can offer a wide range of sensorial experiences (Broto, 2012, p. 7; Gascoyne, 2011, pp. 2-3). Some examples of playgrounds that offer sensorial experiences (either by providing natural or artificial elements) are presented below.

'Garden City Play Environment' is a public place for children designed by space2place in Richmond, British Columbia. It is an organic, flowing space with settings that reflect the natural world and regional character of the Pacific Northwest. This play environment is unique because it responds to its distinctive context, develops awareness of natural systems and provides a rich diversity of play such as nature-based play and sensorial games (Figure 5-12) (Galindo, 2012, p. 152)[111].

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[111] http://www.space2place.ca/garden-city-play-environment, accessed: 15.03.2020.

Figure 5-12: *Nature-based Sensorial Experiences/Plays in Garden City Play Environment.*

Place: Richmond, British Columbia, Canada.

Design: space2place.

Source: *(Galindo, 2012, pp. 154-155); http://www.space2place.ca/garden-city-play-environment, accessed: 15.03.2020.*

There is a wide range of sensory play equipment like musical instruments designed for innovative installations or educational activity stations. For example, the playground equipment designed by Landscape Structures can turn a playing space into a more fun and beneficial gathering area for children of all ages and abilities (Figures 5-13 & 5-14)[112].

Pulse product category (i.e. line) designed by Landscape Structures includes multisensory interactive games which encourage movement in an exciting way (Figures 5-13 & 5-14). Stimulating LED light patterns and sounds help children develop hand-eye coordination, action/reaction skills and their muscles[113].

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[112] https://www.playlsi.com/en/commercial-playground-equipment/freestanding-playground-equipment/sensory-play/, accessed: 16.03.2020.
[113] https://www.playlsi.com/en/commercial-playground-equipment/freestanding-playground-equipment/sensory-play/pulse-playground-games/, accessed: 16.03.2020.

With Pulse Tempo (designed for 1 to 6 players), children listen for the musical tones, chase the lights, and are then rewarded with an entertaining sound and light show (Figure 5-13)[114].

Figure 5-13: *Sensorial Play with Pulse Tempo (Lights, Sounds, Action!). Design: Landscape Structures.*

Source: *https://www.playlsi.com/en/commercial-playground-equipment/playground-components/pulse-tempo/, accessed: 16.03.2020.*

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[114] https://www.playlsi.com/en/commercial-playground-equipment/playground-components/pulse-tempo/, accessed: 16.03.2020.

In playing with Pulse Table Tennis (designed for 2 to 4 players), colorful lights and engaging sounds invite kids to play this back-and-forth game that gets faster as it goes. Players are able to tally their points or play just for fun. This is a great (therapeutic) setting that develops healthy sportsmanship skills and hand-eye coordination (Figure 5-14)[115].

Figure 5-14: *Sensorial Play with Pulse Table Tennis. Design: Landscape Structures.*

Source: *https://www.playlsi.com/en/commercial-playground-equipment/playground-components/pulse-tempo/, accessed: 16.03.2020.*

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[115] https://www.playlsi.com/en/commercial-playground-equipment/playground-components/pulse-table-tennis/, accessed: 16.03.2020.

5) Playing in Peace and Quiet, Taking a Break, and Resting

Providing opportunities and spaces for rest and reflection in a playground is as important as encouraging physical activity. Therefore, a child's choice to play alone quietly or taking a break should be respected and supported in the design of a child-sensitive playground. For this aim, one or various spaces should be set aside and shielded from the noise and activity of the other play areas. By doing this, the design provides settings where children can concentrate on their activity free from external interference or distractions. Furthermore, this space provides a peaceful spot where adults can enjoy, rest and observe their children. In peace and quiet zone, benches, tables, and sandboxes can be installed. We should also make sure that this area is protected from excessive exposure to sun (Figures 5-15 & 5-16).
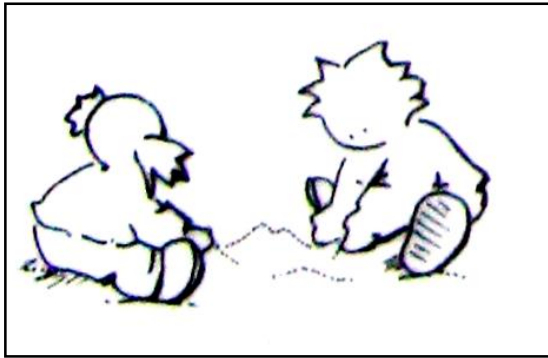
Figure 5-15: *Playing in Quiet and Peace.*
Source: *(Broto, 2012, p. 7).*

Figure 5-16:

Zones for Resting and Playing in Quiet and Peace.

1) *Name of Playground: Salute. Place: Moscow, Russia. Design: AGA Group.*

Source: *http://landezine.com/index.php/ 2019/12/salute-playground-by- afa/, accessed: 16.03.2020.*

2) *Name of Park: Garden City Play Environment. Place: Richmond, British Columbia, Canada. Design: space2place.*

Source: *https://www.masuplanning.com /project/activity-landscape- kastrup-2/, 11.03.2020; http://landezine.com/index.php/ 2019/06/activity-landscape- kastrup-by-masu-planning/, accessed: 11.03.2020.*

5.5.10.   General Considerations for Designing a Playground

Besides mandatory rules and standards, there are various factors – available as guidelines— that should be applied in designing a *safe* quality playground.

The first widespread guidelines appeared in 1981, published by the U.S. Consumer Product Safety Commission (CPSC) as a two-volume Handbook for Public Playground Safety. This handbook has gone through numerous revisions over the years (Bhattacharya et al., 2003, p. 102; USCPSC, 2015, p. 1). There is also a series of guiding regulations that informs about the dimensions to which play equipment should be built and the minimum distances between various parts, all according to the characteristics of each given piece (Broto, 2012, p. 28).

In this research, various concepts and ideas for playground equipment/settings and the whole playground space are presented. To achieve a child-friendly playground, these ideas and concepts are formed through co-creative process with especial focus on children's true wishes and needs (see Chapters 8, 9, & 10).

An existing space next to Parkour Plateau, at the Nordbahntrasse in Wuppertal, Germany is considered here as the context for presenting the final playground design. This area has been selected as a design *example* due to the potentials of the site for developing a playground. In this study, the final design is not presented with accurate dimensions and sizes. For presenting the accurate and detailed designs of the playground equipment in future, the safety indexes, standards (which are mostly available in guidelines and regulations), and organizational requirements should be applied. However, the designs presented as playground equipment/settings and their arrangement are well suited for the selected site.

In the following subsections, some design considerations (e.g. safety) necessary for development of a quality playground will be described.

5.5.10.1. Selecting a Site to Create a New Playground (from the standpoint of preventing accidents and safety)

The first factor for developing any playground is selecting the site where it is going to be built (Broto, 2012, p. 8). Table 5-3, presents the factors – stated by USCPSC— that are important in this process. For example in this study, the existing empty space next to Parkour Plateau at Nordbahntrasse, in Oberbamen, Wuppertal, has been selected as the context for presenting the final design of a child-friendly playground for 4-8year-old children. The characteristics and potential of this area will be described in Chapter 6.

Table 5-3: *Important Factors (stated by USCPSC) for Selecting a Site (Location) for Creating the New Playground.*

Factor	Questions to Ask	Solution
Travel patterns of children to and from the playground	Are there hazards in the way?	Clear hazards.
Nearby hazards such as roads with traffic, lakes, ponds, streams, cliffs, etc.	Could a child inadvertently run into a nearby hazard? Could younger children easily wander off toward the hazard?	Provide a method to contain children within the playground. For example, a dense hedge or a fence. The method should allow for observation by supervisors. If fences are used, they should conform to local building codes and/or ASTM F-2049.
Sun exposure	Is sun exposure sufficient to heat exposed bare metal slides, platforms, steps, and surfacing enough to burn children?	Bare metal slides, platforms, and steps should be shaded or located out of the direct sun. Provide warnings that equipment and surfaces exposed to intense sun can burn.
	Will children be exposed to the sun during the most intense part of the day?	Consider shading the playground or providing shaded areas nearby.
Slope and drainage	Will loose fill materials wash away during periods of heavy rain?	Consider proper drainage to prevent wash outs.

Source: *(USCPSC, 2015, p. 5).*

5.5.10.2. Playground Layout

Other factors to be considered when laying out a playground are (USCPSC, 2015, p. 5):

- **Accessibility**

  It is important to provide accessible surfaces in the play areas that meet ASTM Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment, ASTM F1951 (USCPSC, 2015, p. 6).

- **Age Separation**

  In playgrounds that intend to serve children of different ages, the layout of pathways and landscaping of the playground should show distinct areas for different age groups (USCPSC, 2015, p. 6).

- **Conflicting Activities**

  The play area should be organized into different zones (sections) to prevent injuries caused by conflicting activities and children running between activities. On playgrounds, active, physical activities should be separated from more passive or quiet activities. For example, in a typical playground, areas for active play equipment, open fields, sandboxes and zones for rest in peace and quiet should be located in different sections (USCPSC, 2015, p. 6).

- **Sight Lines**

  "Playgrounds that are designed, installed, and maintained in accordance with safety guidelines and standards can still present hazards to children" (USCPSC, 2015, p. 6).
  The layout of playgrounds should allow parents or caregivers to keep track of children as they move around in the playground environment. Visual barriers should therefore be minimized. The play equipment should be as visible as possible from the bench area (USCPSC, 2015, p. 6).

- **Signage and/or Labeling**

  The intended user group should be obvious from the design and scale of the equipment, signs, and labels posted in the playground area (or on the play equipment). However, it should also give some information/guidance to supervisors about the age appropriateness of the play settings and equipment (USCPSC, 2015, p. 6).

5.5.11.   Playground Equipment

Although there is a wide range of standardized playground equipment on the market, designers often prefer to create their own pieces (Broto, 2012, p. 16). Building quality play equipment entails both coming up with an attractive design, and ensuring that the finished product is completely safe for the intended group (Broto, 2012, p. 16). In the following paragraphs, different types of playground equipment will be described.

5.5.11.1. Slipping and Sliding

Slides are such a popular feature in a playground. It is often more appropriate to custom design a slide for a specific playground (Broto, 2012, p. 16).

- **Types of Slide**

Slides are available on the market in such a variety of shapes and models: from the standard freestanding slide with a ladder to the most complex models, which feature curves, waves or even helicoids. In short, slides may provide a straight, wavy, or spiral descent either by means of a tube or by an open slide chute. Tunnel slides are partially or entirely enclosed (Figure 5-17). Figures 5-17 and 5-22, present different types of slide (Broto, 2012, pp. 18-19; USCPSC, 2015, p. 32). Slides may be either free-standing, part of a composite structure, or built on a natural or man-made slope (called 'embankment slide'). Building a slide on the sloped surface or low hill can make it more accessible for children with motor difficulties (Figure 5-18) (Broto, 2012, p. 19; USCPSC, 2015, p. 32).

Tunnel slide: enclosed sliding

Helicoidal, curved slide: the sliding section is in spiral or curved form.

Wavy slide: with variations in degree of slope.

Integrated slide: following the lay of land.

Hood or other means to channel user into sitting position

Slide chute

Access ladder or stairway

Exit close to horizontal

Platform

7. Typical Free-Standing Straight Slide
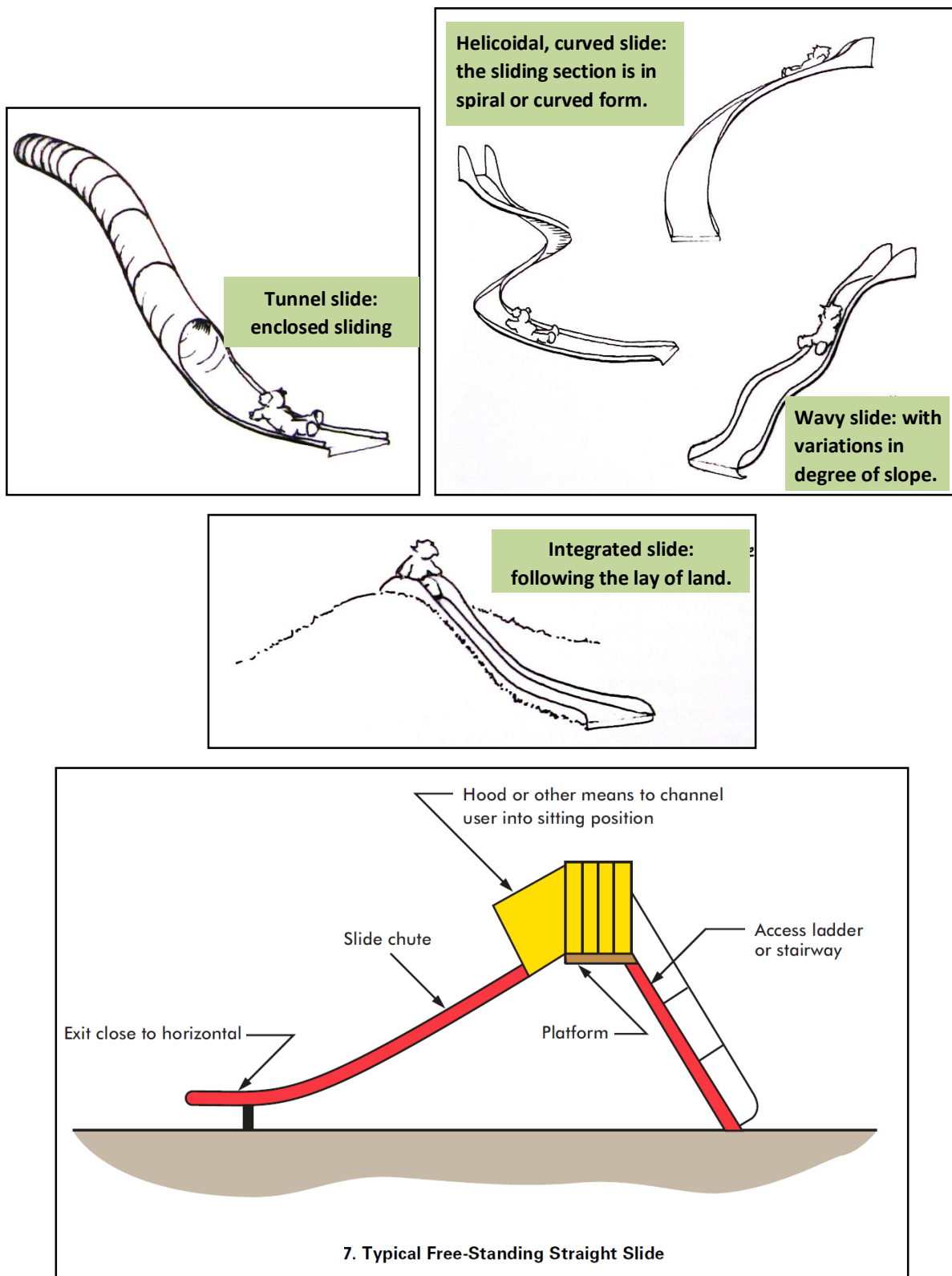
Figure 5-17: *Different Types of Slide.*

Source: *(Broto, 2012, pp. 18-19; USCPSC, 2015, p. 32).*

Figure 5-18: *An embankment slide; installing the slide on a sloping surface with low slope and low height provides access for children with disabilities. Design: Carve.*

Source: *https://land8.com/how-the-van-campenvaart-playground-is-breaking-boundries/, accessed: 6.3.2021; https://www.carve.nl/en/item/22, accessed: 6.3.2021.*

- **Parts of the Slide**

Basically, a slide has three parts: 1) the starting point, 2) the main section (the 'sliding' section or 'slide chute'), and 3) the finishing point (the 'exit' section) (Figures 5-19 & 5-20). Figure 5-17 shows a typical free-standing straight slide and its access (Broto, 2012, p. 19; USCPSC, 2015, p. 32).

The starting point should be as wide as the main sliding section. The transition from one section to the next should be smooth and continuous (Figures 5-19 & 5-20). All slides should have an exit section to help the child maintain balance, decrease the possibility of potential crashes and make it easier for the child to get off the equipment. The end of the exit section should be rounded or curved to avoid injuries (Figures 5-19 & 5-20) (Broto, 2012, p. 19).
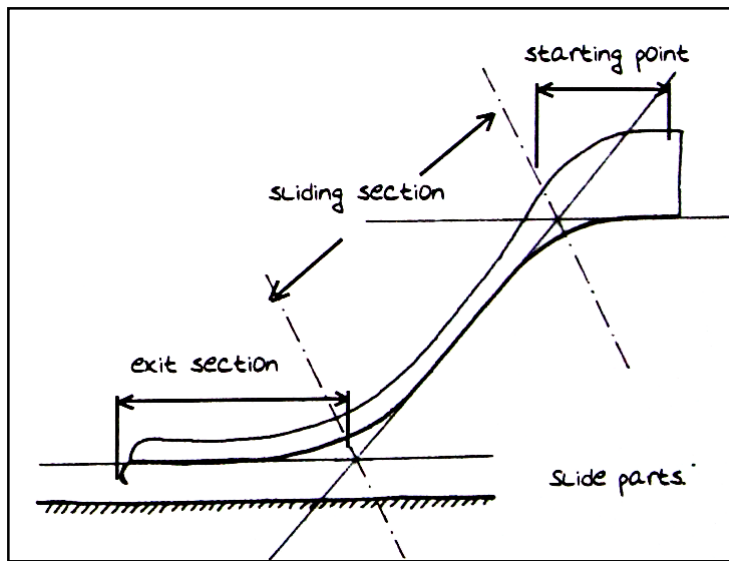
Figure 5-19: *Main Parts of a Slide.*

Source: *(Broto, 2012, p. 19).*
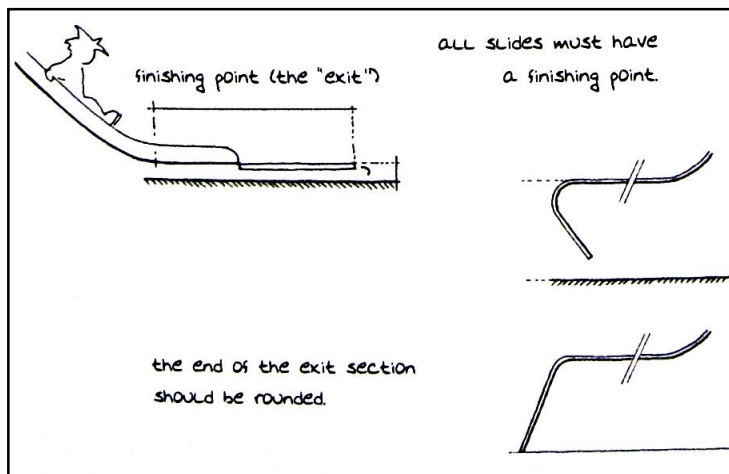
Figure 5-20: *Exit Section (Finishing Point) of a Slide and its Rounded/Curved End.*

Source: *(Broto, 2012, p. 19).*

- **Widths and Surfaces**

"The standard straight, open slide with a sliding section longer than one and a half meters should have a width measuring either less than 70 centimeters, or more than 95 centimeters" (Figure 5-21) (Broto, 2012, p. 20). These dimensions ensure that children do not get stuck or tumble over while sliding (Broto, 2012, p. 20).

In curved or spiral slides, the width of the sliding section (i.e. main section) should be less than 70 centimeters. In a tunnel slide, the minimum width and height of the interior of the tunnel should be 75 centimeters (Figure 5-21) (Broto, 2012, p. 20).

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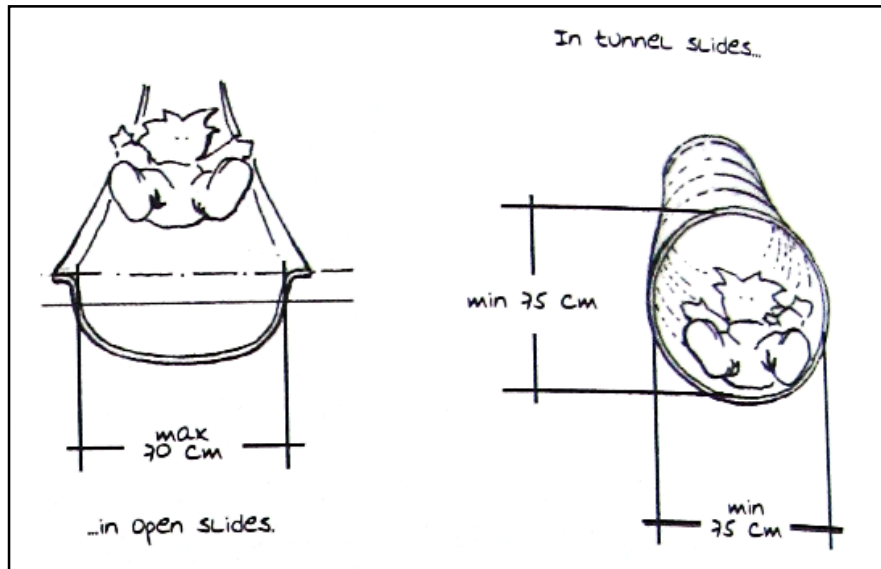
Figure 5-21: *Standard Dimensions of a Slide (Width and Height of the Slide Chute).*

Source: *(Broto, 2012, p. 20).*

- **Access to Slides**

In general, the access to a stand-alone slide is: by means of a ladder with rungs, steps, or a stairway with steps (Figure 5-17). Slides may also be part of a composite play structure, so children can have access from other part of the structure (see Figure 5-44, in Section 5-5-11-6). The ground is used for having access to embankment slides (Figure 5-22) (USCPSC, 2015, p. 32).

- **Materials of Slides**

Regardless of the type of slide, it is important to avoid using bare metals on the platforms, chutes, and steps. When the bare metal is exposed to direct sunlight, it may reach temperature which is high enough to cause serious burn injuries (USCPSC, 2015, p. 32).

- **Some Examples of Slide in Playgrounds**

Figure 5-22, presents some examples of custom slide chute in playgrounds designed by Colombia Cascade.

160
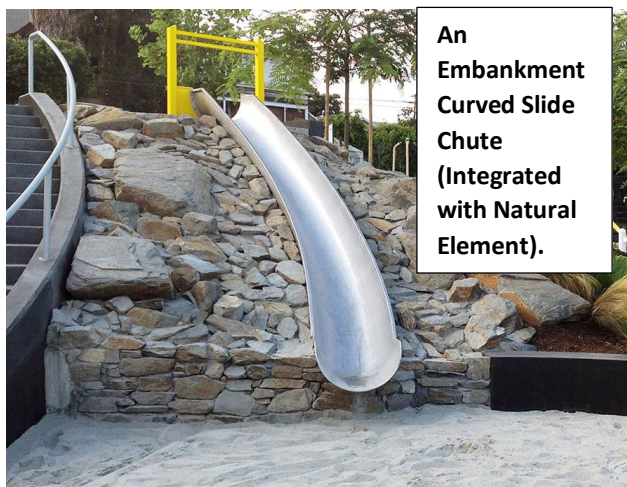
Figure 5-22: *Examples of Custom Slide Chute in Playgrounds. Material: Stainless Steel. Design: Colombia Cascade.*

Source: *http://playground.columbia-cascade.com/?PageData=baseproductsdetails&catid=101&catid2=102, accessed: 30.03.2020.*

5.5.11.2. Swinging and Rocking

The rocking of a swing has a calming effect, especially on small children. Swinging helps development of balance and coordination ability (Broto, 2012, p. 20).

As with the slide, to custom design a swing set for a playground, it is important to follow technical specifications and standards. Some relevant considerations for designing a swing set are given below (Broto, 2012, p. 20).

- **Types of Swing Set**

The classification of swing types could be based on the number of the points of suspension that they feature (having one or various points of suspension) or the axis of rotation. Considering the axis, swings are divided into two types (Figures 5-23 & 5-24) (Broto, 2012, pp. 20-21; USCPSC, 2015, p. 37):

1) Single axis swing (or to-fro swing): a single swing, produces a rocking motion perpendicular to the load bar (Figure 5-23).

2) Multi-axis: a multi-axis swing (swing with various axes of rotation) enable a rocking motion perpendicular or parallel to the bar. It consists of a seat (generally a tire) hanged from a single pivot (single point of suspension) that offers swinging in any direction. Among the multi-axis swings (swings with a single point of suspension), the well-known classics are the ones that use the *tire* as seat (Figure 5-24). These days, safer alternatives have been designed with seats that look like a tire and come in varying sizes.

Since this type of swing oscillates in all directions, it is important to ensure that the distances from nearby structures and the supporting structure of the swing itself are safe (Figure 5-24).

The Swing with a Single Axis of Rotation and Two Points of Suspension.
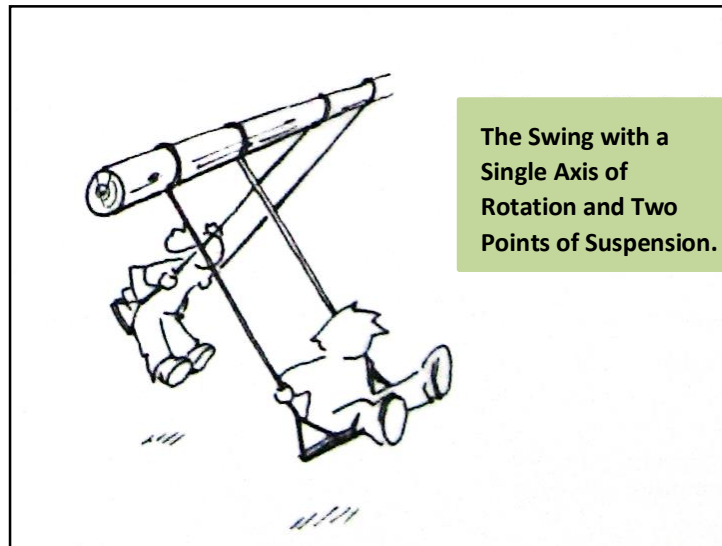
Figure 5-23: *The swing with a single axis of rotation and two points of suspension.*

Source: *(Broto, 2012, p. 20).*

The Swing with a Single Point of Suspension that Offers Swinging in Any Direction.

30" Min.
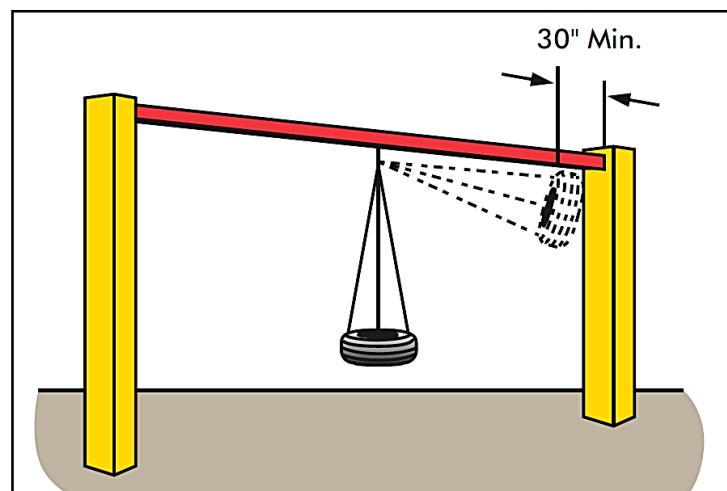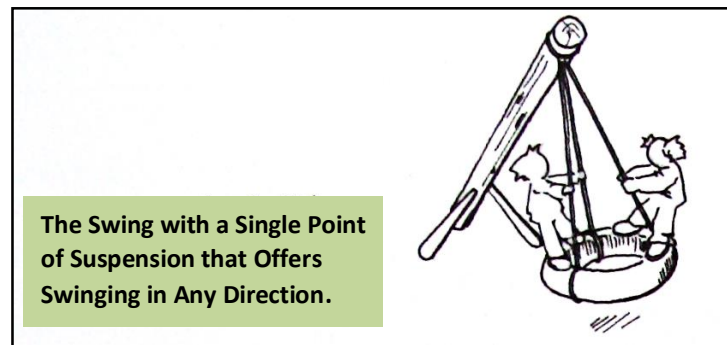
Figure 5-24: *A multi-axis swing (swing with various axes of rotation) and single point of suspension.*

Source: *(Broto, 2012, p. 21; USCPSC, 2015, p. 40).*

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Another type of swing, is nest swing. Nest or bucket swings are popular these days (Figure 5-25).

Place: Loher Brücke Playground

Photo by: Author (Neda Batenipour)

Photo & Design by: Stilum

Photo and Design by: Stilum
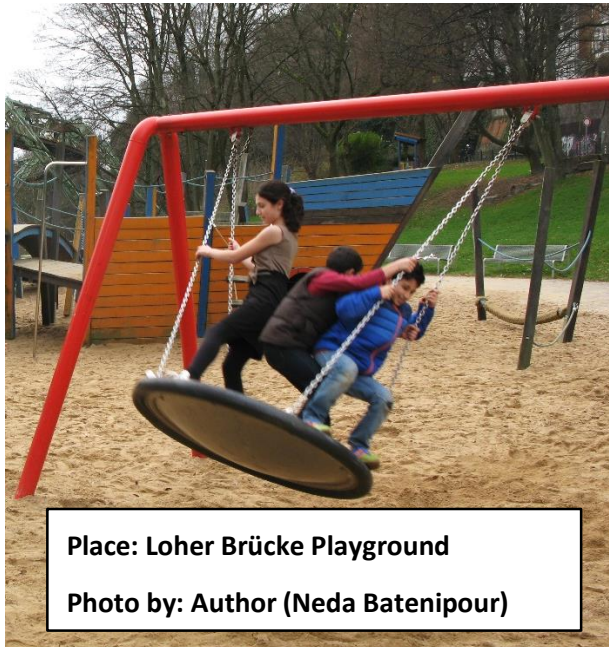
Figure 5-25: *Examples of Nest Swing.*

Source: *https://www.stilum.com/en/produkte/nest-swing-volucris1/; https://www.stilum.com/en/produkte/swing-volucris-robinia/, accessed: 30.03.2020.*

- **Parts of the Swing and Material**

The basic parts of a swing include:

1) The seat; 2) the element from which the seat hangs; 3) the load bearing bars; and 4) the structure anchored to the ground (Broto, 2012, p. 21).

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There are two main types of seat: 1) flat, with neither back support nor side guard, and 2) the swing with "harness", which provides greater support for the small children or those with motor impairments (Figure 5-26) (Broto, 2012, p. 21).

The swing chair should be such that only one person can use it at a time (Figure 5-26). For the seat, materials with a minimum degree of pliability should be used. Metal and wood are not recommended since these materials could cause injuries when a child is hit by the seat (Broto, 2012, p. 21).
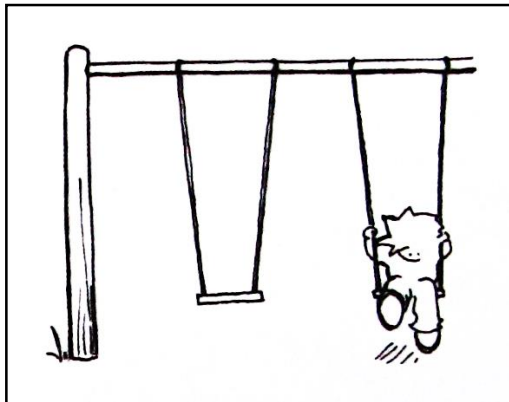
Figure 5-26: *The swing with flat seat. Each swing seat/chair is such that only permits one user to sit at a time.*

Source: *(Broto, 2012, p. 21).*

For 2-5 Year Olds.

For 5-12 Year Olds.

Figure 5-27: *Examples of Swing with Harness for 2-5 Year Olds and for 5-12 Year Olds. Design: Inclusive Playgrounds.*

Source: *https://www.inclusiveplaygrounds.net/molded-bucket-seat-with-harness.html, accessed: 31.03.2020.*

In the 'swing with one point of suspension', the 'suspension elements' are the elements from which the seat hangs. These elements should not be completely rigid. The most common solution is using chains and ropes (Figure 5-28) (Broto, 2012, p. 21).
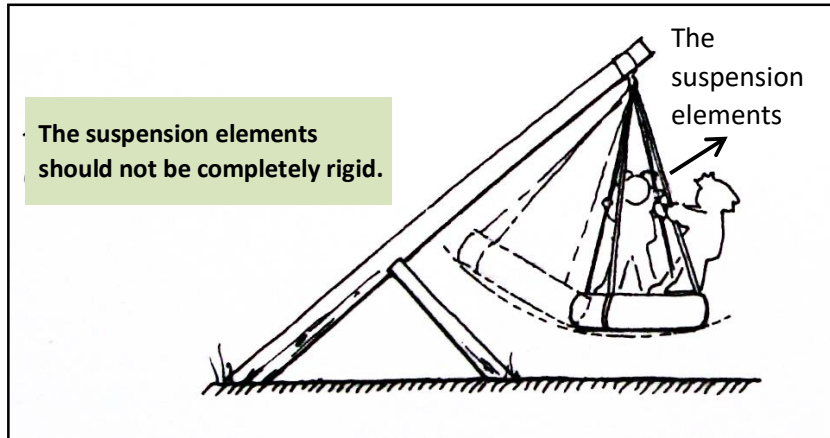
Figure 5-28: *The Suspension Elements in a Swing with One Point of Suspension. These elements should not be completely rigid.*

Source: *(Broto, 2012, p. 21).*

- **Distances and Surfaces**

More than two swings should not hang from a single load bearing bar. This minimizes the possibility of collision when the swings are in motion (Figure 5-29) (Broto, 2012, p. 21).

Do not install more than two swings per load bearing bar.

There should be minimum distances around the equipment that are free from obstacles.

safety distance
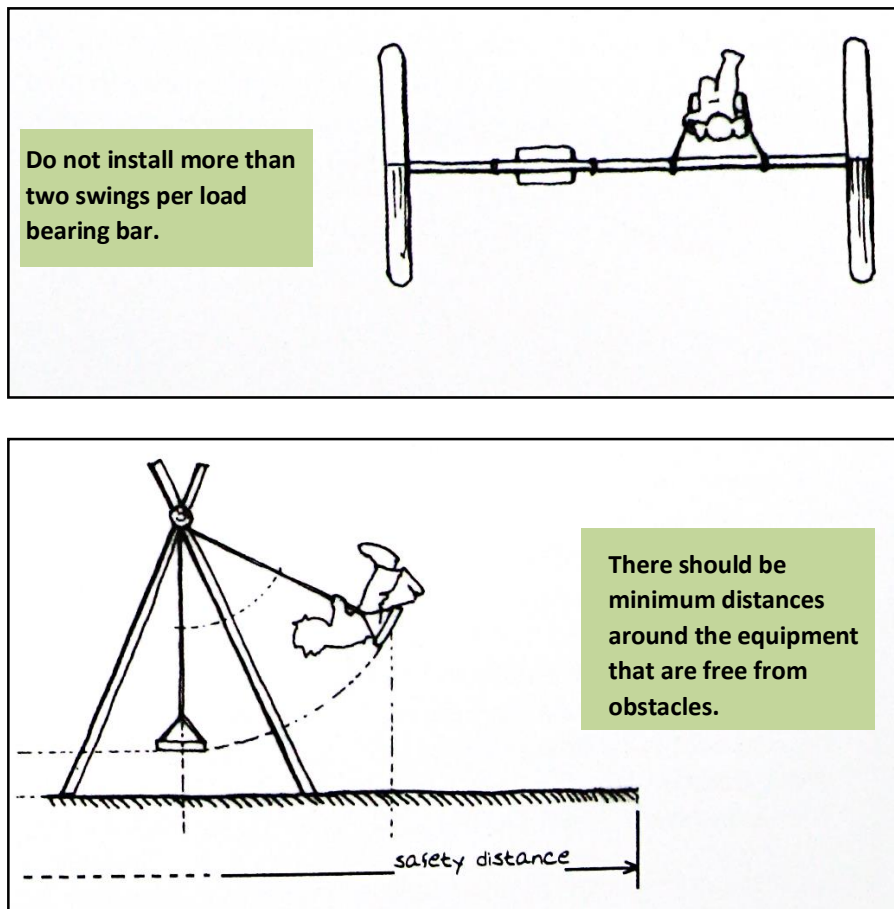
Figure 5-29: *Some Regulations for Installing the Swings.*

Source: *(Broto, 2012, p. 21).*

5.5.11.3. Climbing Equipment and Upper Body Equipment

Generally, climbing equipment presents a high degree of physical challenge; it plays an important role in developing a child's motor abilities. Through climbing, children learn body control, balance and arm-and-leg coordination (Broto, 2012, p. 22; USCPSC, 2015, p. 24).

Climbing equipment includes a wide variety of equipment made of rigid or flexible elements (Broto, 2012, p. 22; USCPSC, 2015, p. 24).

- **Climbing on Rigid Equipment**

Some examples of rigid equipment for climbing are: spatial structures, inclined surfaces with hand and foot grips and finger holds, dome climbers, the classic monkey bars structure, and spiral climbers (Figures 5-30 & 5-31) (Broto, 2012, p. 22; USCPSC, 2015, pp. 23-24).
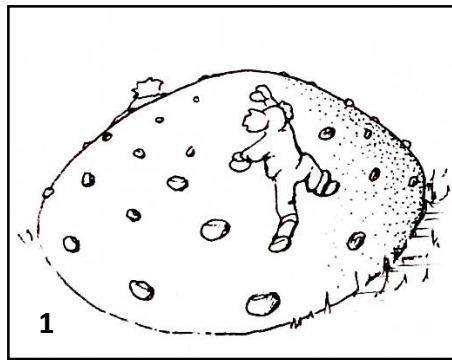
Spatial Inclined Structures, with Hand and Food Supports.
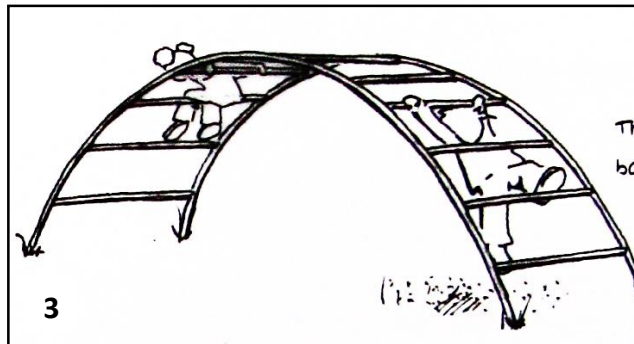
A Freestanding Arch Climber (Half Moon Monkey Bar Climber).
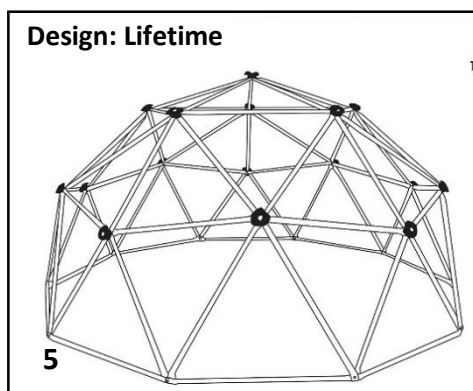
Geodesic Dome Climber.

Figure 5-30: *Examples of Rigid Climbing Equipment for Children's Play.*

Source: *No. 1: (Broto, 2012, p. 22).*

No. 2: Design: REHWALT. https://www.rehwaldt.de/projekt.php?proj=BUG-Spielgebirge, accessed: 01.04.2020.

No. 3: (Broto, 2012, p. 22).

No. 4: Design: Custom Playground Equipment. https://www.customplaygroundequipment.com/playground-monkey-bars-for-sale/half-moon-monkey-bars-climber.html, accessed: 05.04.2020.

No. 5 & No. 6: Design: Lifetime. https://www.amazon.co.uk/Lifetime-Dome-Climber/dp/B079SQHMT1, accessed: 01.04.2020; https://www.lifetime.com/dome-climbers, accessed: 01.04.2020.

Figure 5-31: *Examples of Innovative Rigid Climbing Equipment (Spiral, Horizontal and Vertical Climbing Elements) in Playgrounds. Design: Monstrum.*

Source: *No. 1: Design: Monstrum (*Galindo*, 2012, p. 54). http://outdoorplaybook.ca/learn/inspirational-projects/tower-of-copenhagen-playground/, accessed: 01.04.2020.*

*No. 2: Design: Monstrum (*Galindo*, 2012, p. 47).*

- **Climbing on Flexible Equipment**

Flexible climbing equipment includes a grid of ropes, chains, cables, or tires for climbing. Since climbing on flexible elements (e.g. ropes or nets) requires greater skills of balance in comparison with rigid structures, they are not usually designed for small children. The ropes of this equipment can be fastened at one or both ends (Figure 5-32) (Broto, 2012, p. 22; USCPSC, 2015, p. 27).

Net-like climbing structures (made of rope, chain, or cable) may be either two or three dimensional (i.e. a surface or a 3-dimensional structure of nets) (Figure 5-32) (USCPSC, 2015, p. 27; Broto, 2012, p. 22).

The weave of ropes and nets should have a smooth, non-slip outer skin (outer layer). Braided metal cables can be an alternative to ropes and nets. Cables should be galvanized, properly tensed, and manufactured with corrosion-resistant materials (Broto, 2012, p. 22).

Climbing nets can be made up of ropes or galvanized cables.

Flexible climbing nets may be either two or three dimensional (i.e. a surface or a 3-dimensional structure of nets).

Flexible Climbing Net to Access the Platform on the Top of Structure for Sliding: the net should be securely anchored at both ends.

Climbing Ropes Fastened at Both Ends.
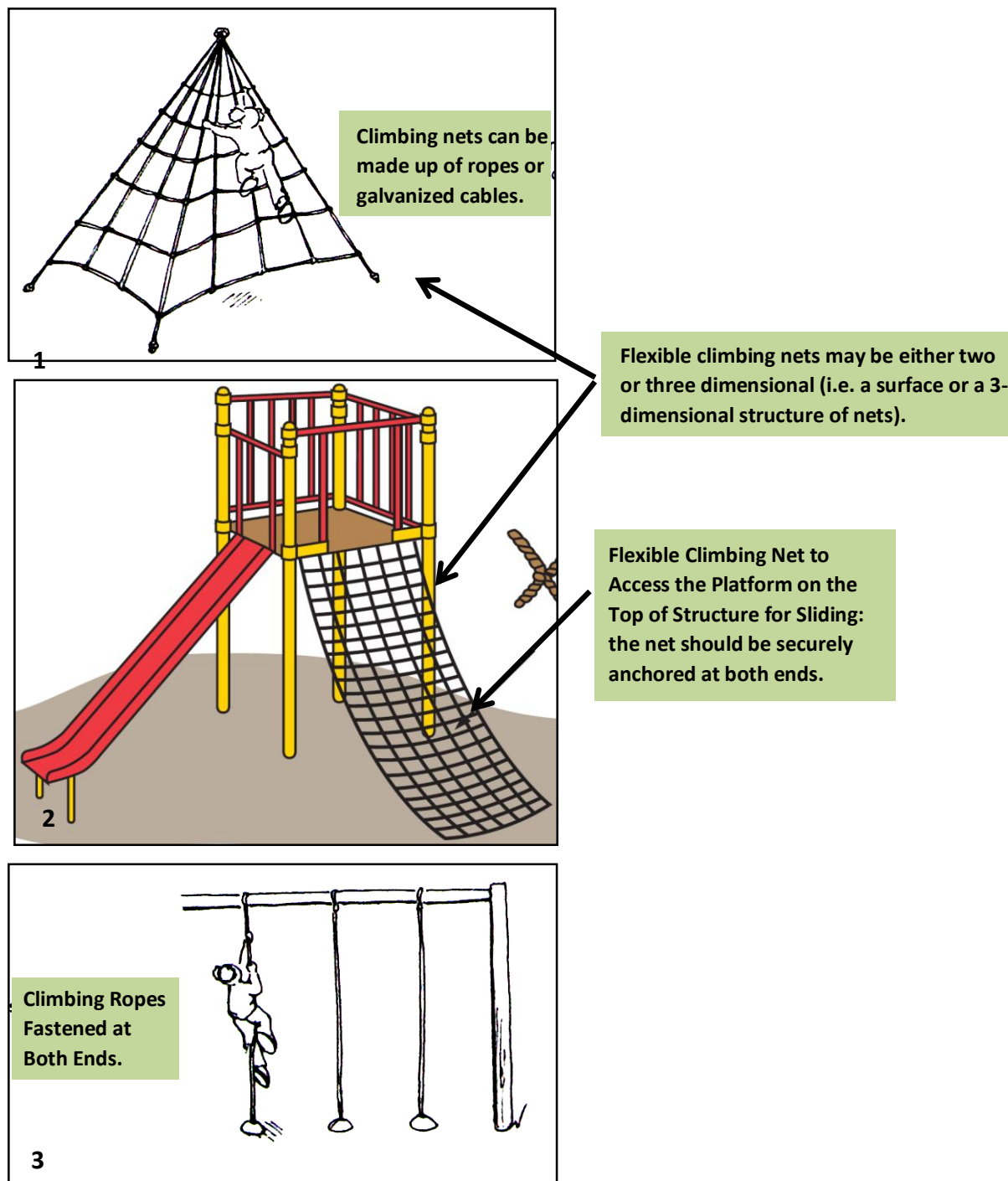
Figure 5-32: *The Flexible Climbing Equipment.*

No. 1: Flexible Climbing Nets for Playing.

No. 2: Flexible Climbing Net to Access the Platform on Top of the Play Equipment for Sliding.

No. 3: Climbing Ropes Fastened at Both Ends.

Source: *No. 1: (Broto, 2012, p. 22).*

No. 2: (USCPSC, 2015, p. 28).

Figure 5-33, presents some examples of flexible climbing nets designed for a play space, in Bilbao, Spain (Broto, 2012, pp. 219-222).
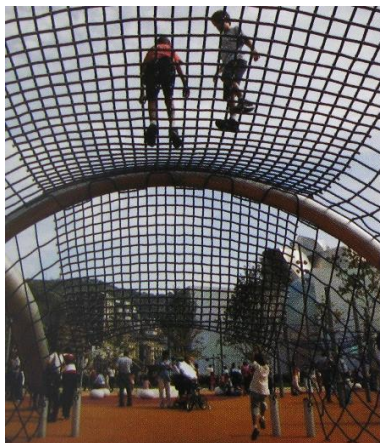
Figure 5-33: *The Flexible Climbing Nets in a Play Space. Place: Parque de la Ribera, Bilbao, Spain.*

Source: *(Broto, 2012, p. 219, p. 221 & p. 222).*

5.5.11.4. Merry-go-rounds and Spinners

For children, the experience of spinning contributes to motor and brain development (Link, 2018).

In general, spinning helps kids build and develop (Link, 2018)[116]:

- • Proprioceptive awareness
- • Cognitive ability
- • Vestibular regulation
- • Muscle tone and endurance

The most common rotating equipment and settings on public playgrounds are merry-go-rounds and spinners. Children usually sit or stand on the platform while other children or adults push the merry-go-round to make it rotate. While it is in motion, children often get on and off the merry-go-round. For preschool children – that have little or no control over movable play equipment[117]— merry-go-rounds may present physical hazards. Because of that, for using merry-go-rounds, children in this age group should always be supervised by adults. A merry-go-round is not suitable play equipment for toddlers. Thus, it should not be put on play areas intended for toddlers (USCPSC, 2015, pp. 30-31).

The general factors and guiding regulations for designing a merry-go-round have been presented by the U.S. Consumer Product Safety Commission (USCPSC, 2015). The carousel (merry-go-round) is a traditional item of equipment that never gets old and offers the joy of spinning for a wide range of age group (Ages 2-12) (Figure 5-34)[118].

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[116] Link, Jeff (2018), https://goric.com/playgrounds-spin-next-generation/, accessed: 14.04.2020.
[117] Rotating play equipment like merry-go-rounds when they are motion.
[118] https://www.bciburke.com/our-products/product/8-carousel, accessed: 11.04.2020.

Figure 5-34: *The Classic Carousel.*

Source: *https://www.bciburke.com/our-products/product/8-carousel, accessed: 11.04.2020.*

Figure 5-35, shows an example of a merry-go-round that is called 'The Revolution Spinner'. It has a design that makes the merry-go-round accessible for children of different ages and with different abilities. It ensures that everyone can play. Because of its inclusive design, wheelchair children can have fun like healthy children during spinning. There's even space for caregivers to help[119].

The space for caregivers.

Figure 5-35: *An Inclusive Design of the Merry-go-round called 'The Revolution Spinner'.*
Source: *https://littletikescommercial.com/commercial-playground/revolution-inclusive-spinner/, accessed: 04.11.2020.*

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[119] https://littletikescommercial.com/commercial-playground/revolution-inclusive-spinner/, accessed: 11.04.2020.

Figure 5-36, presents another example of an inclusive merry-go-round. It has been designed to ensure high-quality as well as safe accommodation for children of different ability levels. It has a bright, engaging design and durable construction for long-lasting use. The construction of this fun merry-go-round has multiple handrails that allow children to hold on securely and push to set the wheel in motion. The two accessible positions for wheelchairs are secured with swing gates to allow quick and easy access. This merry-go-round must be installed level with the playground surfacing. Its capacity is 10-12 children. The underside of this merry-go-round has a speed governor that limits the maximum speed; this makes the rotating merry-go-round safe for riders[120].

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[120] https://www.playgroundoutfitters.com/independent-play/merry-go-rounds/wheelchair-accessible-merry-go-round, accessed: 12.04.2020.

The two flaps of entrance rotate around two hinges and open.

Figure 5-36: *An Inclusive Designs of Merry-go-round: The Wheelchair Accessible Merry-Go-Round.*

Source: *https://www.playgroundoutfitters.com/independent-play/merry-go-rounds/wheelchair-accessible-merry-go-round, accessed: 04.11.2020.*

https://playgroundequipmentpros.com/product/wheelchair-accessible-merry-go-round/, accessed: 20.11.2022.

'The Energy Orbiter' is a rotating piece of play equipment which combines strength, balance and coordination. Its motion is created by children's own strength and it is mounted at an angle to provide a greater force with the effects of gravity (Figure 5-37).

Figure 5-37: '*The Energy Orbiter'*.

Source: *https://www.bciburke.com/our-products/product/8-carousel, accessed: 11.04.2020.*

Figure 5-38, shows a playground spinner called 'The Giddy Whirligig'. It offers opportunities for social, side-by-side play[121]. Figure 5-39, shows another example of playground spinner that is called 'The Curva® Spinner'. One child or several children can ride around[122]. Figure 5-40, shows other examples of playground spinners.

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[121] https://goric.com/playgrounds-spin-next-generation/, accessed: 14.04.2020.
[122] https://www.playlsi.com/en/commercial-playground-equipment/playground-components/curva-spinner/, accessed: 11.04.2020.

Figure 5-38: *Playground Spinner called 'The Giddy Whirligig'. Design: Goric Marketing Group USA, Inc.*

Source: *https://goric.com/playgrounds-spin-next-generation/, accessed: 11.04.2020.*

Figure 5-39: *Playground Spinner called 'The Curva® Spinner'.*

Source: *https://www.playlsi.com/en/commercial-playground-equipment/playground-components/curva-spinner/, accessed: 11.04.2020.*

Spiral Spinner

The Spinning Clown

Design: Goric Marketing Group USA, Inc.

Figure 5-40: *Some Examples of Playground Spinners.*

Source: *No. 1: https://www.archiexpo.com/prod/modo-srl/product-67814-483946.html, accessed: 13.04.2020.*

No. 2: http://playground.columbia-cascade.com/?PageData=baseproductsdetails&catid=72&catid2=135, accessed: 13.04.2020.

No. 3: https://goric.com/playgrounds-spin-next-generation/, accessed: 14.04.2020.

5.5.11.5. Seesaws

There are two main types of seesaw (i.e. "teeter totter"): 1) fulcrum seesaws; 2) spring-centered seesaws (USCPSC, 2015, p. 31).

- **Fulcrum Seesaws**

The typical seesaw consists of a board or pole with a seat at each end. The board is supported at the center by a fulcrum (Figure 5-40). To use a fulcrum seesaw, children need to cooperate and combine their actions, which may be complex. Because of that, fulcrum seesaws are not recommended for toddlers or preschool-age children (USCPSC, 2015, p. 31).

Car tires, or some other shock-absorbing material, should be embedded in the ground underneath the seats or fixed to the underside of the seats (Figure 5-40). This cushions the impact and protects children's limbs from being crushed (USCPSC, 2015, p. 31).

The maximum attainable angle between the horizontal and the board (i.e. the line that connects the seats) is 25°. In fulcrum seesaws, there should not be any foot rest (USCPSC, 2015, p. 31).
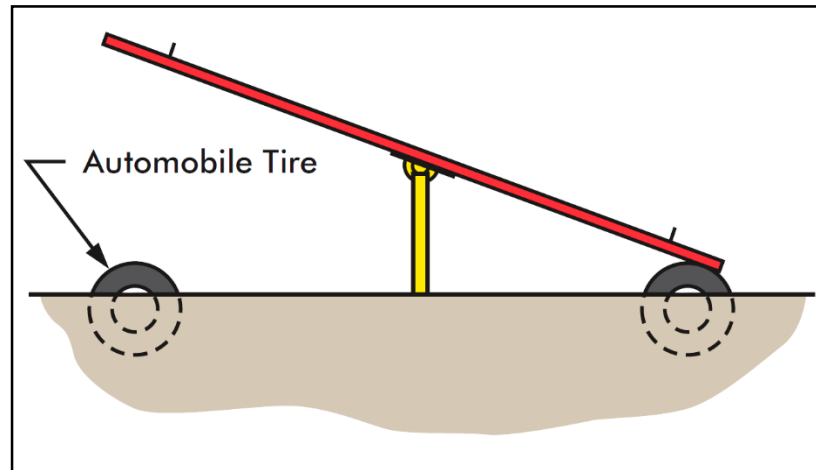
Figure 5-41: *Typical Fulcrum Seesaw.*

Source: *(USCPSC, 2015, p. 31).*

Figure 5-42, shows an innovative fulcrum seesaw that has been designed by Isabelle Devin and Catherin Rannou for the playground located in 'The Insect Garden'[123], in Paris, France. This playground is intended for children aged 6 to 12 (Figure 5-42). Here, children play in an environment that changes and evolves with the seasonal cycle (Broto, 2012, p. 256).

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[123] It is in the heart of the Acclimatization Garden.
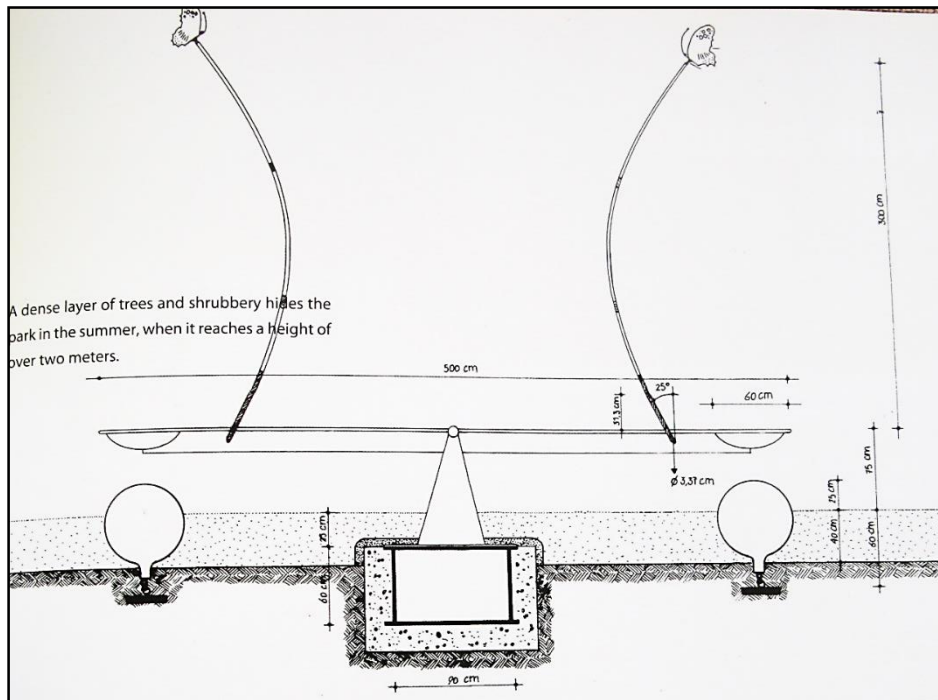
Figure 5-42: *An Innovative Fulcrum Seesaw.*

Design: Isabelle Devin and Catherin Rannou.

Location: The Insect Garden (in the heart of Acclimation Garden), in Paris, France.

Source: *(Broto, 2012, pp. 256-257).*

● **Spring-centered Seesaws**

Spring-centered seesaws are suitable for preschool-age children. If one child dismounts suddenly, the centering device prevents abrupt contact with the ground. Furthermore, spring-centered seesaws have the advantage of not requiring two children to coordinate their actions in order to play safely. These seesaws have footrests to use (Figure 5-43) (USCPSC, 2015, p. 31).

Figure 5-43: *Examples of Spring-centered Seesaws for Preschool-age Children.*

Source: *No. 1: https://safeagritourism.org/walkthroughs/play-areas/other-equipment/walkthrough-5-seesaw/, accessed: 14.04.2020.*

No. 2: https://chanzuckerberg.com/newsroom/palo-alto-weekly-priscilla-chans-the-primary-school-combines-health-care-with-academics/, accessed: 14.04.2020.

- **Handholds in Seesaws**

Handholds for gripping with both hands should be provided for each seating position (USCPSC, 2015, p. 32).

5.5.11.6. Combined Play Structure (i.e. Composite Playground Equipment)

In playground design, it is a trend to incorporate various items of play equipment – which traditionally served a single function— into a more complex structure. A combined structure that includes various parts (e.g. seesaw, slide, and tunnels) offers a new field of possible uses (Figure 5-44) (Broto, 2012, p. 23).

A quality composite structure should offer various affordances to play with different degree of difficulty: the design should meet the needs and wishes of a wide range of children who are the intended users (i.e. children aged 4-8 years old in this study) (Broto, 2012, p. 23).
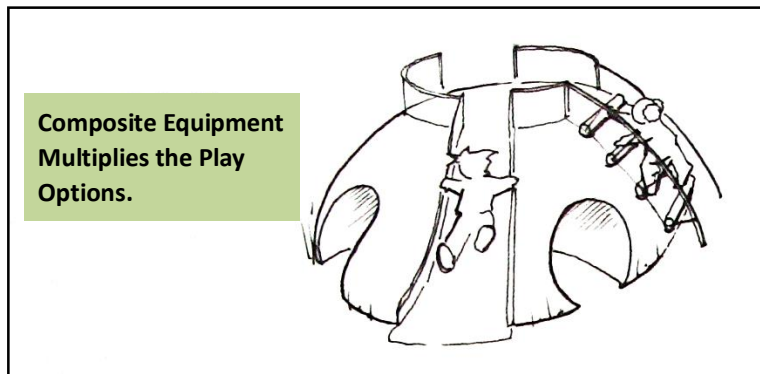
Figure 5-44: *Composite Playground Equipment (Combined Play Structure). It offers Various Affordances to Play.*

Source: *(Broto, 2012, p. 23).*

Figure 5-45, presents an example of composite playground equipment. This volcano-like equipment has been designed by "geskes.hack Landscape Architects". It is located in Atoll Playground, Schwerin, Germany (Galindo, 2012, pp. 112-115).
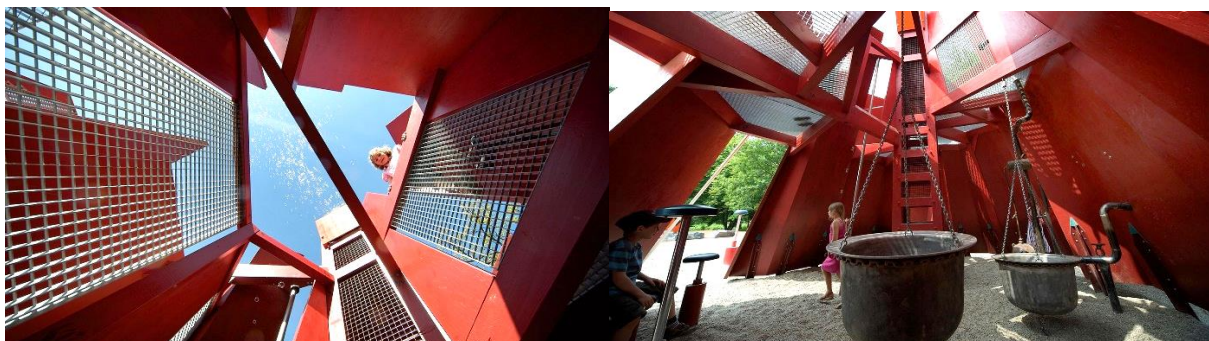
Figure 5-45: *An Example of Composite Playground Equipment which is Volcano-like (It Offers Various Affordances to Play). Design: geskes.hack Landscape Architects. Location: Atoll Playground, Schwerin, Germany.*

Source: *https://www.geskes-hack.de/projekte/sport-und-spiel/spielplatz-der-atolle-schwerin.html?backid=4&anc=15, accessed: 08.04.2020; (Galindo, 2012, pp. 112-115).*

5.5.11.7. Playing with Nothing (Undefined Abstract Shapes and Undefined Spaces)

Imagination is an important and effective faculty for a child's playing. Children do not distinguish – in the same way as adults — between their imagined world of play and the 'real' world. A piece of very simple equipment in the eyes of an adult, can be highly elaborate in the eyes of a child (Figure 5-46) (Broto, 2012, p. 23).

Undefined, abstract elements (e.g. a mound of rocks or a pile of sand) are often much more fun or interesting for children than objects that represent something concrete or specific. Therefore, 'realistic design' (i.e. copies of real objects such as trains, cars, and houses) should be avoided in playground settings (Broto, 2012, p. 23).

Undefined spaces with no specific intention can encourage experimentation and creativity; they provide the opportunity for multiple imaginative uses and enable children to create and develop their own ideas for play (Broto, 2012, p. 23).
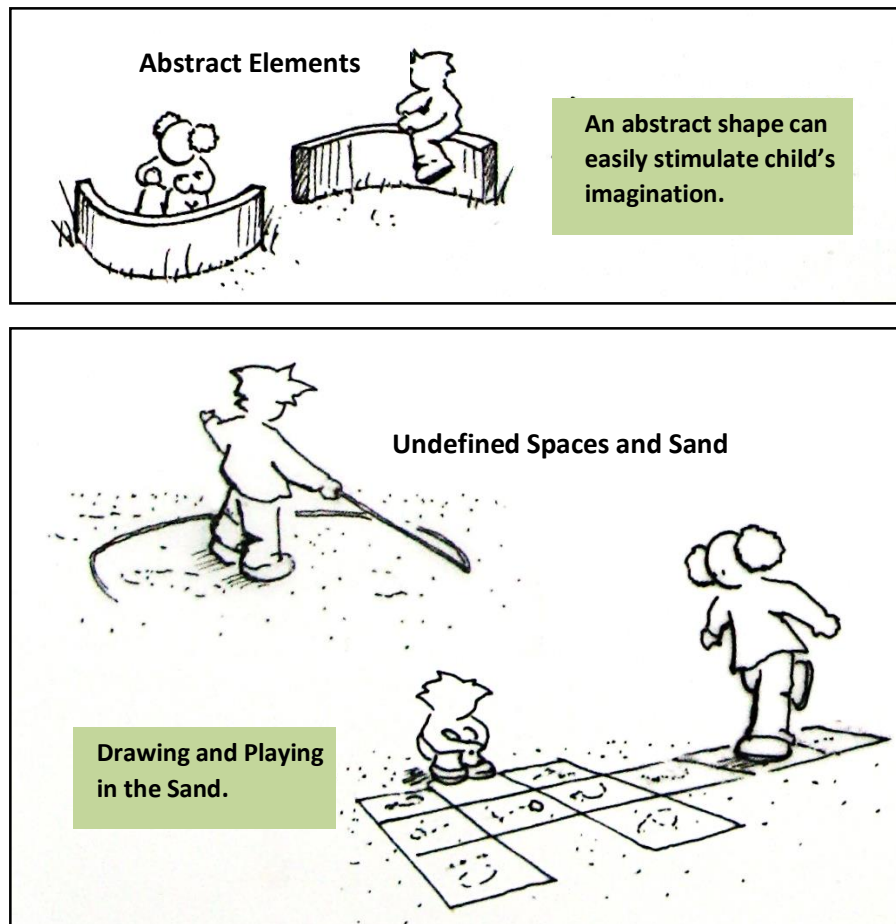
Figure 5-46: *Playing with Abstract Elements, Undefined Spaces, and Sand. It encourages children to use imagination and creativity while offering opportunities for experimentation.*

Source: *(Broto, 2012, p. 23).*

Figure 5-47, presents photos of Urban Dock LaLaport Toyosu, in Tokyo, Japan (Landscape Architecture: *EARTHSCAPE).* The area offers wide undefined spaces and abstract elements which stimulate the users' imagination (Galindo, 2012, pp. 184-187) (Figure 5-47).

The theme of this project is ocean and voyagers. The plan considers the entire landscape as an 'ocean', and the people who travel through the area as 'voyagers'. The site was previously a shipyard. With focus on "green", "water", and "earth", the space offers voyagers (i.e. the users of the area) a wide variety of opportunities for discovery. Voyagers travel freely through the space, experiencing new discoveries (Galindo, 2012, pp. 184-187)[124].

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[124] http://landezine.com/index.php/2011/11/toyosu-landscape-architecture/, accessed: 15.04.2020.

Figure 5-47: *Undefined Wide Spaces and Abstract Elements with Focus on Green, Water, and Earth Evokes Children's Imagination and Offers Opportunities for Discovery. Theme: Ocean and Voyagers. Landscape Architecture: EARTHSCAPE. Location: Urban Dock LaLaport Toyosu, in Tokyo, Japan.*

Source: *(Galindo, 2012, pp. 184-187); http://landezine.com/index.php/2011/11/toyosu-landscape-architecture/, accessed: 15.04.2020.*

5.5.12. Surfacing and Paving

Depending on the characteristics of the playground, different materials can be applied in flooring/paving/surfacing of its areas. For example, a footpath requires a paving material that is different from the material that is used in playing area (e.g. where swings and slides are installed) which has higher risk of falling (Broto, 2012, p. 15). The surface under and around play equipment is an important factor in reducing the likelihood of serious injuries like life-threatening head injuries (Broto, 2012, p. 29; USCPSC, 2015, p. 8). Using a shock absorbing surface, instead of a

hard surface, reduces or avoids serious injuries (i.e. serious head injury)[125]. However, some injuries from falls (e.g. broken limbs) may occur in playgrounds, no matter what surfacing material is used (USCPSC, 2015, p. 8).

Figure 5-48, presents examples of the appropriate (i.e. impact-absorbent) materials and inappropriate materials for surfacing in playgrounds. Hard surfaces like concrete and asphalt should never be used under the playground equipment such as swings or slides (Figure 5-48) (USCPSC, 2015, pp. 8-9; Broto, 2012, p. 29). Any joints or discontinuities in the paving or flooring should be performed in such a way that does not block the movement of the people who use a wheelchair (Broto, 2012, p. 15).

In the playground, the suitable materials for surfacing the play areas could be either unitary (e.g. unitary surfaces, engineered wood fiber, carpets, and mats) or loose-fill materials (e.g. tree barks, wood chips/mulch, sand, pea gravel, and shredded/recycled rubber mulch). Loose-fill materials should not be applied for flooring/surfacing in the playgrounds intended for toddlers (USCPSC, 2015, pp. 8-9; Broto, 2012, p. 29).

Synthetic materials such as rubber or recycled foam provide a basis for smooth, homogenous surfaces. These materials can absorb different levels of impact. Also, their set of color options can enrich the design. In general, these materials are expensive but once they are installed they need minimum maintenance (Figure 5-49) (Broto, 2012, p. 29).

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[125] Field and laboratory test methods for evaluating the shock absorbing properties of the playground surfacing materials are described in ASTM F1292 Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment.
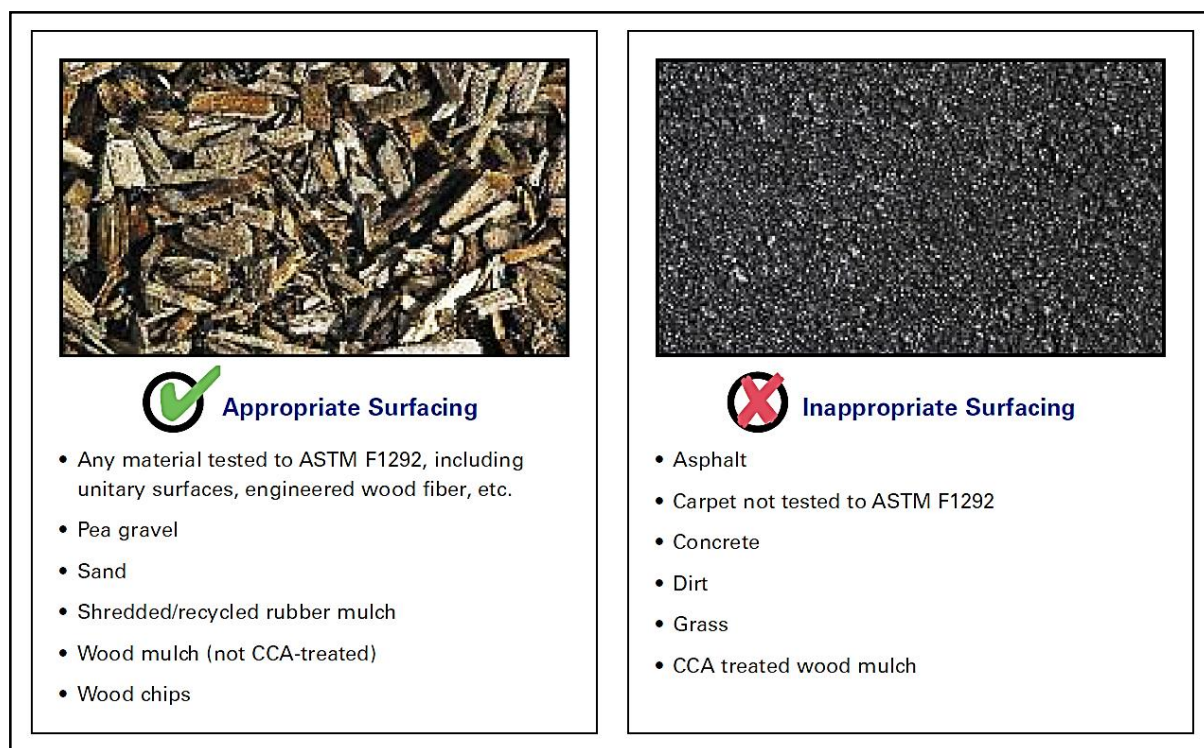
Figure 5-48: *Examples of Appropriate (Impact-absorbent) and Inappropriate Materials for Surfacing in Playgrounds.*

Source: *(USCPSC, 2015, p. 9).*
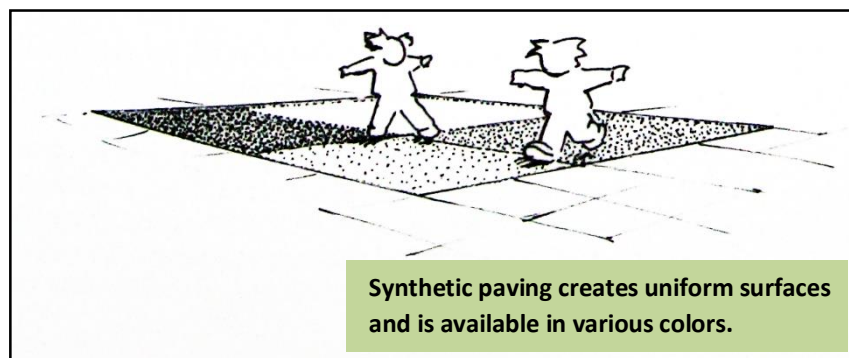
Figure 5-49: *Synthetic Materials/Paving Creates Uniform Surfaces in Playgrounds.*

Source: *(Broto, 2012, p. 29).*

5.5.13.   Color, Children, and Space: Developing a Good Playground

● **Internal and External Relationship with Color**

For designing a good playspace, color must be used carefully to promote the intended types of activity, social interactions and opportunities for development. If color is used skilfully, it can

direct the types of activity within a space, promote a certain mood, and contribute to children's healthy development (Masiulanis, 2017, pp. 176-177).

Our relationships with colors are both internal and external (Masiulanis, 2017, pp. 176-177).

1) External relationship: the area of a playspace has a wider audience than just its users. As stated in Chapter 2, a playground is part of a wider cityscape (urban space) which is available to the public. Thus, the color of the playspace should be in harmony with the local urban scheme.

2) Internal relationship: different colors have especial psychological and physiological effects on humans. In general, it is thought that warm colors promote activity and evoke happier feelings. Exposure to red, orange, and yellow environments seems to raise heart rate and blood pressure. Blue and green are more calming and relaxing.

If childhood is about developing appreciation of the world, then the sensory information (e.g. color, texture, sound, and smell) that a child gains from the environment is crucial (Masiulanis, 2017, p. 175; Meire, 2007, p. 35; Bhattacharya et al., 2003, p. 87). Color – as an important feature of a space – contributes to the sensory information and experiences that the space offers to its users (Masiulanis, 2017, p. 175).

It is also important to keep in mind that culture plays an important role in forming color preferences and emotional responses and associations in relation to colors (Masiulanis, 2017, p. 176; Gascoyne, 2011, p. 13).

It has been suggested that newborns are more interested in the contrasts between colors, than the colors themselves. For this reason, strong black and white patterns may be the most stimulating and engaging for this age group. By about two months of age, their color discrimination is as acute as that of an adult (Masiulanis, 2017, p. 175).

As children grow and their experiences increase and broaden, their preferences and emotional responses to colors change. In general, children up to 4 years old like red best, followed by yellow. As they get older, a preference for blue develops. Preschool children perceive yellow and red as happy colors, but adults tend to associate red with anger. Similarly, children may perceive blue as

a sad color, whereas adults are more likely to associate black with this emotion[126] (Masiulanis, 2017, pp. 175-176).

There is a popular belief that children like bright colors. However, emotional responses to colors depend on cultural characteristics (Masiulanis, 2017, p. 176; Gascoyne, 2011, p. 13).

According to physical therapist Laura Money (2002) bright colors benefit children with visual impairments by stimulating their vision (Bhattacharya et al., 2003, p. 87). Children with impaired vision find guiding references in bright colors and well defined shapes. Considering this, for designing a quality play space it is important to use bright colors to stimulate visual perception, especially in areas designed for children with difficulties. At the same time, it is important to avoid visually overloading the rest of the playground (Broto, 2012, p. 25).

- **Colorful Playgrounds and Green Spaces**

Newer playgrounds with colourful playing structures seem to be more effective in increasing children's activity level than traditional playgrounds. In newer, less traditional playgrounds children seem to play more vigorously and more excitedly (Hughes, 2010, p. 124).

Of course, playground equipment can go even beyond newer, colorfully manufactured materials. Most interesting play equipment and elements are found in natural environments such as gardens with flowers and plants, sand, water, and animal habitats that are interesting for exploring. Based on a study, such natural playgrounds can decrease boredom and antisocial behaviour in young children (Hughes, 2010, p. 124).

Green spaces are especially conducive to play. Areas with vegetation are attractive and interesting to children (Hughes, 2010, p. 124). According to a research on children's play patterns in inner-city Chicago, creative play (e.g. make-believe and role play) is particularly likely to occur in green spaces. When children play in green spaces, they are more likely to interact with adults and have greater access to them. It seems that, for a variety of reasons, green is an appropriate color for outdoor play (Hughes, 2010, pp. 124-125).

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[126] For example, pink fetishism seems to be as much about peer pressure and advertising than anything else.

- **How to Use Color in Designing the Playspace**

It seems, colors are often used somewhat indiscriminately, while they should be used deliberately to evoke a particular mood/feeling, and promote definite action and social interaction. Also, applying color in the design of a playspace should contribute to a child's healthy development and give meaning to the image of the space as part of an urban landscape (Masiulanis, 2017, pp. 176-177).

Certainly, public playgrounds have the potential to be one of the most interesting and beautiful parts of the urban landscape for people who experience them. Applying color should not be dumbed down to a random mix of bright colors because it is disrespectful to both users and more casual observers. Random color use denies the power of color in design (Masiulanis, 2017, p. 177). According to Jill Pilaroscia, architects sometimes (but by no means always) look at colors as the last resort and may wait until the last moment to throw them at a problem, but it is important to see color as a tool that has its own integrity in the design process (Masiulanis, 2017, p. 177).

- **The Relationship between Color and Texture**

It is important to consider the relationship between color and texture. According to Katherine Masiulanis[127], the color variations of the real world are more subtle and richer when combined with texture. For example, would painting a recycled timber remove its sensory quality? (Masiulanis, 2017, p. 178).

In order to inspire kids, achieve specific effect, and support especial functions, different combinations of textures and colors can be applied; some of the intended effects and goals include (Broto, 2012, p. 15):

- Informative and functional reasons: for example marking a change in direction and transition from one play area to another, to distinguish different play areas.
- Evoking specific moods/feelings: for example using suitable colors in area(s) for resting and relaxation or area(s) for active play.

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[127] In her research, COULORS AND MATERIALS.

- Aesthetic reasons: colors and textures should be used in harmony with the overall design of the playground.

5.5.14.   Materials

For constructing a quality playground, materials which facilitate durability, hygiene and ease of maintenance should be selected. In playground equipment, neither potentially toxic elements nor raw metals should be used (Broto, 2012, p. 16).

- **Metal:** To prevent rust, metals that are not inherently corrosion-proof should be painted[128] or galvanized (Broto, 2012, p. 16; USCPSC, 2015, p. 12). When bare metal for platforms, slides, or steps is exposed to direct sunlight it may reach temperatures high enough to cause serious contact burn injuries. Because of that other materials that may reduce the surface temperature can be used, such as wood, plastic, or coated metal (USCPSC, 2015, p. 12).

- **Wood:** Wood could be a good alternative to metal. It should be either naturally rot- and insect-resistant (e.g. cedar or redwood) or should be treated to avoid such deterioration. It should be of a kind that does not splinter; it should be treated[129] to avoid splinters or irregularities that can snag or cut (Broto, 2012, p. 16; USCPSC, 2015, p. 12).

- **Synthetic Materials:** If synthetic materials are chosen, they must be durable enough to avoid splintering and cracking (USCPSC, 2015, p. 12).

- **Paints and Finishes:** The treatment of surface finishes – especially on rough or uneven material – contributes to reducing the risk of injury. All paint and similar finishes must meet current CPSC regulations such as (USCPSC, 2015, p. 12):
  - playground manufacturers should make sure that users cannot ingest, inhale, or absorb potentially hazardous amounts of preservative chemicals or other treatments that are applied to the equipment.

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[128] All paints and other similar finishes must meet the current CPSC regulation for lead in paint.
[129] It needs more than a simple surface work-over.

- painted surfaces and finishes should be maintained to prevent corrosion and deterioration – e.g. rusting of exposed metals, peeling and flaking paint.

5.5.15. Place Identity

For designing or redesigning any public place (e.g. a playground) with its own unique identity, it is important to understand the identity and nature of its context (i.e. the area where it is built). According to Kevin Lynch (1960), the identity of a place simply provides its individuality or distinction from other places and serves as basis for its recognition as a separable entity. But Ian Nairn (1965) expanded this definition. According to him, there are as many identities of place as there are people, since identity is in the experience, eye, mind, and intention of beholder as much as in the physical appearance of the city or landscape. In short, identity is a basic feature of our experience of places which both influences and is influenced by those experiences (Relph, 1976, pp. 103-104). Hence, the three basic elements of place identity are (1) static physical setting, (2) activities of users, and (3) meaning (Relph, 1976, pp. 103-104).

5.6. Summary

As stated in the literature a quality playground plays an important role in supporting children's right to play and their healthy development. In this chapter, some of the main features and qualities that contribute to develop a quality child-friendly playground were described. These include:

- affordance
- natural elements
- loose parts and fluctuating environments
- universal playscape
- safety
- parenting and supervision style in the playground
- sociocultural factors and parenting/supervision style in Germany.

In this chapter, children's play behaviors especially in playgrounds from birth to eight years old were also described (see Table 5-2, in Section 5.5.8.1.). In Section 5.5.9., children's activities and types of playground play were divided into five groups:

- keeping active: physical game

- getting along: social games
- imagining: creative, manipulative, and constructive games
- experimenting: sensorial games
- taking a break or playing in peace and quiet.

A quality child-friendly playground should provide different types of play and equipment for children in different age groups (in this study children aged 4-8 years old). This chapter reviewed literature on playground equipment and settings, including swings, slides, climbing equipment, merry-go-rounds and spinners, seesaws, combined play structures, and abstract shapes and undefined spaces.

Different materials can be applied in playground equipment and flooring/paving/surfacing of its areas.

In Section 5.5.13., the role of color in developing a good playspace, was stated. Color must be used carefully to promote the intended types of activity or mood, social interactions and child development. Different colors can be used to mark different parts and aspects of the playspace. Color preferences and emotional responses to them are influenced by culture (Masiulanis, 2017, p. 176; Gascoyne, 2011, p. 13). Different combinations of texture and color can be applied in order to inspire users, achieve specific effect, and support especial functions.

The features and qualities stated in this chapter can be considered and used in developing a quality playground.

Chapter **6**

Understanding the Context (Nordbahntrasse in Wuppertal)

- Wuppertal Context
- Understanding Nordbahntrasse as selected site to create a new playground
- Observation of playgrounds and play spaces in Wuppertal
- Exploring opportunities and problems of the context

Wuppertal

Context

6.1. Introduction

To develop a design process for the project, it is necessary to understand three contextual elements (Parkour Park area, Nordbahntrasse, Wuppertal). The present chapter explores the opportunities and potentials, as well as gaps and shortcomings, which show the need and relevance of the design project. This, as previously stated, concerns an empty space next to the Parkour Park on the Nordbahntrasse in the Oberbarmen district of Wuppertal as a potential area for the holistic design of a child-friendly playground for children aged 4-8.

The chapter reviews literature about Wuppertal, the Nordbahntrasse, and the Parkour Park area. First, Wuppertal and its main attractions, including entertainment, sightseeing, and recreation will be introduced. Then, the Nordbahntrasse and its Parkour Park – which are among these attractions – will be described. The chapter also presents examples of playing spaces and playgrounds in Wuppertal which have been either observed directly or explored in the literature. Photographs will illustrate the behavior of children and types of play equipment/settings.

6.2.   Understanding the Context of the Future Playground

Wupperrtal

Context

6.2.1. Wuppertal

Wuppertal is a city in the German Federal State of North Rhine-Westphalia (NRW), which is situated in western Germany. With a population of 17.9 million (2017), it is the most populous state of Germany. Four of Germany's 10 largest cities are located in NRW: Düsseldorf, Cologne, Dortmund, and Essen. Düsseldorf is the capital and Cologne is the state's largest city (Figures 6-1 & 6-2)[130] [131].

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[130] https://en.wikipedia.org/wiki/North_Rhine-Westphalia, accessed: 17.08.2019.
[131] https://en.wikipedia.org/wiki/Wuppertal, accessed: 17.08.2019.

Wuppertal was founded in 1929 by amalgamating the two much older manufacturing and trading cities of Barmen and Elberfeld. Its recent population is approximately 350,000. The area of Wuppertal is around 168.41 km^2 (65.02 square miles) (Figure 6-3). The city was formerly a center of the textile, chemical, tool-making and pharmaceutical industries. The Wupper River passes through the city where the suspension monorail (*Schwebebahn*) runs for 10 kilometers above the river (Figure 6-4). Wuppertal is the largest city in the Bergisches Land and is known for its steep slopes, woods and parks, as well as the *Schwebebahn*. It is the greenest city of Germany, with two-thirds green space of the total municipal area. Uniquely for Germany, it is a linear city, because of the steep hillsides along the River Wupper (Figure 6-3). Wuppertal has several municipal subdivisions. These urban districts include: Elberfeld, Elberfeld-West, Uellendahl-Katernberg, Heckinghausen, Langerfeld-Beyenburg, Ronsdorf, Vohwinkel, Cronenberg, Barmen, and Oberbarmen (where the project is situated) (Figure 6-3)[132] [133] [134] [135].

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[132] http://www.orangesmile.com/travelguide/wuppertal/index.htm, accessed: 18.08.2019.
[133] https://en.wikipedia.org/wiki/Wupper, accessed: 18.08.2019.
[134] https://en.wikipedia.org/wiki/Wuppertal, accessed: 17.08.2019.
[135] https://de.wikipedia.org/wiki/Liste_der_Stadtbezirke_und_Stadtteile_von_Wuppertal, accessed: 17.08.2019.

Figure 6-1: *Wuppertal location on the Germany map; Wuppertal is in NRW state.*

Source: *http://ontheworldmap.com/germany/city/wuppertal/wuppertal-location-on-the-germany-map.html, accessed: 17.08.2019.*
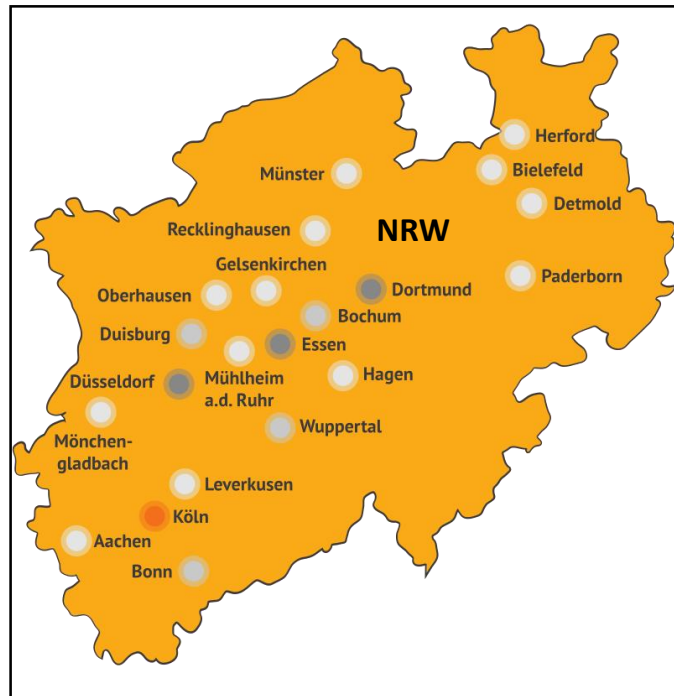
Figure 6-2: *Map of North Rhine-Westphalia (NRW) and its cities; NRW is a state of Germany.*

Source: *https://www.chance-quereinstieg.de/quereinstieg-erzieher-in/nordrhein-westfalen-karte/, accessed: 17.08.2019.*
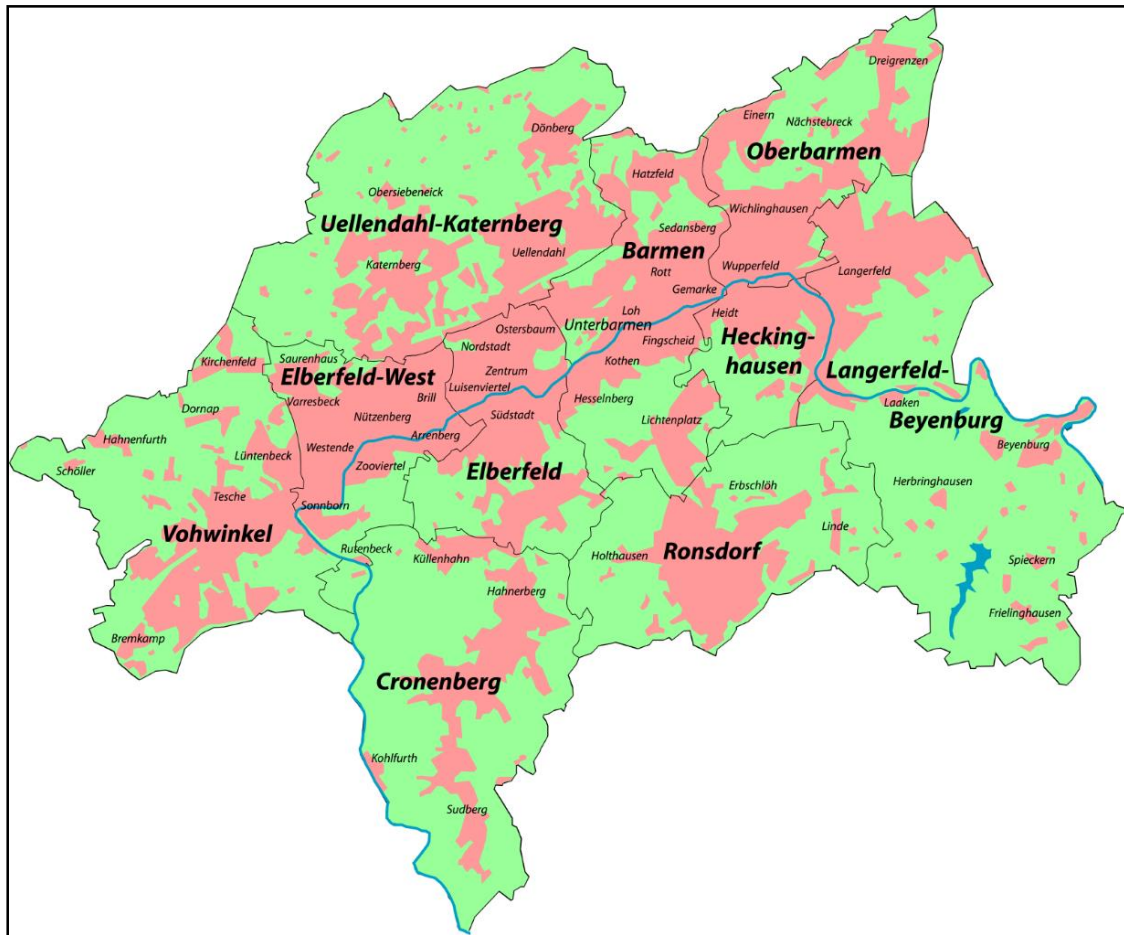
Figure 6-3: *Wuppertal Map and its Municipal Subdivisions (Urban Districts).*

Source: *https://de.wikipedia.org/wiki/Datei:Wuppertal.png, accessed: 16.08.2019.*

Figure 6-4:

Wuppertal City Center and Suspension Monorail (Schwebebahn).

Source: *Photos were taken by the author (Neda Batenipour).*

6.2.2. Attractions, Entertainment, Sightseeing, and Recreation in Wuppertal

Wuppertal has a wide variety of attractions. It offers various entertainments and places for visiting, enjoying, sightseeing and recreation, e.g. the zoo, Stadthalle (Historic Concert Hall), Sculpture Park, botanical gardens, Engels House, Von der Heydt Museum (art gallery), industrial museum, Brill villa area, etc.

Some of these interesting places and activities have been introduced in Figure 6-5. The photos of these places have been shown in Figure 6-6. One of these attractions is the Nordbahntrasse, converted from a former suburban railroad track into an urban cycle and walking facility. The playground project is located on an empty space next to the Parkour Park on the Nordbahntrasse in Oberbarmen.

WUPPERTAL

Main Places and Attractions
for Visiting, Sightseeing, Enjoying,
Recreation, and Fun;
For Adults and Children;
For Residents and Tourists.

21. Nordbahntrasse and Parkour Park

1. Wuppertal Suspension Railway (The Wuppertal Schwebebahn)

2. The open-air Bergische Museumsbahnen (Museum of Railways in Bergische)

3. Von der Heydt Museum
The Von der Heydt Museum includes works by artists from the 17th century to the present time.

4. Museum für Frühindustrialisierung (Museum of Early Industrialization)

5. Knipex Museum
Knipex is a manufacturer of pliers and similar hand tools for professional use.

6. Schwimmoper Wuppertal (Swimming Center in Wuppertal)

7. Opernhaus - Wuppertaler Bühnen
It is an Opera House.

8. Historische Stadthalle Wuppertal
Historic Hall of Wuppertal is for events like chamber music concert.

9. Schloss Lüntenbeck (Lüntenbeck House known as Lüntenbeck Castle)

10. Briller Viertel (Briller District)
The Briller district, is a city-centered district in the Elberfeld-West district of Wuppertal.

11. Luisenviertel (Luisen District)
The center of the Luisenviertel is Laurentiusplatz where Catholic basilica of St. Lawrence stands.

12. Neumarkt

13. Friedrich Engels' house and birthplace

14. Beyenburg Castle Wuppertal

15. The Park of Barmer Anlagen

16. Nordpark Wuppertal

17. Vorwerkpark

18. Sculpture Park (Skulpturenpark Waldfrieden)

19. Wuppertal Zoo

20. Hardt- Anlagen Park, Botanischer Garten Wuppertal (Bontanical Garden of Wuppertal) and Elise Tower

Figure 6-5: *Main Places and Attractions of Wuppertal for Visiting, Enjoying, Sightseeing, Recreation, and Fun; for Adults and Children; for Residents and Tourists.*

Figure 6-5: *Main Attractions/Places of Wuppertal for Visiting, Enjoying, Sightseeing, Recreation, and Fun; for Adults and Children; for Citizens and Tourists.*

Source: *Prepared by the Author*
Main sources:
https://www.thecrazytourist.com/15-best-things-wuppertal-germany/
http://www.orangesmile.com/travelguide/wuppertal/attractions--1891347.htm
No. 1: https://en.wikipedia.org/wiki/Wuppertal_Schwebebahn
No. 2: https://en.wikipedia.org/wiki/Bergische_Museumsbahnen
No. 3: https://en.wikipedia.org/wiki/Von_der_Heydt_Museum & https://www.von-der-heydt-museum.de/
No. 5: https://www.knipex.de/ & https://en.wikipedia.org/wiki/Knipex
No. 6: https://www.bega.com/en/references/schwimmoper-swimming-centre-wuppertal/
No. 7: https://www.oper-wuppertal.de/
No. 9: https://www.schloss-luentenbeck.de/ & https://de.wikipedia.org/wiki/Schloss_L%C3%BCntenbeck
No. 10: https://de.wikipedia.org/wiki/Brill_(Wuppertal)
No. 11: https://www.ich-geh-wandern.de/luisenviertel-wuppertal & https://de.wikipedia.org/wiki/Luisenstra%C3%9Fe_(Wuppertal)
No. 12 & No. 13: https://www.thecrazytourist.com/15-best-things-wuppertal-germany/
No. 14: https://de.wikipedia.org/wiki/Beyenburg
No. 15: https://de.wikipedia.org/wiki/Barmer_Anlagen
No. 16: https://de.wikipedia.org/wiki/Nordpark_Wuppertal
No. 17: https://de.wikipedia.org/wiki/Vorwerkpark & https://www.vorwerk-park.de/
No. 18: https://skulpturenpark-waldfrieden.de/en/sculpture-park.html
No. 19: https://www.wuppertal.de/microsite/zoo/index.php & https://en.wikipedia.org/wiki/Wuppertal_Zoo
No. 20: https://de.wikipedia.org/wiki/Hardt_(Wuppertal) , http://www.botanischer-garten-wuppertal.de/wordpress/ ,
https://de.wikipedia.org/wiki/Hardt_(Wuppertal) *& https://en.wikipedia.org/wiki/Botanischer_Garten_Wuppertal*
No. 21: https://de.wikipedia.org/wiki/Nordbahntrasse
Accessed: 27.4.2020.

1. Wuppertal Suspension Railway (The Wuppertal Schwebebahn)

2. The open-air Bergische Museumsbahnen

3. Von der Heydt Museum

4. Museum für Frühindustrialisierung (Museum of Early Industrialization)
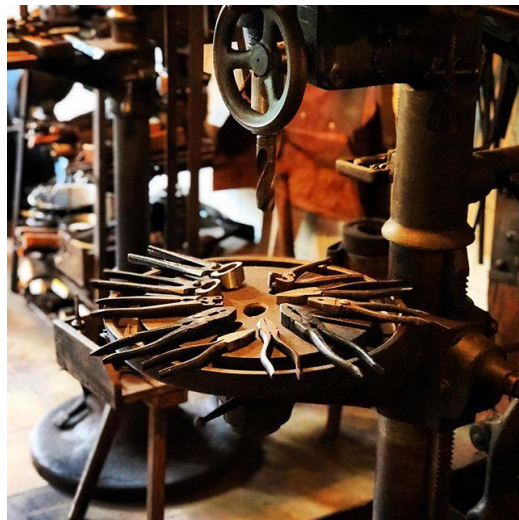
5. Knipex Museum

6. Schwimmoper Wuppertal

7. Opernhaus - Wuppertaler Bühnen

8. Historische Stadthalle Wuppertal

9. Schloss Lüntenbeck (known as Lüntenbeck Castle)

10. Briller Viertel

11. Luisenviertel, Laurentiusplatz, Catholic basilica of St. Lawrence

Figure 6-6 (Part 1): *Photos of Attractions/Places of Wuppertal that were introduced in Figure 6-5.*

Next Page ⇒
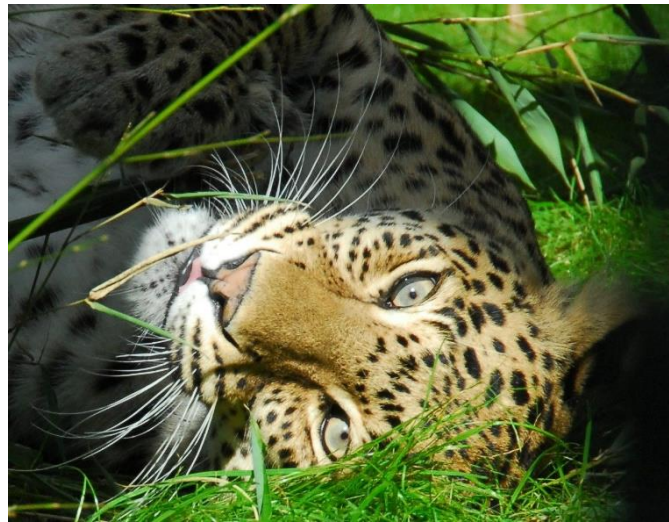
12. Neumarkt

13. Friedrich Engels' house and birthplace

14. Beyenburg Castle Wuppertal

15. The park of Barmer Anlagen

16. Nordpark Wuppertal

17. Vorwerkpark

18. Sculpture Park (Skulpturenpark Waldfrieden)

Figure 6-6 (Part 2): *Photos of Attractions/Places of Wuppertal that were introduced in Figure 6-5.*

19. Wuppertal Zoo

20. Hardt- Anlagen Park, Botanischer Garten Wuppertal (Bontanical Garden of Wuppertal) and Elise Tower
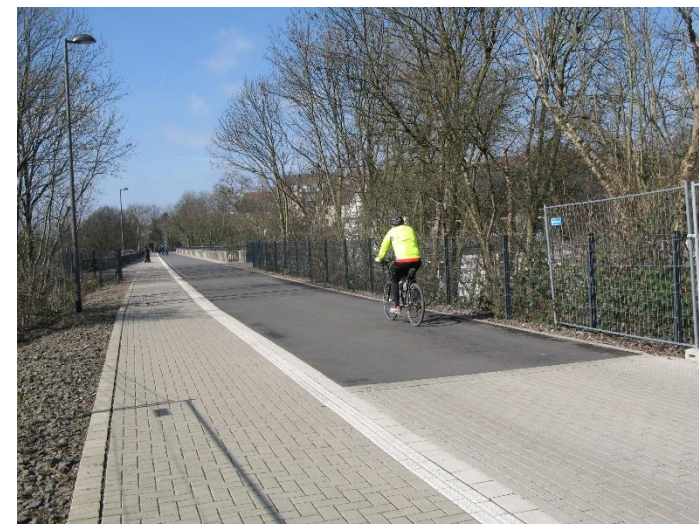
21. Nordbahntrasse: The Neighbourhood of Parkour Park and Future Playground, on Nordbahntrasse, in Oberbarmen.

Figure 6-6 (Part 3): *Photos of Attractions/Places of Wuppertal that were introduced in Figure 6-5.*

Figure 6-6: *Photos of Attractions/Places of Wuppertal that were introduced in Figure 6-5.*

Source:
No. 1: Photo has been taken by the author (Neda Batenipour).
No. 2: https://en.wikipedia.org/wiki/Bergische_Museumsbahnen
No. 3: https://www.kulturcram.de/2019/06/finissage-in-wuppertal-von-der-heydt-museum-ende-der-aera-finckh/
No. 4: Photo by: Holger Klaes.
https://www.klaes-w.de/webseiten/bergisches_land/wuppertal_barmen/wuppertal_barmen_hist_zentrum_museum_fuer_fruehindustrialisierung_r3582x.htm
No. 5: https://gramho.com/explore-hashtag/germanhandtools
No. 6: Photo by: Marie Tysiak. https://www.wuppertaler-rundschau.de/lokales/wieder-badespass-auf-dem-johannisberg_aid-37184355
No. 7: https://www.t-online.de/region/wuppertal/news/id_87373960/wuppertaler-buehnen-spekulationen-um-baldige-insolvenz.html (Quelle: blickwinkel/Archivbild/imago images).
No. 8: https://de.wikipedia.org/wiki/Stadthalle_Wuppertal
No. 9: https://commons.wikimedia.org/wiki/File:Schlo%C3%9F_L%C3%BCntenbeck_001.jpg
No. 10: Photo by: Ute Latzke. https://www.utelatzke.com/textart-blog/tag/Briller+Viertel
No. 11: https://www.ich-geh-wandern.de/luisenviertel-wuppertal
No. 12: https://commons.wikimedia.org/wiki/File:Wuppertal_Neumarkt_0005.jpg & https://de.wikipedia.org/wiki/Datei:Wuppertal_Elberfeld_3.jpg
No. 13: https://commons.wikimedia.org/wiki/File:Wuppertal_-_Engels-Haus_03_ies.jpg
No. 14: https://www.ich-geh-wandern.de/slideshow/13272
No. 15: https://wp.eghn.org/de/barmer-anlagen/
No. 16: https://www.trfihi-parks.com/en/park-details/10169-Nordpark---Wuppertal
No. 17: Photo by: Klaus-Günther Conrads. https://www.wuppertaler-rundschau.de/lokales/vorwerk-park-fehlt-geld-was-nun_aid-37227529
No. 18: https://skulpturenpark-waldfrieden.de/en/sculpture-park.html
No. 19: https://de.wikipedia.org/wiki/Datei:Empfangsgeb%C3%A4ude_Zoo_Wuppertal.jpg & https://www.wuppertal.de/microsite/zoo/highlights/highlights.php
No. 20: https://www.thecrazytourist.com/15-best-things-wuppertal-germany/, https://commons.wikimedia.org/wiki/File:Wuppertal_Hardt_0142.jpg &
https://en.wikipedia.org/wiki/Botanischer_Garten_Wuppertal
Accessed: 27.4.2020.
No. 21: The photos have been taken by the author (Neda Batenipour).

6.2.3. Nordbahntrasse

The Nordbahntrasse in Wuppertal is a pedestrian, bike and inline skating route on the former railway track. It is roughly 22 km long. It stretches on a west-east axis, along the northern slope of the Wuppertal urban area. It connects the conurbations of Vohwinkel, Elberfeld and Barmen with almost no crossings. There are numerous attractions and interesting sights along the Nordbahntrasse route (Figures 6-7, 6-8 & 6-9)[136] [137] [138].

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[136] https://inklupedia.de/wiki/Nordbahntrasse, accessed: 04.05.2020.
[137] https://de.wikipedia.org/wiki/Nordbahntrasse, accessed: 04.05.2020.
[138] http://wuppertalbewegung.de/nordbahntrasse/streckenverlauf/, accessed: 05.05.2020.

Figure 6-7: *Nordbahntrasse in Wuppertal which is a roughly 22 km long pedestrian, bike and inline skating route on the former railway track.*

Source: *No. 1: Photo by Reinhold Weber, https://nationaler-radverkehrsplan.de/de/node/18857.*

No. 2: Photo by Reinhold Weber, https://nationaler-radverkehrsplan.de/de/node/18857.

No. 3: http://wuppertalbewegung.de/die-nordbahntrasse-kann-der-laengste-campus-der-welt-werden/, accessed: 08.05.2020.

1

Parkour Plateau

2

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4

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7

Engelnberg-Tunnel on Nordbahntrasse.
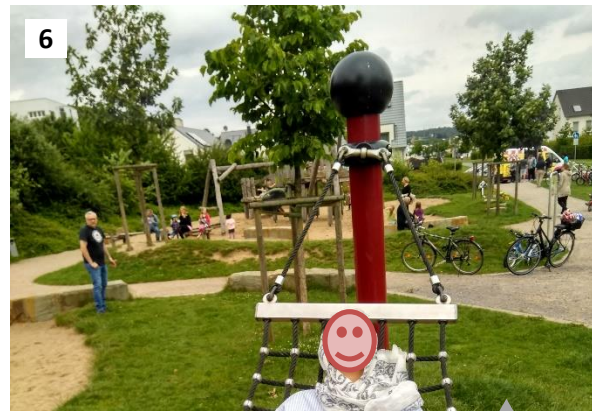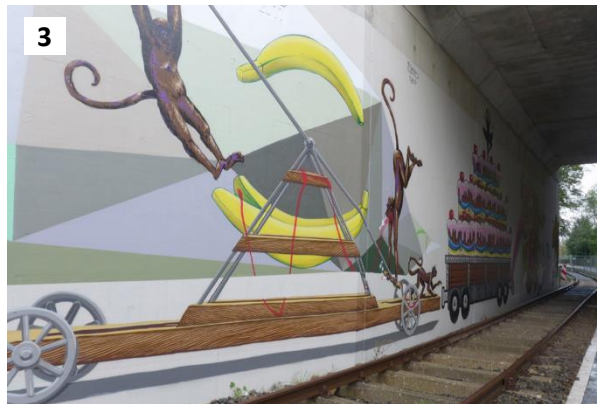
Information room (small space for praying or resting) and a playground on the Nordbahntrasse which is located near Wicked Wood.

Figure 6-8: *Some of the attractions and interesting sights along Nordbahntrasse.*

Source: *No. 1- No. 5: (Kalnpure, 2015, p. 34).*

No. 6: Taken by the author (Neda Batenipour).

No. 7: https://commons.wikimedia.org/wiki/File:Wuppertal_-_Nordbahntrasse_-_Engelnberg-Tunnel_05_ies.jpg

210

Figure 6-9: *Map of Nordbahntrasse and Wuppertal Suspension Railway (Schwebebahn).*

Source: *http://wuppertalbewegung.de/neuer-trassenplan-der-wuppertalbewegung-geht-online/, accessed: 16.08.2019.*

- **The process of developing the Nordbahntrasse**

The Nordbahntrasse was developed through a cooperative process involving the local citizens' initiative, the *Wuppertal Bewegung* (Wuppertal Movement), and the City Council[139]. The primary goal of this association is to help shape the future of the city of Wuppertal by means of voluntary civic engagement and to promote projects that create immediate, practical and sustainable benefits (Kalnpure, 2015, p. 35)[140].

In 2005, the initiators of the "Wuppertal Movement" contacted the traffic planning department and promoted their idea of putting the old disused railway tracks to new use. This attracted public attention and participation. The main goal of the organization was to build a bicycle and pedestrian track (Kalnpure, 2015, p. 35)[141].

The *Wuppertalbewegung* team included architects, engineers and media professionals, who could deal with the public quickly and skillfully. In May 2006, the association presented a feasibility study on the implementation of the project. The city council immediately supported the proposed approach. "Nordbahntrasse" was chosen as a concise project description in the name of the "Wuppertal Nordbahn" association, which had been founded in 1991 by the ProBahn association[142].

During the years of development from 2005 to 2014, the Nordbahntrasse[143] project attracted financial support from state funds and various private sponsors until its successful completion at the end of 2014. It has become a popular destination for cyclists, joggers, pedestrians, skaters and others. The facility is owned by Wuppertal City Council (Kalnpure, 2015, p. 35).

- **The Nordbahntrasse and cycling**

With the realization of the Nordbahntrasse, Wuppertal has taken a decisive step in the promotion of active mobility and towards becoming a friendly city for cyclists and walkers. This aim has been particularly supported in NRW for several years[144]. The Nordbahntrasse has significantly increased

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[139] https://nationaler-radverkehrsplan.de/en/node/21515, accessed: 08.05.2020.
[140] https://nationaler-radverkehrsplan.de/en/node/21515, accessed: 08.05.2020.
[141] https://nationaler-radverkehrsplan.de/en/node/21515, accessed: 08.05.2020.
[142] https://nationaler-radverkehrsplan.de/en/node/21515, accessed: 08.05.2020.
[143] Nordbahntrasse is a public open space.
[144] https://nationaler-radverkehrsplan.de/en/node/21515, accessed: 08.05.2020.

the number of cyclists in Wuppertal, since it offers a route through a topographically pleasurable area.

6.2.3.1. Parkour Plateau[145] on the Nordbahntrasse in Wuppertal

- **Parkour**

'Parkour' (also referred to as 'Free running') is an aspect of youth culture developed in France by a group of young men who called themselves Yamakasi. The word 'parkour' derives from '*parcours du combatant*', the classic obstacle course method of military training proposed by Georges Hébert. Parkour is a training discipline that includes overcoming obstacles and movements in a fast, efficient and elegant fashion. Practitioners (also called 'tracers' or *traceurs*) aim to get from one point to another in a complex environment without assistive equipment, and in the fastest and most efficient way possible. It includes running, climbing, swinging, vaulting, jumping, plyometrics, rolling, quadrupedal movement (crawling) and other movements as deemed suitable for the situation (Figure 6-10)[146] [147] (Ricken, 2014, p. 47).

Parkour is a type of sport that is usually practiced in solid built-up free urban spaces, though it can be done anywhere. Training facilities and structures for parkour mainly consist of a mixture of steel frame elements, steel bars, concrete walls, concrete platforms, steps, and ramps. Parkour is an activity that can be practiced alone or with others. However, the main focus is not on competing with others or testing one's athletic courage[148] [149] (Ricken, 2014, p. 47). "Parkour involves seeing one's environment in a new way, and imagining the potential for navigating it by movement around, across, through, over, and under its features"[150].

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[145] Also called 'Parkour Park'
[146] https://en.wikipedia.org/wiki/Parkour, accessed: 12.05.2020.
[147] https://www.hags.com/en-us/creating-an-outdoor-space/build-a-parkour-park-with-hags, accessed: 14.05.2020.
[148] https://en.wikipedia.org/wiki/Parkour, accessed: 12.05.2020.
[149] https://www.hags.com/en-us/creating-an-outdoor-space/build-a-parkour-park-with-hags, accessed: 14.05.2020.
[150] https://en.wikipedia.org/wiki/Parkour, accessed: 12.05.2020.

Figure 6-10: *Examples of Parkour Parks and Parkour Practices.*

Source: *No. 1: https://www.hags.com/en-us/creating-an-outdoor-space/build-a-parkour-park-with-hags, accessed: 14.05.2020.*
No. 2: https://gaisf.sport/world-urban-games-provides-ultimate-stage-for-parkour-athletes/, accessed: 14.05.2020.

- **Nordbahntrasse Parkour Plateau**

The Parkour Plateau is located on the Nordbahntrasse, directly on the platform area of the former Wichlinghausen railway station which is in Oberbarmen district. Parkour Plateau in Wuppertal, has been an attractive project completed and opened in 2014. It offers approximately 900 m^2 of training area with facilities where sequences of movement and techniques of parkour can be practiced (Figures 6-11 & 6-12)[151] (Ricken, 2014, p. 47). Parkour Park is designed for adults and children over 8. Generally, the children who use Parkour Park have good physical abilities. Parents often accompany their children while they are using the equipment, but they give their children enough freedom to move and choose. The space offers attractive training facilities for beginners as well as skilled and experienced practitioners (Figure 6-13) (Ricken, 2014, p. 47).

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[151] https://proelan.net/parkouranlagen/news/parkour-plateau-wuppertal, accessed: 15.05.2020.
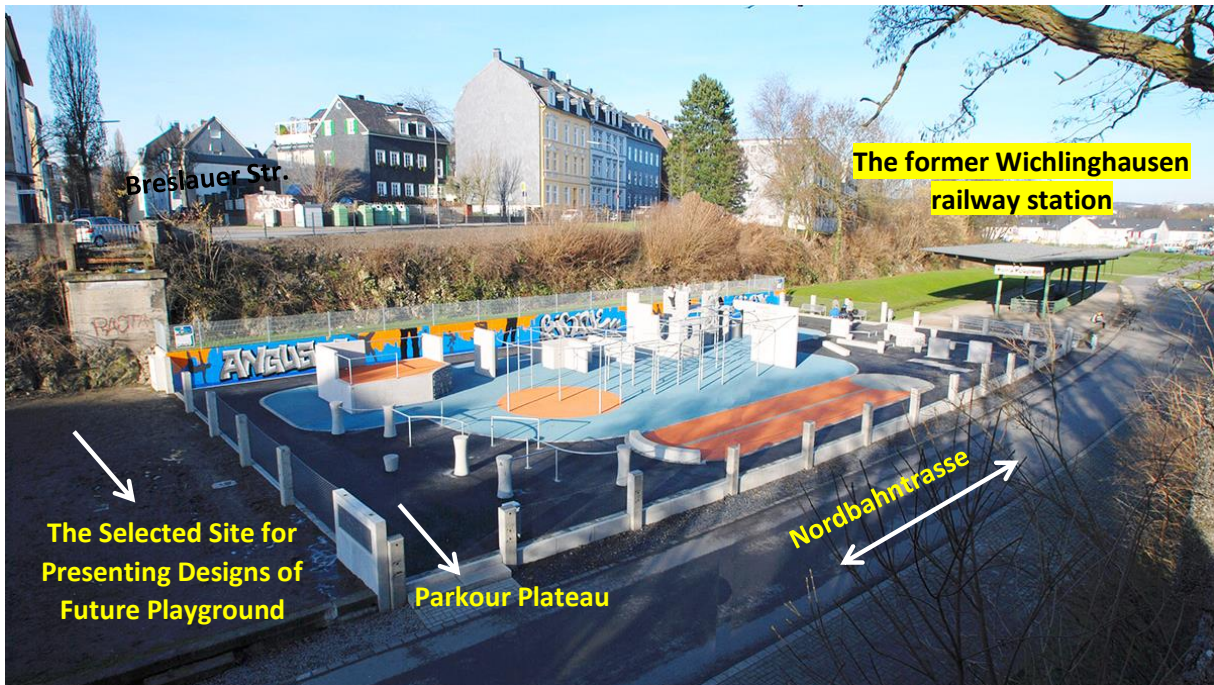
Figure 6-11: *Area of Parkour Plateau (Parkour Park) on Nordbahntrasse, in Oberbarmen.*

Source: *https://x-move.net/en/parkour-parcs/, accessed: 15.05.2020.*
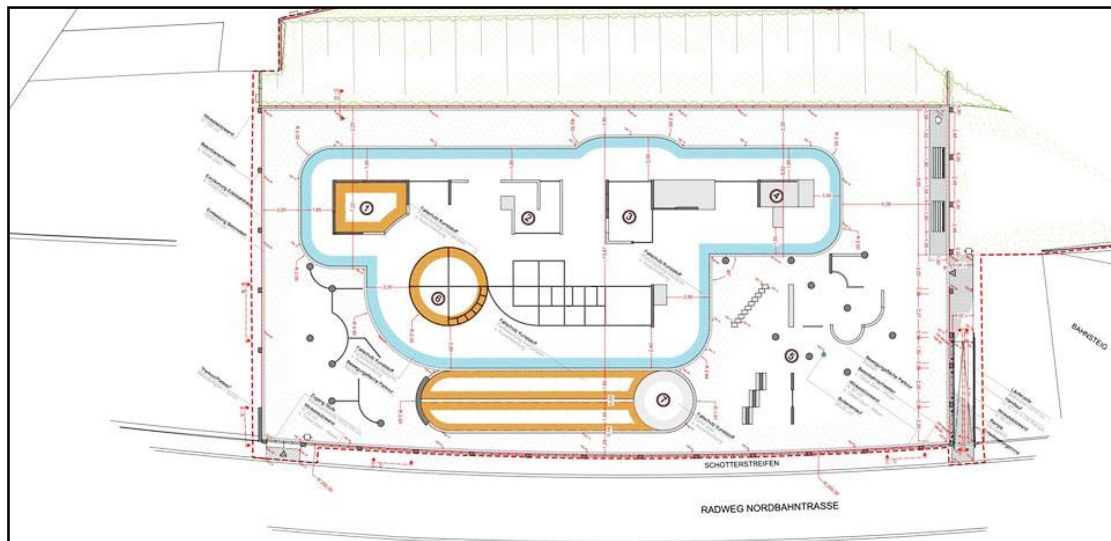
Figure 6-12: *Plan (Two-dimensional Map) of Parkour Plateau.*

Source: *https://www.spielplatztreff.de/blog/neue-parkour-anlage-in-wuppertal-eroeffnet/, accessed: 15.05.2020.*

Figure 6-13: *Parkour Plateau on the Nordbahntrasse. The intended users include adults and children who are over the age of 8 years.*

Source: *No. 1: http://www.wuppertalbewegung.de/jeck-am-reck-hochbetrieb-auf-der-parkouranlage/, accessed: 15.05.2020. No. 2 - No. 5: Photos were taken by the Author (Neda Batenipour).*

The facilities and settings of the Parkour Plateau (Parkour Park) were planned and constructed in accordance with the standards, rules, and necessary norms for constructing a public space and play area (e.g. regulations for spacing areas and impact absorbing surfaces to avoid injuries) (Ricken, 2014, p. 47). Facilities include concrete structures, railings and other fixtures made of steel. The ground surface is mainly asphalt, enabling users to enjoy free movement. To avoid fall injuries, synthetic surfaces have been provided in the areas with the higher and larger equipment, which is for more experienced users (Ricken, 2014, p. 47).

6.2.4. Outdoor playgrounds in Wuppertal (public and private playgrounds)

Wuppertal has more than 300 outdoor public playgrounds and a few indoor public playgrounds[152]. Wuppertal has around 50,737 children and young people aged 0-14[153].

Playgrounds in Germany can be either private or public. Wuppertal's public playgrounds are owned by the City Council, which is responsible for creating, managing and maintaining playgrounds through cooperation with other communities and parties. The playgrounds can be in public parks, natural environments, or urban spaces. Most public playgrounds are built in open spaces. However, there are also indoor playgrounds like 'Upsalla Kinderpark'[154] in Wuppertal. These are especially suitable for winter use. Some buildings and houses have their own private playgrounds that can be used only by the children and families who live there. These private playgrounds are mainly located in the green spaces of residential estates. Generally, the care and maintenance of private playgrounds is the responsibility of the owner (Meire, 2007, pp. 24-26 & p. 39)[155]. As stated in Section 2.5.2., the relation between public and private space is a continuum not a dichotomy (Madanipour, 2010, p. 8; Akkar Ercan, 2010, p. 25). Considering this, school playgrounds or kindergarten playgrounds can be considered as private-public playgrounds, because in comparison to the users of outdoor public playgrounds, they are restricted to children who daily participate in these institutes (schools and kindergartens). However, the users of

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[152] https://spielplatznet.de/spielplaetze/Wuppertal, accessed: 16.05.2020.
[153] https://www.citypopulation.de/en/germany/nordrheinwestfalen/wuppertal/05124000__wuppertal/, accessed: 16.05.2020.
[154] https://www.upsalla-kinderpark.de/, accessed: 14.03.2021.
[155] https://www.berlin.de/senuvk/umwelt/stadtgruen/kinderspielplaetze/en/private_spielplaetze/index.shtml, accessed: 17.05.2020.

school/kindergarten playgrounds are more from the public domain than is the case with private playgrounds in residential estates.

6.2.5. Examples of Outdoor Public Playgrounds in Wuppertal

In this section, several examples of playing spaces and playgrounds in Wuppertal, which have been either observed directly or studied in the literature, are presented. Photographs illustrate the behavior of children and types of play equipment/settings in these play spaces.

1. Loher Brücke playground

Figures of this section presents the observation on a playground in Loher Brücke, in Wuppertal. Figure 6-14, shows the parents who accompany and support their little children in the playing space and on play settings (e.g. in the area of the spinner or slide) while giving them enough freedom to move and choose. The parenting style and main sociocultural factors in Germany were described in Section 5.5.7., in Chapter 5. Also, older children play an important role to guide and support younger children, their siblings, or playmates while playing and using playground equipment (Figure 6-15).

As stated in Section 5.5.7., in Chapter 5, in general German parents give their children enough freedom to move and choose. They raise independent children. Parenting support and style depend on many factures like culture, quality of supervisor's knowledge of safe play behavior, characteristics of parents, and abilities and characteristics of child (USCPSC, 2015, p. 7; Solomon, 2014, pp. 19-20). When children – especially the young ones or the ones with especial needs – use more complicated and advanced play equipment with higher level of risk (e.g. climbing elements or high play equipment for balancing), they need more support from parents, caregivers, older children, their playmates or siblings (Figure 6-16).

In comparison to young children, older children get more involved in social games which need more cooperation. For example, the large bucket swing (also called 'nest' swing) encourages children for playing together (Figure 6-17). First, children see how many can fit onto the saucer-shaped bucket. Then, at least one person pushes the bucket. There is an interesting shared discovery of an ongoing process of swinging (Figure 6-17) (Solomon, 2014, pp. 54-55).
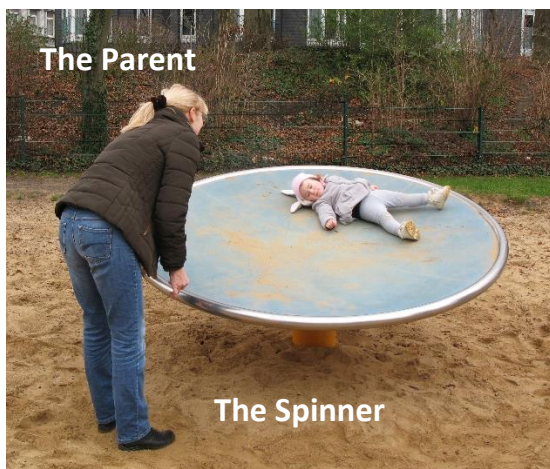
Figure 6-14: *The playground in Loher Brücke, in Wuppertal. Young children are using the space and play settings and their parents are accompanying and supporting them while giving them enough freedom to move and choose.*

Source: *Photos by the author.*

Flexible Climbing Ladder

The plastic wobbly bridge

Figure 6-15: *The playground in Loher Brücke, in Wuppertal. The older child is accompanying and supporting the younger child (her sister) while using the play equipment together.*

Source: *Photos by the author.*
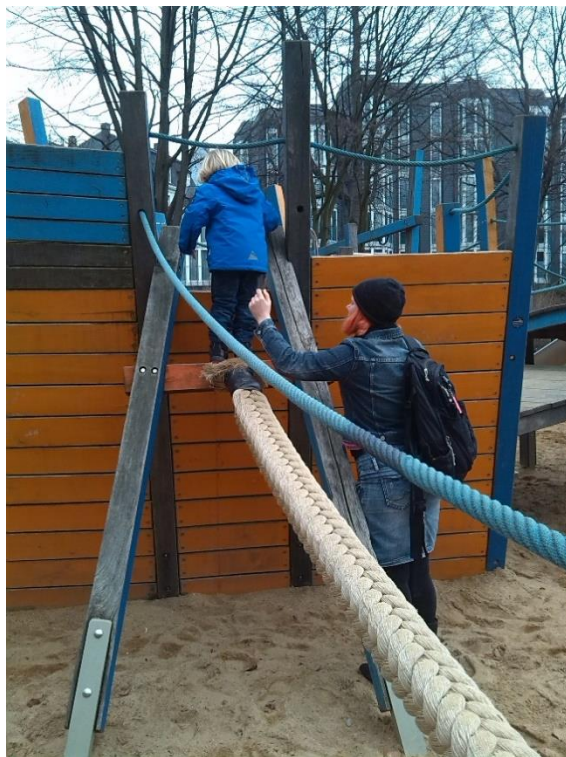
Figure 6-16: *The playground in Loher Brücke, in Wuppertal. A mom is supporting his small child closely since he is using play equipment that has the risk of falling.*

Source: *Photos by the author.*

Figure 6-17: *Loher Brücke Playground. Children play together; they swing together on a bucket (nest) swing; one child pushes the bucket and then swings with others. This needs cooperation.*

Source: *Photos by the author.*

Figure 6-18, presents other photos of the playground in Loher Brücke, Wuppertal. The main structure in the middle of playground is a ship-shaped play setting; it is a composite (combined) structure that has different parts and offers various affordances and experiences for playing such

as sliding, climbing, hiding, balancing, and passing through tunnel. The main flooring/surfacing material of the playground is sand.

Figure 6-18: *Loher Brücke playground. The main structure in the middle of the playground which is a ship-shaped composite which offers various affordances and experiences for playing.*

Source: *Photos by the author.*

2. Kaiserhöhe Park playgrounds

The playground is located in a c. 41 hectare park area at the top of the wooded Nützenberg Hill[156] in West Elberfeld. The park was laid down in 1874 by the Elberfeld Improvement Association. Here, at the highest point of the Nützenberg, is the Weyerbusch tower, built in 1898 (Figure 6-19). The area has various, differently equipped playing spaces such as:

- a playground for small children around the Weyerbusch Tower, where the summer festival takes place once a year (Figure 6-19);

- high rope courses/equipment, giant trampoline, two giant swings, soccer field and basketball court (artificial turf sports field with floodlights) (Figure 6-20);

- playgrounds and play settings for older children, located 200 meters from Weyerbusch Tower (Figures 6-21 & 6-22).

The surfacing material for the small children's playground is sand (Figure 6-19). The play elements include a small tree house and slide, nest swing, spinner, sand area, and other equipment. The main colors of the equipment and environment are neutral like brown and grey. Some equipment is green. The main colors of the play environment (brown, grey, and green) are in harmony with the context (i.e. woodland colors). However, these colors may attract children visually less than bright colors. There are several benches around the Weyerbusch Tower where adults, parents, and children can rest, eat, etc. (Figure 6-19).

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[156] https://de.wikipedia.org/wiki/N%C3%BCtzenberg, accessed: 14.03.2020.

Weyerbuschturm

Playground next to the Weyerbuschturm.

Benches around Weyerbuschturm.

Figure 6-19: *Weyerbuschturm and the surrounding playground (for small children) in Kaiserhöhe Park, Nützenberg.*

Source:

No. 1: https://commons.wikimedia.org/wiki/Category:Weyerbuschturm?uselang=de#/media/File:Wuppertal_Weyerbuschweg_0045.jpg, accessed: 21.05.2020.

No. 2: http://www.klausvomoelberg.de/blog/wp-content/uploads/2011/09/der-spielplatz.jpg, accessed: 21.05.2020.

No. 3 & No. 4: https://www.spielplatztreff.de/spielplatz/weyerbuschturm-in-wuppertal_385/1762#bild, accessed: 23.05.2020.

Figure 6-20: *Giant swings, soccer field and basketball court in Kaiserhöhe Park, Nützenberg.*

Source: *No. 1: Photo taken by the author (Neda Batenipour).*

No. 2: https://www.spielplatztreff.de/spielplatz/nuetzenberg-reitbahn-in-wuppertal_384/1759#bild, accessed: 23.05.2020.

Figure 6-21: *Playing spaces and settings (for older children) in Kaiserhöhe Park, Nützenberg.*

Source: *https://mapio.net/pic/p-21932833/, accessed: 23.05.2020.*

The playing space for older children in Kaiserhöhe Park includes two large combined structures with various parts: climbing equipment, slides, wobbly bridge, wooden ladders and stairs, tree house, etc. The surfacing/flooring material is wood mulch (chips). Similar to the playing space for younger children around Weyerbuschturm, the main colors of the playing equipment and play environment of these playgrounds are neutral, brown and grey (Figures 6-20, 6-21, & 6-22).

These playing spaces in natural environment of the forest ('Nützenbergwald') offer various affordances for children. There are several benches in the area for people to sit, rest, observe nature, watch their children playing, and enjoy the environment (Figure 6-21).

Figure 6-22: *Playing settings (for older children) in Kaiserhöhe Park, Nützenberg.*

Source: *Photos taken by the author (Neda Batenipour).*

3. Playground in the open area of Bayer Sports Hall

The Bayer Sports Hall (SV Bayer) in Wuppertal is located in the open area of the Bayer Sports Park in the Elberfeld-West district of Wuppertal. The club offers various professional facilities and sport courses for children and adults[157] [158]. There is a playground for children in the open area of the club (Figure 6-23). The surfacing/flooring materials are sand and wood mulches. The play equipment of the playground includes a nest swing, balancing elements, equipment for hanging, a spinner, sand area, a slide, climbing equipment (e.g. ladders, inclined surfaces with hand and food supports, and climbing nets), and wobbly bridges[159].

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[157] https://de.wikipedia.org/wiki/Bayer-Sporthalle_Wuppertal, accessed: 25.05.2020.
[158] https://www.sv-bayer.de/, accessed: 25.05.2020.
[159] https://www.spielplatztreff.de/spielplatz/sv-bayer-wuppertal-spielplatz-in-wuppertal_2736, accessed: 25.05.2020.

Figure 6-23: *Bayer Sports Club Playground.*

Source: *Photos taken by the author (Neda Batenipour).*

4. Playground in Wuppertal Zoo

Wuppertal Zoo covers 24 hectares in West Wuppertal. It houses about 5,000 animals representing about 500 species from around the world, ranging from apes, monkeys, bears, big cats, and elephants, to birds, reptiles, and fish. One of this zoo's specialties is its big cats. It was decided to install a new play area that would recreate the environment of the Siberian tiger[160] (Broto, 2012, p. 300).

Through playing in this play area children would be encouraged to get involved in pretend play ('fantasy play') and learn about wildlife. The zoo commissioned the studio of landscape architects and engineers, Rehwaldt Landschaftsarchitekten[161]. The installation of the play area is located next to the zoo's tiger zone. It consists of a forest-like timber labyrinth. With a length of between 1.5 and 2m, the timber elements rise above the children's heads (Figure 6-24). They are embedded firmly in the ground. Thus, children can climb on them safely. The surfacing material includes wood chips spread across the floor (Broto, 2012, p. 300).

There are 5 wooden figures of typical Siberian tiger's prey, hidden between the timbers. Children can creep through this jungle stalking the tiger's prey (as if they were tigers themselves). This play encourages children to play, focus and learn (Figure 6-24) (Broto, 2012, p. 300).

A series of whisper tubes (i.e. megaphone pipes) that amplify the children's voices have been installed in different parts of the space. By using this play equipment, children can get more involved in their fantasy play (e.g. by recreating the tiger's roar) (Figure 6-24) (Broto, 2012, p. 300). A non-directive approach gives children freedom to decide how they are going to use the space (Broto, 2012, p. 300).

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[160] https://en.wikipedia.org/wiki/Wuppertal_Zoo, accessed: 26.05.2020.
[161] https://www.rehwaldt.de/projekt.php?proj=WUZ-Spielplatz, accessed: 28.05.2020.
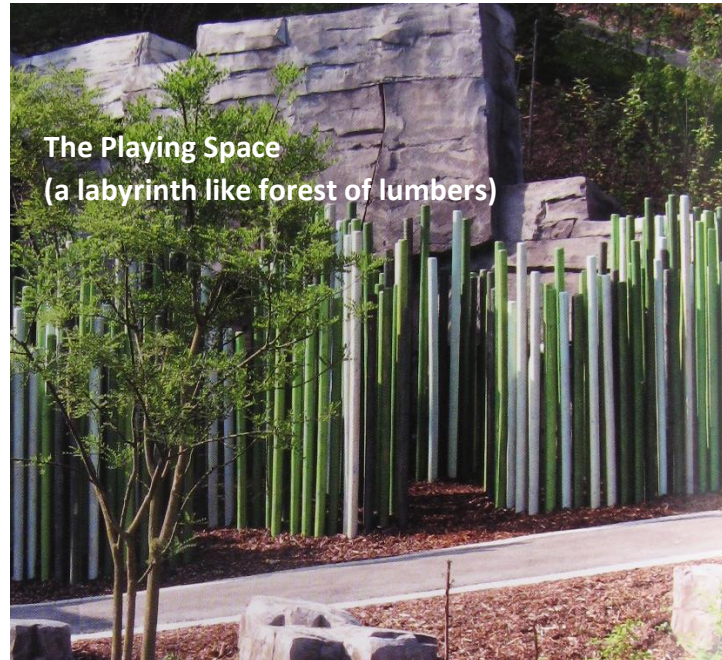
The Playing Space (a labyrinth like forest of lumbers)
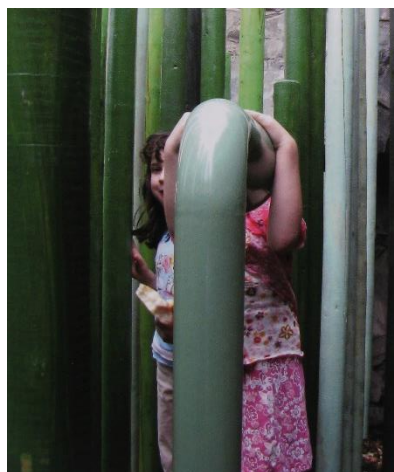
Whisper tubes
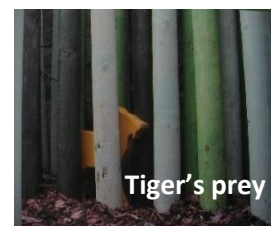
Tiger's prey

Figure 6-24: *Playground in Wuppertal Zoo. Theme: Siberian tigers and timber forest. Design: Rehwaldt Landschaftsarchitekten.*

Source: *(Broto, 2012, pp. 300-303).*

5. Playground on the Nordbahntrasse, in Oberbarmen

The playground on the Nordbahntrasse near the Parkour Park (Figure 6-25) is like most playgrounds in Wuppertal, equipped with swings, a nest swing, a hammock, a spinner, and a combined structure which has different parts (including slide, wobbly bridge, and climbing elements like climbing nets, ladders, inclined surfaces). It has several seats for resting. The surfacing material is sand and the main colors of the play space are brown and gray.

Combined play structure

1

2

The hammock

Spinner

3
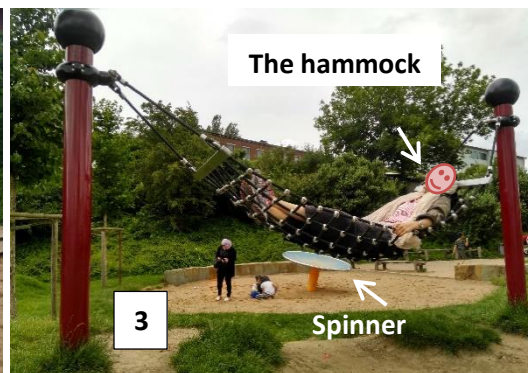
Figure 6-25: *Playground on the Nordbahntrasse, near Wicked Wood, in Oberbarmen.*

Source: *No 1 & No. 2:*
https://www.google.com/maps/place/Spielplatz+Nordbahntrasse+n%C3%A4he+Wicked+Woods/
@51.280586,7.2235979,3a,75y,90t/data=!3m8!1e2!3m6!1sAF1QipNyL4WLqaaluYHqDE-
W4hnQvvHDeH0F67rT6_Uv!2e10!3e12!6shttps:%2F%2Flh5.googleusercontent.com%2Fp%2FAF1
QipNyL4WLqaaluYHqDE-W4hnQvvHDeH0F67rT6_Uv%3Dw203-h114-k-
no!7i3840!8i2160!4m8!1m2!2m1!1sspielplatz+nordbahntrasse!3m4!1s0x47b9286e0ace2d6b:0xc
e137f436599bbee!8m2!3d51.280586!4d7.2235979, accessed: 27.05.2020.
No. 3: Photo by the author.

6. Giesenberg playground, in the Wichlinghausen, close to the Nordbahntrasse

The Giesenberg playground is located in the Wichlinghausen district of Wuppertal. It is close to the Nordbahntrasse (around 50 meters away)[162]. It is located on sloping ground and includes two main play zones on lower and higher ground levels (Figure 6-26). This playing space seems attractive and enjoyable for its users. In comparison to old playgrounds in Wuppertal, it has an attractive appearance and offers new experiences such as sliding on a long curved slide – which is half tunnel and half open – and walking through a tunnel of nets (Figure 6-26). But one of the shortcomings that can be considered in this playground is the difficult access from the lower ground level (lower playing area) to the higher ground level (upper playing area). For example, the parents or caregivers who sit in the playing area in the lower ground level cannot observe, or support their children when they are playing in the higher ground level. For using the play equipment that has been installed in the higher ground level playing area (e.g. to access the upper playing area and slide on the slide), children can either use the staircase or the curved route (ramp). Both options, either climbing the staircase or the curved route may be difficult, boring, or uninteresting for children especially the young ones (Figure 6-26).

The main surfacing material of the upper and lower playing areas, is sand. The play equipment and settings of this playground include: benches, climbing elements, a long tunnel of ropes (nets) to access the slide, and an interesting long slide. By sliding, children can access the lower playing area, which offers playing with sand and spinner, benches to sit and rest, and a soccer field (Figure 6-26).

Upgrading and redesign by: Berliner – Spielgeräte fürs Leben[163] and Tapper & Hollmann[164].

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[162] https://www.team-th.de/2016/11/21/neuer-wind-im-kiez/, accessed: 02.06.2020.
[163] Website: https://berliner-seilfabrik.com/, 02.06.2020.
[164] Website: https://www.team-th.de/2016/11/21/neuer-wind-im-kiez/, 02.06.2020.

Tunnel of Nets (Ropes) and Climbing Ladder

Tunnel of Nets (Ropes)

1. Upper Playing Area

(Higher Ground Level)

The slide

Giesenberg Playground

Nordbahntrasse

Staircase

Arc Route
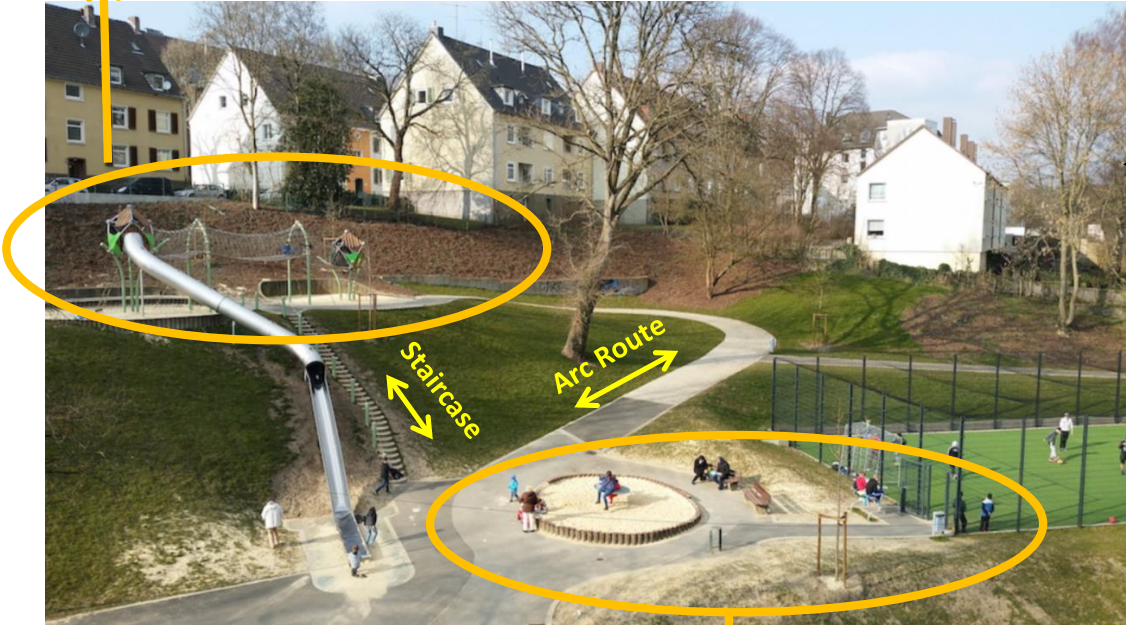
2. Lower Playing Area

(Lower ground level)

Arc Route

Sand Area & Spinner

Seating Area

The Soccer Field

Figure 6-26: *Giesenberg playground in Wichlinghausen*

Upgrading and redesign by: Berliner Spielgeräte fürs Leben and Tapper & Hollmann GmBH

Source: *https://www.team-th.de/2016/11/21/neuer-wind-im-kiez/, accessed: 02.06.2020;*

Google Maps, accessed: 02.06.2020.

6.2.6. Public playgrounds and organization responsible for playgrounds in Wuppertal

Wuppertal has around 300 outdoor public playgrounds[165] under the supervision of Wuppertal City Council[166]. Management, maintenance, design, and construction are in the hands of two council departments:

1) Children, Youth and Family Department – Youth Welfare Office[167];

2) Green Spaces and Woodlands Department[168].

Playground caretakers include individuals, groups and organizations that voluntarily look after public or private playgrounds over a prolonged period. Caretakers aim to maintain and improve the quality of playing conditions and also to initiate play activities on playgrounds[169] [170]. Around 50 local playground caretakers are responsible for reporting any pollution, dirt, damage, vandalism, and also holding celebrations and playground parties for (local) children[171].

Playground caretakers are in contact with Wuppertal City Council and local organizations/people responsible for a playground. They can also be considered as users or stakeholders since they interact with the playground environment, facilities, and children (see the answer to Question No. 2, Section 6.2.8.).

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[165] https://spielplatznet.de/spielplaetze/Wuppertal, accessed: accessed: 28.05.2020.
[166] In German: Stadt Wuppertal.
[167] In German: Ressort Kinder, Jugend und Familie – Jugendamt.
[168] In German: Ressort Grünflächen und Forsten.
[169] https://de.wikipedia.org/wiki/Spielplatzpate, accessed: 31.05.2020.
[170] https://kinderschutzbund-wuppertal.de/spielplatzpaten/, accessed: 31.05.2020.
[171] https://www.wuppertal.de/microsite/jugend_freizeit/spielplaetze/index.php, accessed: 17.05.2015.

6.2.7. Needs and opportunities

6.2.7.1. Problems and gaps of existing playgrounds in Wuppertal

There are several shortcomings and gaps in the design of existing playgrounds in Wuppertal. These gaps and shortcomings have provided the opportunity for this study and have generated the motivation for developing and designing a new child-friendly playground for children aged from 4 to 8 years. Among these gaps and shortcomings are:

- **Obsolescence in overall conception of play and its equipment and types**

  The conception of the nature of play, and the equipment and instruments used in play have changed a lot in recent years. But many playgrounds in Wuppertal have remained unchanged. It is important to consider new topics, types and tools of play (see Chapters 4 and 5) in designing a future playground.

- **Lack of variety in playground design**

  The affordances/opportunities in most playgrounds in Wuppertal are somehow similar: spinners, swings, nest swings, hammocks, a big composite piece of equipment in the middle of the playing area usually including a slide, wobbly bridges, and climbing elements (e.g. climbing nets, climbing ladders, and sloped climbing surfaces/walls) (see Section 5.5.11.6; Figures 6-14, 6-15, 6-17, 6-18, 6-21, 6-22, 6-23, & 6-25).

  Hence, there is a need and opportunity for an innovative playground offering a new, wide range of play affordances to encourage children to use their creativity and imagination. New experiences and innovative play possibilities broaden and improve children's skills and abilities. Furthermore, it is important to consider some risk-taking experiences in designing the new play equipment and space. According to Solomon (2014), risk can be both useful and favorable (Solomon, 2014, p. 55).

  In comparison to typical playgrounds in Wuppertal (Figures 6-23 & 6-25), the designs of some playing spaces like the Parkour Park, the playground in Wuppertal Zoo, and Giesenberg playground are more updated and innovative (Figures 6-13, 6-24, & 6-26).

- **Role of color in designing the future playground**

  The main colors of many public play environments in Wuppertal are brown and grey (neutral colors). Though in some playgrounds these colors make the space boring and less encouraging to the users, in other spaces using natural and neutral colors in designing could be practical. As stated in Section 5.5.13., for designing a good play space, colors must be applied carefully to support the intended activity of play, social interactions, and opportunities for development while paying attention to the requirements and characteristics of the playground location and surroundings.

  As an example, the main playground colors in Kaiserhöhe Park (Nützenberg) are neutral (brown, gray, green, etc.), which are in harmony with the woodland context. The natural colors of the woods and trees around the playing space are attractive to users (Figures 6-19 & 6-20). As stated in Section 5.5.13, green spaces are especially conducive to play. Areas with vegetation are attractive and interesting to children (Hughes, 2010, p. 124). However, it is important to consider the role of colors in designing a play space. For example, in the Wuppertal Zoo playground, colors have been applied in harmony with the colors of the context in a practical and interesting way (Figure 6-22).

- **Considering the identity and features of the context in designing future playing space**

  Wuppertal playgrounds are located in different areas, some in green spaces (e.g. Nützenberg Park in city woodland), and others in crowded urban space (e.g. Loher Brücke playground). The characteristics of these contexts differ from each other, but most playgrounds in these areas have similar characteristics (e.g. colors); any future playground should have its own identity, while being in harmony with its context.

- **Planning an inclusive co-creation research and design process**

  Developing a child-friendly playground needs to involve children in the design process. However, the equipment and play settings of many playgrounds have been designed, purchased and installed by adults[172] in a way that they thought would be useful and enjoyable for children (see Section 3.6.1. in Chapter 3). Children, as the potential end users of

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[172] For example by the members of relevant organizations, experts, planners, decision makers, designers, and architects.

playgrounds, have not played an active role in the research, development, and design process of many playgrounds.

Looking at a playground through the eyes of children is important for designers in order to achieve a child-friendly playing space and offer play experiences that meet children's wishes, wants, and values. While adults can identify and create 'places for children', 'children's places' can only come from children. Hence, playground designers/researchers should actively involve children in the design process from the beginning (see Section 3.6.1. in Chapter 3) (Bhattacharya et al., 2003, p. 41; Meire, 2007, p. 33; Siu, 2003).

- **Offering free play in the playground**

Children learn best through discovery and free play, which is typically pleasurable, self-motivated, imaginative, non-goal directed, spontaneous, active, and free of rules imposed by adults. This view often gets skewed when the needs, wants, and wishes of the child are ignored (Bhattacharya et al., 2003, p. 41).

To explore children's true wishes and wants, the approach of this study has been planned based on co-creation mindset and an innovative method called 'Creative Session' was designed and performed in kindergartens and schools by the author (see Chapters 9, 10, & 11). A child-friendly playground should also contribute to the child's development (considering age and gender).

6.2.7.2. Potential of the Nordbahntrasse site and the area next to the Parkour Park for developing a future playground

1. Potentials of the Nordbahntrasse

The Nordbahntrasse has especial potential for investing in projects and developing public facilities such as playgrounds. Some of these potentials are described below.

- **Popularity with easy access**

The Nordbahntasse is a well-known and popular facility with easy access.

- **Offering various opportunities and public facilities to its users –** People go to the Nordbahntrasse for walking, jogging, cycling, skating, playing, enjoying the sights, and using

various facilities (e.g. skate parks, Parkour Plateau, and playgrounds). These opportunities and facilities are available along the route.

- **Having different types of users and from different socioeconomic status (SES) –** The users of the Nordbahntrasse include individuals and groups (Figure 6-27) of different socioeconomic status (SES) and age. On weekdays, the Nordbahntrasse is mainly used by Wuppertal residents while at weekends users include both residents of Wuppertal and tourists from nearby cities.

Figure 6-27: *Users of the Nordbahntrasse*

Source: *(Kalnpure, 2015, p. 43).*

2. Potentials and Shortcomings of the Parkour Park and its neighbourhood

As stated in Section 6.2.3.1., the Parkour Park is one of the most popular places on the Nordbahntrasse, in Wuppertal. It has been designed for adults and children over the age of 8. The potentials, and also shortcomings and gaps, in this area provide opportunities and motivation to develop a new playground[173], e.g.:

- **Lack of suitable play equipment for small children in the Parkour Park area**

  Consider, for example, when families come to visit the Nordbahntrasse and use the Parkour Park for sports; Parkour Park offers equipment and facilities for adults, teens and children over the age of 8. But for smaller children the facilities may not be safe or enjoyable unless they possess good physical abilities. Therefore, it is necessary to design a play area especially for children under the age of 8. Children aged 4-8 were targeted as the end users of the future playground in this study.

- **The color and appearance of the Parkour Park are not visually appealing to small children, especially girls**

  The main colors of the Parkour Park are blue, gray (the color of metal equipment and concrete structures) and orange (Figures 6-11 & 6-13). Blue and gray make the space cool. However, some areas of the space are orange, which warms up the environment. The space with cold colors may not be that much welcoming and attractive to children especially girls (see Section 5.5.13.). Since the Parkour Plateau has been designed especially for parkour sport and physical practices, the design and colors appeal more to parkour practitioners than to children.

- **Parkour and physical play are the main activities in the Parkour Park**

  Most facilities of Parkour Park focus on activities that involve physical abilities and motor skill and contribute to physical development, e.g. running, climbing, swinging, vaulting, jumping, plyometrics, and rolling (see Section 6.2.3.1.). Many users have high physical abilities (e.g. adults or children who regularly practice sports and are physically trained).

  Since a quality play space should offer various opportunities and reinforce all the aspects of child's healthy development, there is a need to provide an inclusive play space near Parkour

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[173] Offering the concept of final child-friendly playground for this area as an example.

Park area which reinforces different aspects of development (including cognitive, physical, sociocultural, and language development); it should also meet the needs, wishes, and values of a wide range of children.

- **The existing vandalisms in the Parkour Park**

  Regrettably, there have been several cases of vandalism in Parkour Park such as spray painting on the concrete elements, mechanical damage to the equipment and surfacing material, and minor arson on the facility and flooring material (Figure 6-28) (Ricken, 2014, p. 48). In order to prevent vandalism in Parkour Park, some of the methods applied by people/organizations for playground (e.g. Wuppertal City Council) are:

  - installing security lights;
  - installing video surveillance;
  - cleaning up and repairing the effects of vandalism immediately;
  - encouraging people to report vandalism to the police;
  - providing constructive programs for potential vandals (esp. adolescents and teens)[174] [175].

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[174] Many acts of vandalism are spontaneous; they occur mostly when young people are bored and restless. If they are provided with constructive programs, they will be much less likely to lash out with acts of vandalism.

[175] https://protectedbytrust.com/2014/04/26/steps-to-prevent-vandalism/, accessed: 01.07.2020; https://www.svmps.com/tips-prevent-vandalism-on-your-property/, accessed: 01.07.2020.

Spray painting on the concrete elements

Minor arson or physical damage on the 'Outdoor Rubber Flooring'.

Spray painting on the concrete elements

Figure 6-28: *Examples of Vandalism in the Parkour Plateau, on the Nordbahntrasse.*

Source: *Photos taken by the author (Neda Batenipour).*

3. Selecting a site for the Future Playground

As stated, the final design(s) of future playgrounds will be presented for an empty space of c. 950 sq. m next to the Parkour Park on the Nordbahntrasse (Figure 6-29) (see Section 13.2.1, in Chapter 13). The design concept which will be shown in Chapter 13, presents the idea for a complete playground including play equipment and facilities for different zones of the playground area.

Figure 6-29: *Overhead view of the selected site – for designing the future playground — next to the Parkour Park on the Nordbahntrasse, Oberbarmen.*

Source: *Google Maps.*

6.2.8. The Five Ws and 1 H: Why? Who? What? Where? When? How?

This study can be summarized in six key questions: Why? Who? What? Where? When? How?

1. WHY is this study necessary? (Exploring gaps and opportunities)

As stated in Section 6.2.7, there are several reasons to develop a child-friendly playground for children aged 4 to 8 which can be categorized as following:

- gaps and shortcomings in existing playgrounds in Wuppertal

- shortcomings in the Parkour Park like lack of suitable equipment for children under 8 yeas

- potential of the Nordbahntrasse to provide public facilities and services.

2. WHO are the potential users of the future playground? (Defining end users & stakeholders)

Playground users are divided into two categories:

- **End users**: children aged 4 to 8 years old.

- **Stakeholders:** people concerned with the playground but in a different way from end users. For example, parents, teachers, grandparents, caregivers, and adults who bring children to the site and accompany or support them in the playground. Also older or younger siblings of the potential end users.

  People like passers-by (who may visit the playground and sit on the benches to rest, enjoy, and observe the children and environment), technicians who install, maintain or repair the equipment of the playground, and the playgrounds' local caretakers or sponsors[176] are other examples of stakeholders (see Section 6.2.6.). End users and stakeholders are co-creators in the design process (see Chapter 9)[177] [178].

3. WHAT does this study aim to achieve/produce? (Aims and objectives)

This study aims to design a child-friendly playground in Wuppertal for children aged 4 to 8 based on users' (including children and adults) wants, wishes and values by holding Creative Sessions and group interview sessions (see Chapters 10, 11, & 12). This child-friendly playground should also contribute to the child's development (considering age and gender). The preliminary concepts/designs and final overall holistic design(s) for the future playground will be presented in Chapter 13.

However, as stated in Section 5.5.10., the final design(s) created in this study are not presented as detailed design with accurate dimensions and sizes. Detailed designs with exact shapes,

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[176] In German: 'Spielplatzpaten' or 'Spielplatzpatinnen'.
[177] https://www.wuppertal.de/microsite/jugend_freizeit/spielplaetze/index.php, accessed: 21.03.2021.
[178] https://kinderschutzbund-wuppertal.de/spielplatzpaten/, accessed: 21.03.2021.

dimensions, and distances of equipment and materials must satisfy safety standards and organizational requirements, as well as budget and contextual parameters. This requires consultation with experts and relevant organizations/institutions.

4. HOW is the research-design process conducted to achieve the goal

To describe how to achieve the main goal, which is designing a child-friendly playground for children aged 4 to 8, the approach, design process, methodology and toolkits of the study will be dealt with in Chapters 8-12.

The design process, based on a co-creation mindset (see Chapter 9), involves a wide range of co-creators. Like any UCD cycle, this co-creation design process is iterative (see Figure 8-1 in Chapter 8 and Figures 9-1 & 9-2 in Chapter 9) until the attained ideas and playground designs/concepts meet user requirements in accordance with different criteria, e.g.: children's fantasies, play enjoyment, visual attractiveness, creativity (see Chapter 11); satisfying adult expectations explored from Group Interview Sessions like having suitable seating area for resting, relaxing, and sitting, offering a wide range of affordances (see Chapter 12); contributing to children's development in different aspects (e.g., cognitive development, socio-emotional development, physical development, and language development); etc.

5. WHERE is the future playground? (Context & location)

Wuppertal has been considered as the context of the study. Considering the explored opportunities and needs (see Section 6.2.7), and after talking to the City Council authorities responsible for playgrounds, the site for a child-friendly playground was selected: an empty space next to the Parkour Park.

6. WHEN and for how long will the future playground be used? (Time and duration of using)

According to adults' answers to question No. 6 (see Appendix 5), when there is a suitable (natural) playing area or playground in the neighborhood, their children spend a lot of time with their friends and neighbors playing, exploring nature, etc. Usually small children go with their parents

or older siblings while older children are allowed to go alone or with their peers if the area is safe and there is no traffic in its vicinity.

Some parents take their children to the playground daily, especially when there is a playground nearby; some go two or three times a week; and some do not maintain any regularity. On weekdays, most families usually go to the playground in the afternoon after school or kindergarten. When they go to the playground at weekends, they usually stay longer than on weekdays.

6.3. Summary

The Nordbahntrasse is a roughly 22 km route for biking, inline skating, and walking stretching on a west-east axis along the northern slope of Wuppertal's urban area. The route possesses numerous attractions and interesting sights. The Nordbahntrasse has especial potential for public facilities like playgrounds. The Parkour Park is particularly popular.

The potential, shortcomings, and gaps in the Parkour Park area that provide the opportunity and motivation to develop a new playground include:

- lack of suitable play equipment and facilities for small children (under the age of 8) in the Parkour Park area
- color and appearance of the Parkour Park are not visually appealing to small children especially girls
- parkour and physical play are the main activities in the Parkour Park
- vandalism in the Parkour Park.

The chapter has explored – either directly or in the literature – several examples of playing spaces and playgrounds in Wuppertal. The gaps and shortcomings in the design and development of existing playgrounds provide opportunities for research and development of a new child-friendly playground. After studying existing playgrounds and determining their problems, some results were established (see Section 6.2.7.1). These should be considered in future playground design:

- topics, tools, types, and nature of play

- a wide range of new affordances and play opportunities

- the role of color in playground design

- identity and features of the context

- planning an inclusive co-creation research and design process

- offering free play in the playground.

A quality play space should offer various opportunities and reinforce all the aspects of a child's healthy development, not just physical development. Child-friendly design should meet the needs, wishes, and values of a wide range of children.

Chapter 7

Quality of Life in Germany

Understanding the Context (Germany)

- - - - - - Germany and the 'Better Life Index'

- - - - - Children and Family in Germany

- - - - - - - - Babysitting, Kindergarten, and School System

7.1. Introduction

In order to understand Germany as the context of this study, this chapter will review the literature about the quality of life in Germany. It will describe this under the headings of the Better Life Index and show the important role of child-friendly playgrounds in influencing and increasing Germany's score under various headings of that index.

The chapter covers the following topics:

- Germany and the criteria of the Better Life Index
- children and family in Germany
- educational system including babysitting, kindergarten, and school system
- designing a child-friendly playground through the co-creation mindset as an effective policy to increase quality of life.

7.2. Germany and Criteria of 'Better Life Index'

Considering the OECD's[179] Better Life Index[180], Germany performs well in many measures of well-being in comparison with other OECD countries[181]. The Better Life Index allows comparison of well-being across the 36 OECD countries based on 11 main topics including: housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance[182] [183] [184].

Figures 7-1, shows Germany's score in each topic of the Better Life Index as defined by relevant indicators. Figure 7-2, shows Germany ranks above average in most of these 11 topics. But in community, civic engagement, and health, it is clearly below average. For this aim, designers,

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[179] OECD refers to 'the Organization for Economic Co-operation and Development' which is an intergovernmental economic organization with 36 member countries.

[180] https://en.wikipedia.org/wiki/OECD_Better_Life_Index & http://www.oecd.org/sdd/how-s-life-23089679.htm, accessed: 7.9.2019.

[181] https://en.wikipedia.org/wiki/OECD, accessed: 6.9.2019.

[182] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 7.9.2019.

[183] http://www.oecdbetterlifeindex.org/#/11111111111, accessed: 7.9.2019.

[184] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 12.09.2019.

planners, policy-makers, relevant experts and organizations should get involved in order to plan/design, develop and implement more effective policies, methods, and projects. In the following, these 3 topics are described. For obtaining information about other topics of the Better Life Index, the website of OECD can be visited[185].
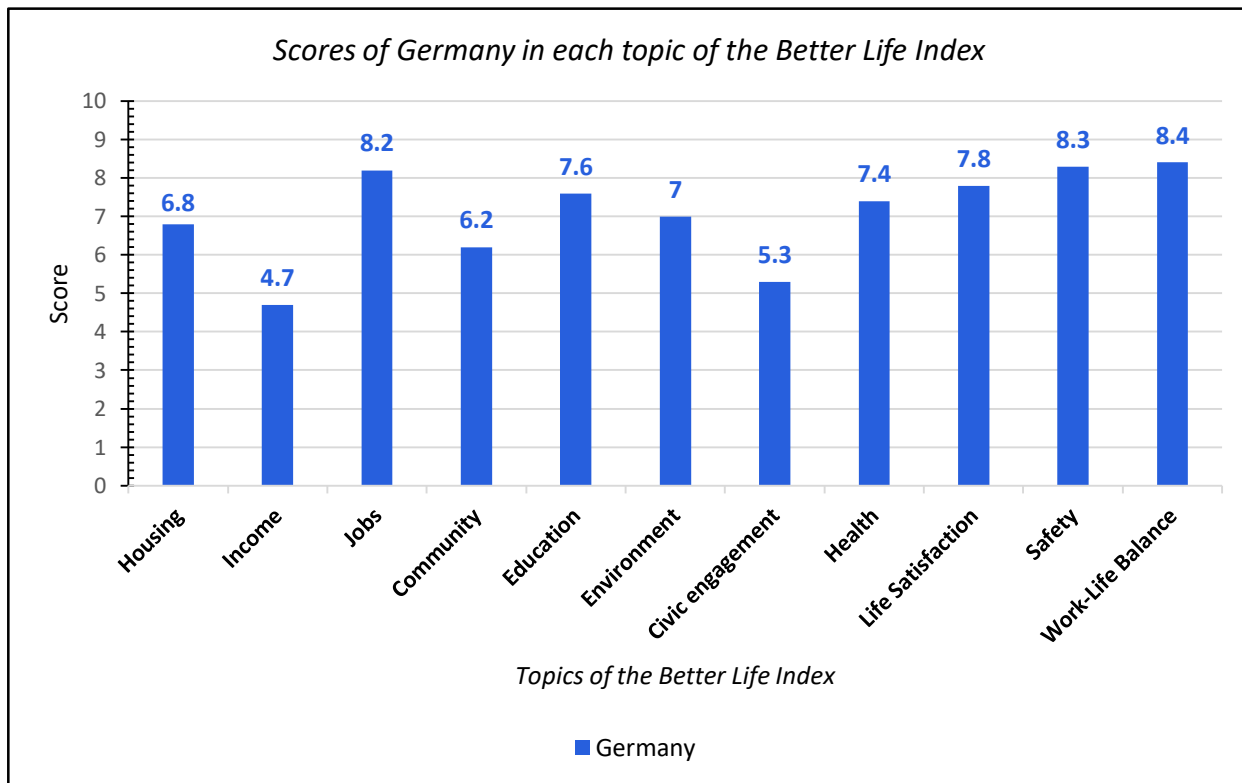
Figure 7-1: *The eleven criteria of the Better Life Index and scores of Germany in each topic.*

Source: Data adopted from: http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 8.9.2019.

[185] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 12.09.2019.

Topics

Housing ⓘ

6.8

Income ⓘ

4.7

Jobs ⓘ

8.2

Community ⓘ

6.2
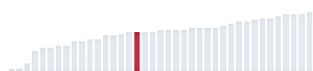
Education ⓘ

7.6

Environment ⓘ

7.0

Civic engagement ⓘ

5.3

Housing:

Highest Rank: the United States, 8.5

Score of Germany: 6.8

Lowest Rank: South Africa, 2.5

Income:

Highest Rank: Luxemburg, 9.1

Score of Germany: 4.7

Lowest Rank: South Africa, 0.3

Jobs:

Highest Rank: Iceland, 9.9

Score of Germany: 8.2

Lowest Rank: South Africa, 0.0

Community:

Highest Rank: Iceland, 10.0

Score of Germany: 6.2

Lowest Rank: Korea, 0.0

Education:

Highest Rank: Finland, 8.9

Score of Germany: 7.6

Lowest Rank: Mexico, 1.1

Environment:

Highest Rank: Iceland, 10.0

Score of Germany: 7.0

Lowest Rank: Korea, 2.4

Civic engagement:

Highest Rank: Australia, 8.9

Score of Germany: 5.3

Lowest Rank: Chile, 1.0

Health		Health:
7.4		Highest Rank: Canada, 9.6
		Score of Germany: 7.4
		Lowest Rank: South Africa, 3.1
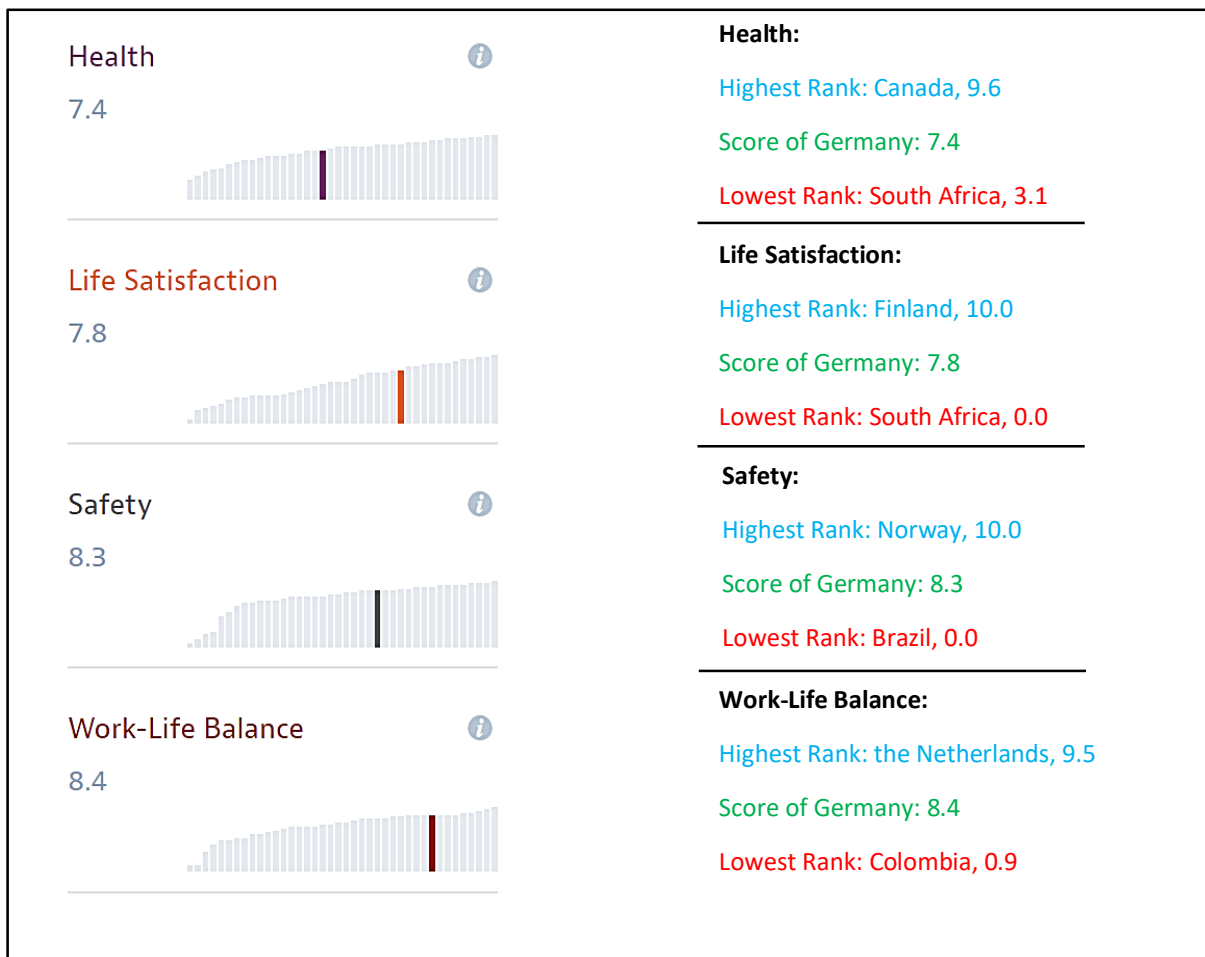
Figure 7-2: *Scores of Germany in topics of the Better Life Index in comparison with other OECD countries.*

Source: *Data adapted from http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 8.9.2019.*

7.2.1. Community

Since humans are social creators, the *frequency* of people's contacts with others and the *quality* of their personal relationships are really important to determine their well-being. A strong social network or community can provide emotional support, access to jobs, public services and other opportunities, while a weak social network can result in limited economic opportunities, feelings of isolation, and not being able to interact with others. Individuals who are socially isolated face difficulties integrating into society and fulfilling their personal aspirations[186].

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[186] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 12.9.2019.

An indicator that contributes to define the score of a country in the realm of community, is 'quality of support networks'. In Germany, 90% of people believe that they know someone that they can rely on in times of need while the OCED average is 89%: Germany comes 24th out of 40 countries[187].

A relevant life quality policy is helping migrant families integrate into their community via the FAMILIENwerkSTADT project. This project provides childcare facilities for families with a migrant background and socially disadvantaged families. It integrates them into the community. The aim of this project is to improve the quality of education and care for children[188].

A quality public playground can play an important role in creating networks and developing social interactions between children and their parents from different cultural backgrounds and of different socioeconomic status (SES). A child-friendly playground offers an enjoyable space for children (to play) and adults (to interact).

Involving children and adults actively in the co-creative design process by applying different methods (e.g. creative and group interview sessions) can also improve social interactions.

7.2.2. Civic Engagement

For well-being and social cohesion, it is essential to trust in government. One of the ways to enable people to get involved in government decisions on key issues affecting their lives is to provide suitable facilities and services. In this way, they can get involved in developing strategies, laws, and regulations[189].

Relevant indicators that contribute to define the score of a country in the realm of civic engagement are, for example, voter turnout and stakeholder engagement in developing regulations. In Germany, the level of this second indicator is 1.8 (on a scale between 0 and 4). It is lower than the OECD average which is 2.4. Since the rank of Germany in this indicator is 28th out of 40 countries, better policies should be planned and performed.

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[187] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 12.9.2019.
[188] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 12.9.2019.
[189] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 12.09.2019.

As stated in Chapter 2, an *inclusive* co-creation process like that of this study, engaging a large number of users and stakeholders with different skills in a common project, is also a civil engagement measure[190]. The approach will be described in greater detail in Chapters 8 and 9.

7.2.3. Health

Over the past decades, due to improvements in living conditions, public health and medical care, most OECD countries have enjoyed huge gains in life expectancy. The relevant indicators that define the score of each country in the realm of health, are life expectancy and self-reported health.

Life expectancy in Germany stands at almost 81 years**,** one year above the OECD average of 80 years. Germany is 24th out of 40 countries. In general, higher life expectancy is associated with higher healthcare spending per person. However, many other factors like living standards, lifestyle, education and environmental factors influence life expectancy too.

Asked about their sense of general health, 65% of people in Germany reported being in good health; the OECD average is 69%. Germany is 28th out of 40 countries. Despite the subjective nature of this question, it has been found that answers can predict people's future use of health services. Gender, age and social status may influence answers to this question[191].

Designing a quality child-friendly playground can contribute to children's healthy development and well-being and hence increase Germany's score in health on the Better Life Index.

7.3. Children and Family in Germany

7.3.1. Family Model

An average German family is a married couple with one or two children (Adema, 2016, p. 39). However, family models are becoming more diverse, including single parents, patchwork families

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[190] As in the co-creation mindset or participatory design approach.
[191] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 13.9.2019.

with children from previous partnerships, and rainbow families with same-sex couples. On the other hand, large families with several generations under one roof have become rare[192].

Considering the small number of children in most families, public places such as schools, kindergartens, and playgrounds have become crucial in forming and improving children's social interactions and reinforcing their healthy development.

7.3.2. Late starting a family and small average number of children

In Germany, many families have few children (Adema, 2016, p. 39). For example, many young graduates put off starting a family. The reason is that they first want to complete their university studies, then start a career and finally decide to start a family. As a result, on average, mothers are already almost 30 and fathers are 35 years old when their first child is born[193]. This also results in the small average number of children per family. The birth rate is 1.5 children per woman. Germany needs more children since it is the country in the World Data list with the oldest population (the oldest 'median age'[194] of population) after Japan[195].

Many state policies and aids have aimed at increasing the birth rate and promoting families. Some of these state aids are: child allowance, parental allowance, tax incentives, and subsidies for pregnant women and families whose income is too low to meet their children's basic needs. Also, school education is free[196].

7.3.3. Parents between family and job

A new German family policy approach aims to encourage and support parents and children to spend more time with each other by promoting a more equal sharing of responsibilities between the roles as the mother and father in reconciling work and family life (In German: *Partnerschaftlichkeit*) (Adema, 2016, pp. 13-18).

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[192] https://www.deutschland.de/en/topic/life/how-families-live-in-germany, accessed: 5.9.2019.

[193] https://www.deutschland.de/en/topic/life/how-families-live-in-germany, accessed: 16.9.2019.

[194] *"The median age of a population is the point at which half the population is older than that age and half is younger."*

[195] http://worldpopulationreview.com/countries/median-age/, accessed: 16.9.2019.

[196] https://www.deutschland.de/en/topic/life/how-families-live-in-germany, accessed: 16.9.2019.

Parenthood is a crucial moment in couple's lives. Parents' behavior around a new child can influence or determine later roles and responsibilities within a family. A more equal sharing of work/life balance opportunities and responsibilities between partners is good for the well-being of families (Adema, 2016, pp. 13-18). Extending the early childhood education and care (ECEC)[197] system gives both parents more opportunities to combine work and care commitments (Adema, 2016, pp. 13-18)[198].

7.4. Educational System including Babysitting, Kindergarten and School System in Germany

7.4.1. Kindergartens and Kitas

In Germany, kindergarten is for children aged 3-6. Kindergarten is not obligatory, but widely accepted for taking care of children in this age group. *Kita*[199] (English: day-care center) is for children aged from 1 to 6. Some *Kitas*, but not all, also offer pre- and after-school care (*Schulhort*) for primary school students up to the age of 11 or 12[200] [201] [202]. Educators responsible for children in kindergartens or *Kitas* are called *Erzieherin* (female) or *Erzieher* (male)[203].

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[197] In Germany, early childhood education and care system (ECEC system) is part of the public welfare services for children and youth. Responsibility is shared among the federal government, the 16 federal states and municipalities/local authorities.

[198] https://www.dji.de/en/the-dji/projects/projekte/international-centre-early-childhood-education-and-care-icec/the-german-ecec-system.html, accessed: 5.9.2019

[199] Kita is an abbreviation of *Kindertagestätte*.

[200] https://liveworkgermany.com/kindergarten-in-germany/, accessed: 24.08.2019.

[201] https://liveworkgermany.com/kindergarten-in-germany/, accessed: 24.08.2019.

[202] https://www.expatica.com/de/living/family/finding-childcare-in-germany-106276/#targetText=Childcare%20options%20and%20costs%20in,partly%20subsidised%20by%20the%20state., accessed: 24.08.2019.

[203] https://liveworkgermany.com/kindergarten-in-germany/, accessed: 24.08.2019.

7.4.1.1. What do children do in kindergartens?

Though different types of kindergartens may focus on different concepts and values, independence and responsibility are highly valued in most German kindergartens. Kindergartens focus on learning through play and self-led exploration. They encourage children to experience their own limits and learn to respect them[204] [205]. Children do craft projects, enjoy story time, explore various spaces, use play structures and toys, play in the kindergarten playground, go to gardens, go on local trips, play outside, etc. Many kindergartens host seasonal festivals and regular parents' evenings where parents meet educators to discuss their child's abilities and development[206] [207].

7.4.1.2. Types of kindergartens

Considering ownership and management criteria, kindergartens can be classified as[208]:

- privately run and owned kindergartens.
- parent-run kindergartens.
- government-run kindergartens.
- church-run kindergartens.

Considering concept, values, and educational system, kindergartens can be classified as[209]:

- forest kindergarten (called 'Waldkita')
- bilingual Kita
- kindergartens that follow a specific approach, like the Montessori concept or the Reggio Emilia philosophy.
- kindergartens that focus on specific skills like music or language.

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[204] https://the-red-relocators.com/relocation-guides-germany/children-in-germany/german-school-system/, accessed: 29.08.2019.

[205] Hambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 24.08.2019.

[206] Hambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 29.08.2019.

[207] https://www.expatica.com/de/living/family/preschool-options-in-germany-107640/, accessed: 3.9.2019

[208] Hambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 29.08.2019.

[209] Hambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 29.08.2019.

In the following, some types of kindergartens are described.

- **Forest Kindergarten ('Waldkita')**
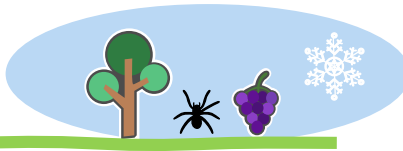
In the early 1950s, the first forest Kindergarten was created by Ella Flautau in Denmark. Since 1993, the 'forest kindergartens' have become increasingly popular in Germany and by late 2017, the number of these kindergartens surpassed 1500 in Germany.

A 'forest kindergarten' (in German: 'Waldkindergarten') is a type of preschool education for children aged 3-6 years old. These kindergartens are held almost exclusively outdoors regardless of the weather. A forest kindergarten is described as a kindergarten without ceilings or walls. Forest kindergartens operate mainly in woodland and forest, though other sites like beaches and meadows may also be used. The daycare staff and children spend their time outdoors, though there should be a building too (e.g. to be used as a shelter in extreme weather, as a place for administrative and organizational purposes, or for spending a small part of the day indoors)[210][211]. However, each forest kindergarten has its own particular character, interest, value, or way of thinking[212].

- **Activities in a forest kindergarten**

In this type of kindergarten, children are encouraged to play, explore, and learn in a forest or natural environment. There, adult supervision is more for accompanying children than controlling them. A distinctive feature of this type of kindergarten is the emphasis on play with objects that can be found in nature, rather than commercial toys. Some typical activities and their developmental benefits in forest kindergartens are listed in Table 7-1[213]. This information can be applied for designing and developing a quality child-friendly playground.

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[210] https://en.wikipedia.org/wiki/Forest_kindergarten, accessed: 29.08.2019.
[211] Hambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 29.08.2019.
[212] https://en.wikipedia.org/wiki/Forest_kindergarten, accessed: 29.08.2019.
[213] https://en.wikipedia.org/wiki/Forest_kindergarten, accessed: 29.08.2019.

Table 7-1: *Typical activities and their developmental benefits in forest kindergartens.*

Activity	Developmental benefit
Playing imaginative games using whatever resources and ideas come to mind	This helps children to explore their own thoughts without the guidance of a toy designer
Role play	Shared imagination, drama, teamwork, recollection of models of behavior
Building shelters or other large structures from branches, with the help of other children and adults	This requires goal definition, planning, engineering, teamwork and perseverance.
Counting objects or looking for mathematical patterns	Mathematic, visual recognition
Memory games using naturally available objects	Memory, naming objects
Listening to stories, and singing songs and rhymes	Art, drama, concentration
Arranging items to make a picture, or building a toy	Art
Drawing scenes	Art, creativity, accurate inspection and copying
Climbing trees and exploring the forest	Improves strength, balance and physical awareness.
Playing hide-and-seek with others	Develops children's theory of mind by rewarding accurate anticipation of the thoughts and actions of others.
Walking to the woodland, from the building	Improves strength and stamina; preparation (e.g. route selection) improves planning and communication skills.
Exploring or reflecting alone	Aids self-awareness and character development.
Resting	Aids consolidation of memories and facilitates activities later in the day.

Source: *https://en.wikipedia.org/wiki/Forest_kindergarten, accessed: 25.08.2019.*

- **Effects of Forest Kindergartens**

Going to forest kindergartens has many positive effects on children's well-being, development, and learning skills for their future lives. Some of these effects are as following[214]:

- Most forest kindergartens do not offer commercial toys to children. This approach supports children's language development, as they verbally create a common understanding of the objects they use as toys in their play context, in natural environments.

- The natural outdoor environment is an effective stimulus for children's interest, wonder and inquiry because it is flexible, natural and contains many varied, fixed and loose elements. Children's interest in features of outdoor environments, and loose parts in natural spaces, creates opportunities for greater prolonged child-initiated interactions with their team leader and space, in comparison with the indoor environment (Knight, 2013, p. 14 & p. 21).

- In general, forest kindergarten are less noisy than closed rooms. Noise has been shown as one of the factors which reflects the stress level of children and daycare professionals.

- Merely keeping sight of natural features improves self-discipline in inner-city children.

- Playing outside for prolonged periods has a positive impact on children's development, particularly in the areas of balance and agility, but also manual dexterity, physical coordination, tactile sensitivity, and depth perception.

- Studies show that children who attend forest kindergartens experience fewer injuries and are more able to access risks for example in handling fire and dangerous tools.

- Playing outdoors strengthens the immune systems of child.

- According to Roland Gorges, when German children who have attended forest kindergartens go to primary school, they are above average in various skills.

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[214] https://en.wikipedia.org/wiki/Forest_kindergarten; accessed: 28.08.2019

- **Bilingual Kita**
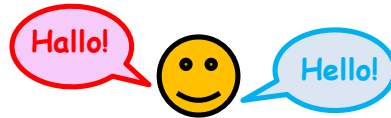
In bigger cities, Bilingual *Kitas* are more common. In general, they attempt to have an educator who is a native speaker of the *Kita's* second language. Since different *Kitas* have different concepts, they involve bilingualism in their day-to-day running in different ways.

- **Parent-initiative Kita**

These kindergartens (or *Kitas*) are run by the parents of the children who attend the kindergarten. Their educational concepts are often like regular kindergartens and they employ professional staff. However, the parents decide how the kindergarten is run and which children are admitted[215].

- **Different philosophies in kindergartens**
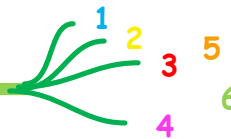
Different kindergartens or *Kitas* may have different philosophies which divide them into different groups. For example, some kindergartens believe in grouping children according to their age, while others have an open-plan concept and children of different ages are mixed. Some kindergartens follow a specific approach, for example focusing on the Montessori concept, the Reggio Emilia philosophy, or skills like music and language[216].

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[215] Lambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 28.08.2019.
[216] Lambrett, Liv (2018), https://liveworkgermany.com/kindergarten-in-germany/, accessed: 28.08.2019.

7.4.2. Primary School[217] and School System in Germany

Going to school in Germany is obligatory and parents are not allowed to teach their children at home. German schooling is not centrally organized at the national level; it is under the supervision of ministries of education and culture in the 16 federal states[218] [219].

Children start primary school at the age of 6. Children who turn 6 before the 30th of June must start school at the beginning of the school year. Normally the school year starts in August or September. Children who turn 6 after the 30th of June have the option of starting school in the current year or waiting until the following year[220].

Children attend primary school[221] for four years. In their fourth year, the decision is made on how to continue their education. The secondary school system is divided into *Hauptschule* (general secondary school), *Realschule* (vocational secondary school), *Gymnasium* (grammar/high school), and *Gesamtschule* (comprehensive school)[222].

7.4.2.1. Types of School in Germany

The main types of German schools are state school, private school, and international school. For families that plan to move to Germany, it is important to find out which type of school suits their children best. Making the right choice depends on how long the family plan to be in Germany, how old the children are, and how well the children speak German[223] [224] [225] [226].

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[217] In German: 'Grundschule'.

[218] In German: '16 Bundesländer'.

[219] Schüttler-Hansper, Martina (2019), https://www.deutschland.de/en/topic/knowledge/overview-of-the-german-school-system, accessed: 2.9.2019.

[220] https://the-red-relocators.com/relocation-guides-germany/children-in-germany/german-school-system/, accessed: 1.9.2019.

[221] In German: called 'Grundschule'.

[222] Schüttler-Hansper, Martina (2019), https://www.deutschland.de/en/topic/knowledge/overview-of-the-german-school-system, accessed: 1.9.2019.

[223] Rath, Christina (2019), https://www.deutschland.de/en/topic/knowledge/how-can-i-find-a-good-school-in-germany, accessed: 2.9.2019.

[224] https://www.expatica.com/de/education/children-education/schools-in-germany-state-private-bilingual-and-international-schools-476427/, accessed: 3.9.2019.

[225] https://the-red-relocators.com/relocation-guides-germany/children-in-germany/german-school-system/, accessed: 2.9.2019.

[226] https://www.expatica.com/de/education/children-education/schools-in-germany-state-private-bilingual-and-international-schools-476427/, accessed: 5.9.2019.

7.5. Designing a Child-friendly Playground through the Co-creation Mindset as an Effective Policy to Increase Quality of Life under Different Criteria

Designing a child-friendly playground can play an important role in increasing the quality of life in Germany. As stated, Germany ranks lower than average in some topics of the OECD Better Life Index including community, civic engagement, and health. Designing a quality child-friendly playground through a co-creation process can enhance quality of life as judged by these 3 and other topics such as work-life balance, life satisfaction, environment, and education (Figures 7-1 & 7-2).

As stated in section 7.2.1., developing a quality public playground through the co-creation mindset can play an important role in creating networks and developing social interactions between children and parents from different socio-cultural backgrounds. A co-creation approach encourages children and adults (parents, grandparents, other caregivers) to become actively involved in the process and express their needs, wants, and wishes for a child-friendly playground. This will potentially increase Germany's score under the heading of community.

Likewise, as stated in 7.2.2., developing a playground through an *inclusive co-creation* process engages a large number of people with different skills working in collaboration. This approach will potentially enhance civic engagement.

As stated in 7.2.3., designing a quality child-friendly playground can contribute to children's healthy development and well-being reinforcing cognitive and physical development, as well as socio-emotional and language development. Thus, a quality outdoor playground can influence Germany's score in health on the Better Life Index. A child-friendly playground can also influence the education criterion, since it offers play opportunities that provide children with essential knowledge, skills and competencies for participating effectively in society and the economy. Examples include: problem solving, social competence, safety skills, creative thinking, and the knowledge that a child gains about him/herself, objects, others and the world through interaction and socialization (see Chapter 4)[227] (Bento & Dias, 2017, p. 157; Clements, 2004, p. 68; IPA, 2014,

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[227] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 14.9.2019.

p. 2; Talay et al., 2010, p. 848). In addition to schools and kindergartens, playgrounds are, then, also a suitable space for children to interact with other children.

Designing a quality outdoor public playground can also influence the work-life balance criterion, because it increases the quality of leisure time that people spend in a public space. Finding a suitable balance between work and life is challenging for all workers, especially working parents. The ability to successfully combine work, family commitments and personal life is important for the well-being of all members in a household. The amount and quality of leisure time is important for people's overall well-being, and can bring additional physical and mental health benefits that help the work-life balance[228]. Since designing a quality outdoor public playground influences the quality and amount of the time that families spend there, it contributes to enhancing this balance.

Happiness or subjective well-being can be measured in terms of life satisfaction: i.e. how people evaluate their life as a whole rather than their current feelings[229]. A quality child-friendly playground can enhance the quality of life in public spaces and increase life satisfaction.

The quality of a local living environment has a direct impact on people's health and well-being. One of the indicators that contribute to define the score of a country under the heading of environment is the level of air pollution[230]. Designing natural outdoor playgrounds and supporting children's play in natural spaces and interaction with natural elements (e.g. in forest kindergartens, see Section 7.4.1.2.) influences the quality of urban spaces by reducing air pollution and increasing air quality (e.g. because of trees[231] [232]) and reinforces children's healthy development. Thus, designing a quality natural outdoor playground and supporting children in playing in natural spaces can influence the score of a country under the criterion of environment.

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[228] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 15.9.2019.

[229] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 14.9.2019.

[230] http://www.oecdbetterlifeindex.org/countries/germany/, accessed: 14.9.2019.

[231] Trees play a vital role in directly removing pollutants from the air. Also plants are often seen as the "lungs" of an ecosystem because they absorb carbon dioxide and emit oxygen.

[232] Author: Vittoria Traverso (2005); https://www.bbc.com/future/article/20200504-which-trees-reduce-air-pollution-best, accessed: 22.07.2021.

7.6. Summary

In this chapter, the quality of life in Germany was described under different headings of the OECD 'Better Life Index'. In comparison with other OECD countries (including 36 countries), Germany performs well in most of these 11 topics and most of its scores are above average. However, the score is below average in a few topics such as community, civic engagement, and health. Hence, the design of a quality child-friendly playground can increase the quality of life in Germany by influencing these and some other topics in the Better Life Index such as work-life balance, life satisfaction, environment, and education. Considering the small number of children in most families, public places such as schools, kindergartens, and playgrounds play an important role in forming and improving children's social interactions and reinforcing their healthy development. A quality playground is a suitable space for children to interact with peers and enjoy playing with each other.

The chapter also described the educational system (including babysitting, kindergarten, and school system) and reviewed literature on family models (see Sections 7.3. & 7.4).

Chapter 8

Approach of the Study

- **Planning the approach of the study based on co-creation as a form of UCD (User-Centered Design)**

- **Understanding different levels of UCD from traditional version to the co-creation mindset (participatory design approach)**

8.1. Introduction

This chapter describes the User-Centered Design approach (UCD) and its forms including: traditional UCD, Active User Involvement, and Co-creation (Figure 8-2). The discussion of these forms will indicate why the approach of this study is based on the co-creation mindset.

According to Siu (2003), designers and design researchers who deal with design problems and opportunities related to public spaces and equipment – which includes public playgrounds and their playing equipment and settings – should actively involve users in research, design, and development process (Siu, 2003). The co-creation mindset (participatory design approach) is a form of UCD approach with high user involvement in the design and research processes. It is, then, particularly suitable for designing a playground that aims to meet its child-users' real needs, wants, and values.

8.2. Planning the approach of the study based on co-creation mindset as a form of UCD approach

8.2.1. Urban design and implementing the approach of the study

Urban design, urban and public spaces, and playgrounds as a part of urban landscape were described in Chapter 2. Urban design is an ongoing open system that uses individual architectural elements and ambient space as its basic vocabulary. In urban design, the focus is on social interaction and communication in the public realm (Carmona et al., 2010, p. 5). Public spaces – as appreciated and used in different cities — are key in urban design and development everywhere (Madanipour, 2010, p. 1).

Designers and design researchers, especially those who deal with design problems and opportunities related to public spaces[233] and the equipment and furniture presented there[234] (e.g. public playgrounds, play equipment, and settings) should actively involve users in the research, design, and/or development process (Siu, 2003).

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[233] Public spaces can be considered in various contexts and different scopes.
[234] For example the designer of an outdoor public playground as a public space with its natural elements and installed playing equipment.

Almost always, designers who deal with problems of public spaces need to consider restrictive standards and organizational requirements. Because of that, it is really important not to be distracted by these restrictive requirements from the main aim, which is meeting the actual needs, wants, and wishes of the end users. Also, compared with product designs for individual uses, users of public space cannot exercise more choices in selecting products. Moreover, it is important to keep in mind that designs related to the public interest are generally difficult to alter. In public space contexts, the user-oriented approach is, therefore, highly valued in order to achieve a high level of "user fitness" (Siu, 2003).

For planning the design process, the key questions to consider are: Who is involved? And who do the process and its outcome serve? (Madanipour, 2010, p. 12) Designing/developing a public place is typically a collaborative interdisciplinary activity which needs to involve a wide range of actors with various skills and expertise (Carmona et al., 2010, pp. 4-5; Childs, 2012, p. 10). The best frameworks for designing public spaces (e.g. an outdoor public playground) are the ones that draw on inclusive process and obligate designers to develop multiple solutions rather than a single solution to a problem. The final design of a public space or system should present various opportunities or affordances (Carmona et al., 2010, p. ix, p. 5 & p. 133; Madanipour, 2010, p. 12). Moreover, in a city, the needs, wants, wishes, and insights of users develop and change over time. Thus, in addition to being inclusive, urban design should accommodate time and change (Madanipour, 2010, p. 13; Erlhoff et al., 2008, p. 39). As urban design is an ongoing open system linked to other dynamic systems, it should have the following qualities (Siu, 2003; Madanipour, 2010, pp. 11-13; Kasprisin, 2011, p. 1; Carmona et al., 2010, p. vii-viii, p. 5 & p. 15):

It should be

- inclusive and interdisciplinary – involving a wide range of actors, experts, and agencies

- creative and generative

- open to rational decision-making methods without affecting the creative process

- multidimensional – accommodating time and change.

In order to create a high-quality child-friendly public playground which is accessible to its actors – especially the children who are its end users – the design process generated by this study aims to be profoundly inclusive, involving various actors including end users, stakeholders, experts,

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and related individuals or agencies in different phases. Among all the actors, children aged from 4 to 8, as end users, play the most active role. With its high degree of user involvement, the study goes further than the traditional UCD approach and shifts to the higher form of UCD approach known as 'participatory design' or 'co-creation mindset'.

8.2.2. Forms of UCD Approach: Evolution from Traditional UCD to Participatory Design or Co-creation Process

The term User-Centered Design (UCD) was popularized by Donald Norman in 1986. In his book *The Psychology of Everyday Things* (1988) Norman advanced a design philosophy that placed the needs of the user at the center of product design (Nichols et al., 2008, p. 2). According to the UCD philosophy and prospective, end users should be given a central role in the design process (Bont et al., 2003, p. 35). Thus, users' needs, wants, values, and experiences in different fields – including sensory, intellectual/cognitive, emotional, social, behavioural, and spiritual experiences – are given extensive attention at each stage of the UCD process. Also, their abilities and limitations should be understood[235] [236] (Dahlgaard et al., 2008). The most important reason for involving users in the design process is to get better insights into future use situations in order to design people-friendly products, services, spaces, systems, interfaces or forms of organization (Bont et al., 2003, p. 35*;* IDEO.org & Acumen Fund, 2015, p. 4*)*.

The ISO 13407 standard for Human-Centered Design processes (interactive systems) is the basis for many UCD methodologies[237]. According to ISO 13407, five essential phases should be undertaken in order to fulfill any User-Centered Design process. These phases are (Figure 8-1) (Maguire, 2001; Pagliari, 2007):

- identifying the design challenge and planning the UCD process
- understanding and specifying the context of use
- specifying and understanding the user and organizational requirements
- producing design solutions
- evaluating solutions against requirements.

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[235] https://www.prwd.co.uk/blog/user-centred-design-process-overview/, accessed: 11.7.2019.
[236] https://en.wikipedia.org/wiki/User-centered_design, accessed: 11.7.2019.
[237] https://www.usability.gov/what-and-why/user-centered-design.html, accessed: 11.07.2019.
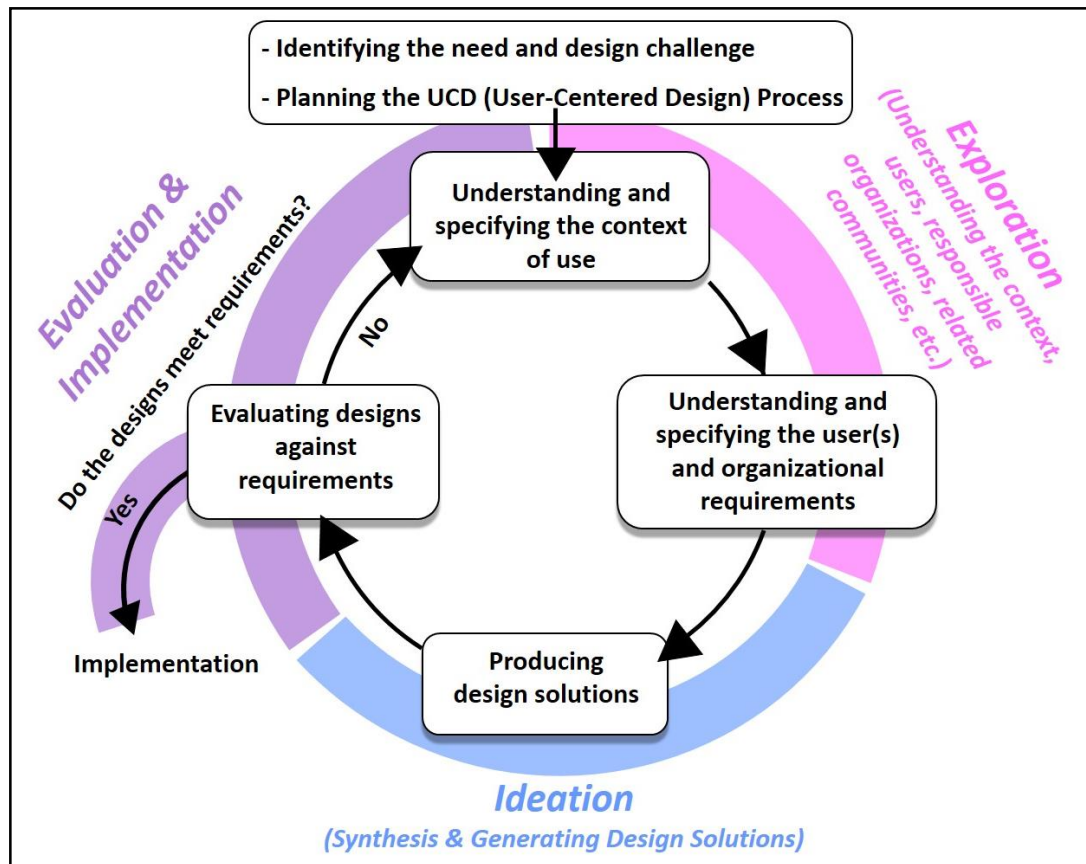
Figure 8-1: *The human-centered design cycle (the main phases of the UCD cycle).*

Source: *Data adapted from: (Maguire, 2001; Pagliari, 2007; IDEO, 2015, pp. 11-15; Sanders & Stappers, 2012, p. 27).*

Each UCD process is carried out iteratively until the attained results satisfy the requirements of user(s), context(s), and organization(s) (Figure 8-1). In each phase, different methods are applied in order to achieve the purpose(s) of that phase. Each phase provides a foundation and generates information for the subsequent phase (Figure 8-1) (Maguire, 2001). It is important to note that the UCD process does not specify exact methods for each phase. Different methods – which may be innovative or adapted from available methods – can be applied in order to fulfill the aim of each phase and finally, the main aim(s) of the UCD process[238]. These methods are characterized by two properties:

1. **The way that they involve users** – e.g. as design partners or just as concept testers.

   Levels of user involvement are (Bont et al., 2003, pp. 35-37):

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[238] https://www.usability.gov/what-and-why/user-centered-design.html, accessed: 11.07.2019.

– UCD *for* the user – low-level user involvement as in traditional UCD process

– UCD *by* the user – active user involvement

– UCD *with* the user – high-level user involvement as in participatory design approach or co-creation mindset[239].

2. **Design activities/phases that tools or methods target** – e.g. activities of early design phase or activities of detailed design phase (Figure 8-2) (Bont et al., 2003, pp. 35-37).

According to IDEO, as Figure 8-1 shows, the main phases of a UCD process can be named by other terms too: (1) exploration or inspiration, (2) ideation that includes synthesis and generating design solutions, (3) evaluation and implementation (i.e. evaluating the design solutions and bringing the final solution to life and market) (Figures 8-1 & 8-2). Even one more phase can be considered as (4) after implementation or after sale. This phase has not been shown in Figure 8-1 or Figure 8-2 (IDEO.org & Acumen Fund, 2015; Maguire, 2001; Sanders & Stappers, 2012, pp. 26-31*).

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[239] https://designpracticesandparadigms.wordpress.com/2013/02/08/co-creation-beyond-participatory-design/, accessed: 23.06.2020.

The diagram shows the following labels:

Vertical axis: Level of User Involvement
- With the User
- By the User
- For the User

'Participatory Mindset' — Users seen as partners (active co-creators).

'Expert Mindset' Traditional UCD — 'Users' seen as subjects (reactive informers).

Blue circles (forms of UCD):
- Co-creation (Participatory Design)
- Active User Involvement
- User-Centered Design

Green ellipses (methods/tools):
- Co-design
- Context mapping
- Usability testing
- Ethnographic research

Horizontal axis: Project Process (Phases)
- Exploration & Analysis
- Synthesis, Ideation, & Design Solutions
- Evaluation & Implementation

Legend:
- The horizontal axis shows the main phases of a UCD process (see Figure 8-1 too).
- The vertical axis shows the degree of user involvement in a UCD process.
- Blue circles show the different forms (levels) of UCD approach from traditional UCD to Participatory Design or Co-creation Mindset.
- Green ellipses show some examples of methods/tools that can be applied in different forms of user-centered design processes.

Figure 8-2: *Relation between different forms of UCD approach considering the level of user involvement.*

Source: *Data adapted from: (Bont et al., 2003, p. 37; Sanders & Stappers, 2012, pp. 18-19).*

Figure 8-2 illustrates the positions of various forms of UCD approach including traditional UCD (expert mindset), active user involvement, and participatory design (or co-creation) within the field of UCD: the horizontal axis outlines the project phases in which the methods can be used while the vertical axis outlines the intended level of user involvement achieved by different forms of UCD approach. Different tools, toolkits, and methods can be applied in each phase of a UCD process such as context mapping, ethnographic research, usability test, and co-design (Figure 8-2) (Bont et al., 2003, pp. 35-37). The tools and methods used in each phase can either be existing methods or creative/innovative methods of the designer.

In Figure 8-2, the two bottom rows of the diagram (design *for* the user and design *by* the user) represent the traditional UCD approach, where the roles of designer and user are distinct. In traditional UCD, the designer generates solutions for users based on explicit knowledge, and users are considered as objects of study and testers of solutions during usability testing (Figure 8-2) (Bont et al., 2003, pp. 36-37).

In the upper row (design *with* the user), users are considered as the experts in their own experience. They are actively engaged in the phases of the UCD process (project). In this zone, users are valued as co-creators in the design process. This form of UCD approach is called participatory design or co-creation process (Figure 8-2) (Sanders & Stappers, 2012, pp. 18-19; Bont et al., 2003, pp. 36-37).

Over the past seven decades in design projects (design research and practice) designers have moved increasingly closer to the future users of what they design. This has created an evolution from traditional User-Centered Design to participatory design and the co-creation mindset which has changed the roles of designer and user (Figure 8-2) (Sanders & Stappers, 2008; Sanders & Stappers, 2012, pp. 18-19 & pp. 25-27; Bont et al., 2003, pp. 35-37).

People are and will always be the consumers/users of products and services and the subjects of experiences. But many people seek ways to go further than just being consumers. They want to be socially and environmentally responsible. Thus, they need a balance between consumer activities and the ability to engage in creative activities (Sanders & Stappers, 2012, p. 16).

Engaging users in various design phases (activities) and providing them an opportunity to have active roles, will result in:

1. better user-fit solutions;

2. an increased sense of having influence on the decision-making process;

3. an increased awareness of the consequences of decisions.

In this way, people receive opportunities for choices that are at a higher level (e.g. decision-making choices about how to live) than choices which are only about how to spend and consume products or services (Sanders & Stappers, 2012, p. 16; Siu, 2003).

Different forms of UCD approach are:

- **Traditional UCD**

In traditional UCD process, designers have an expert mindset: they consider themselves the only expert and see the people served through design as subjects, users, or consumers. In this mindset, users are considered as reactive informers (Figure 8-2). In this form of UCD approach the focus is more on features of products, processes and services than users' insights and experiences. But through the evolution from traditional UCD process to participatory design, the expert mindset has shifted to the participatory mindset that sees people as the true experts in the domain of their own living, learning, and working experience. The participatory or co-creation mindset values users as co-creators and shares control of the design process with users (Figure 8-2) (Sanders & Stappers, 2012, pp. 18-19; Ramaswamy & Gouillart, 2010, p. 5).

- **Active User Involvement**

Active user involvement is an approach within the UCD zone that aims to give users an active role in the design process in order to gain insights into users' needs, practical knowledge, and use situations (Figure 8-2) (Bont et al., 2003, pp. 36-37).

- **Participatory Design and Co-creation Approach**

Participatory design (also known as user participation), is a form of UCD approach that has gained strong acceptance in recent years. It emerged in Scandinavia, born out of the labor unions push for workers to have more democratic control in their work environment (Siu, 2003; Abras et al., 2004, p. 6).

This form of UCD design attempts to actively involve potential users in the design process to ensure that the final product or service meets people's real needs, wants, and values (Bont et al., 2003, pp. 36; Sanders & Stappers, 2012, p. 19*)*.

Participatory design is based on collaboration between people from different backgrounds (Bont et al., 2003, p. 36; Sanders & Stappers, 2012, pp. 18-19). Its methodology allows the community to engage in the design process. The participatory mindset believes that people – including users, designers, experts, etc. – can contribute to design as co-creators (actors) if they are provided with the right tools to express their experiences, values, insights, and ideas[240]. A key characteristic of participatory design is the use of physical artifacts as thinking tools through the process (Sanders & Stappers, 2012, p. 19).

Co-creation or co-development is the practice of developing systems, products, or services through collaboration with users, stakeholders, experts, relevant communities, and responsible organizations (Ramaswamy & Gouillart, 2010, p. 4). It has become an important aspect of participatory design, giving users opportunity to advocate, act, and create their own desirable situations[241]. Co-creation is a very broad term and refers to any act of creativity shared by two or more people. In the present study, co-creation indicates collective creativity applied across the design process, especially in the exploration phase (Sanders & Stappers, 2008; 2012, p. 25), where an innovative method called 'Creative Session' has been designed to explore children's wishes and wants for developing child-friendly playgrounds (see Chapter 10).

- **People's Roles in the Design Process in the Co-creation Mindset or Participatory Design Approach**

a) The role of users as experts of their experience

In a co-creation process, users play an important role in knowledge development, idea generation and concept development. In this process, users are considered as part of the research/design team and are given the position of experts of their own experience. To understand users' true

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[240] https://designpracticesandparadigms.wordpress.com/2013/02/08/co-creation-beyond-participatory-design/, accessed: 21.07.2019.
[241] https://designpracticesandparadigms.wordpress.com/2013/02/08/co-creation-beyond-participatory-design/, accessed: 23.07.2019.

experiences, needs, wants, and wishes, they should be encouraged and supported with appropriate tools for expressing themselves (Sanders & Stappers, 2012, p. 23).

b) The role of the researcher and designer

In a co-creation (participatory design) process, the designer/researcher should support the user who is the expert of his/her experiences by providing suitable tools and methods for expression and ideation (Sanders & Stappers, 2012, p. 24; Bont et al., 2003, p. 36.; Ramaswamy & Gouillart, 2010, pp. 5-7). To implement this aim, the 'Creative Session' method (to be described in Chapter 10) has been designed by the author. This method evokes children's creativity and reveals their [242]covert or subconscious needs, wants, and values visually and verbally.

Various design parameters deprived from literature review and explored by implementing different methods (e.g. 'creative sessions' with children and group interview sessions with adults), are applied by the author to generate both preliminary concepts and final designs for the future child-friendly playground. The innovative play ideas and playground designs for the future playground will be presented in Chapter 13.

8.3. Summary

This chapter has described the UCD approach, especially in the form of co-creation mindset (participatory design), as a suitable approach in the field of public urban design. It is the approach used in this study, which aims to create a child-friendly playground meeting users' needs, wants, wishes, and values to a high degree. Chapter 9 will describe in greater detail the 'co-creative design process' (i.e. research-design process based on co-creation mindset) of this study, as well as the co-creators or actors involved in the process.

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[242] Literature reviews on different subjects/fields relevant to design a quality playground for children.

Chapter 9

Planning Design Process and Methodology

- **Planning the Design Process based on the Co-creation Mindset (Participatory Design Approach)**

- **Design Process and its Phases**

- **Co-creation Chain and Actors**

- **Methodology**

9.1. Introduction

In this chapter, the co-creative design process of this study is introduced and its actors identified. The main phases of the process include[243] (Figures 9-1 & 9-2):

1) Inspiration & exploration (understanding the context and co-creators)

2) Ideation (generating ideas/concepts/designs)

3) Evaluation (evaluating the final playground design)

The domains of potential actors in the co-creation chain comprise (Figure 9-3 (parts 1 & 2)):

1) **User domain** – Users include children aged 4-8 as end users and adults as stakeholders. The methodology relating to potential users will be described in Chapters 10, 11, and 12.

2) **Expert domain** – The opinions of relevant experts, communities, and fields of application have been surveyed in previous chapters, which have explored relevant disciplines and reviewed literature on different subjects (e.g. urban space, child development, types of children's play, children's play in playground, features of a quality playground, and different playground equipment).

3) **Institutional/Organizational domain** – Since in this study the final design is not yet presented as a real project, the role and involvement of the organizations responsible for building and managing public playgrounds – mainly city councils and departments– is not discussed (see Sections 6.2.4. & 6.2.6.).

The context of the study was presented on three levels – the Nordbahntrasse, Wuppertal, and Germany – in previous chapters.

9.2. Planning Design Process Based on Co-creation Mindset (Participatory Design Approach)

Design has no real existence until it is used: it is the participation of the user that gives a design its meaning. In other words, a user should be seen as the design's true producer, who actualizes the design by filling in its gaps or indeterminacies of meaning. As stated in Chapter 8, designers and researchers, especially those that generate designs for public use, should also see their role

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[243] As Figures 9-1 & 9-2 shows, in general 4 main phases can be considered for the co-creative design process of a real project. But this study which is *not* yet a real project (creating a real playground for a real context), covers 3 phases; the final phase here is evaluating the final playground design with the users/co-creators.

as facilitators. They should allow more flexibility and offer opportunity for users to participate in the decision process and actualize the designs (Siu, 2003).

As stated in Chapter 8, looking at a playground through the eyes of its potential users is really important. To implement this aim, the design process of this study has been planned based on the co-creation mindset, which is a form of UCD with high degree of user involvement (Figures 9-1 & 9-2). Co-creators are involved in different methodological phases of the design process (Figure 9-3, Parts 1 & 2). This is shown for Wuppertal, which is the main context of study, in Figure 9-3, Parts 1 & 2.

The co-creators can be divided into three main groups (Figures 9-3, Parts 1 & 2):

1. **User domain –** Users include children aged 4-8 as end users and adults as stakeholders (see answer to Question No. 2, in Section 6.2.8.).

2. **Expert domain –** In order to develop a quality child-friendly playground, relevant fields are explored in this domain by reviewing the relevant literature and surveying the opinions of different experts and communities in these areas: e.g. urban design, public design, playground history and children's play, different types of children's play, child development, necessary requirements and important qualities for developing a high-quality playground, UCD approach, and co-creation mindset.

3. **Institutional/Organizational domain –** When the design process is performed as a real project, the *role* of the municipality, as the main organization responsible for playgrounds, and related departments and institutions becomes more important and meaningful. For example, for presenting the detailed design and developing a real playground project in Wuppertal, it is necessary to plan and create trustworthy cooperation with Wuppertal City Hall and relevant institutions. However, in this study the playground designs are presented as examples of child-friendly playgrounds for the selected space next to the Parkour Park (see Chapter 13).

By involving the co-creators, especially end users and stakeholders, in the design process, the author aims to generate user-friendly playground designs. The final outcomes are presented as whole designs for the selected space next to Parkour Park. Each design includes several playing zones and various playground-equipment elements and settings for different playground

zones[244]. The design of each piece of playground equipment and also the overall final design – to be presented in Chapter 13 – should meet the real needs, wants, and wishes of its users, especially children aged 4-8.

To realize this aim, the designer/researcher should apply suitable methods – either already available methods or innovative ones – and facilitate children with practical toolkits and tools that enable them to express themselves to relevant adults (e.g. to the designer/researcher or to their parents, grandparents or teachers). By applying practical methods, the designer can explore and apply children's experiences, wishes and wants to the playground design (see Creative Session in Chapter 10).

In this study (as a Ph.D. project), the co-creation design process in its various phases – as shown in Figures 9-1 and 9-2 – has been planned, designed and performed by the author, involving co-creators with especial focus on children aged 4-8 (Figures 9-1, 9-2, & Figure 9-3, Parts 1 & 2).

9.3. Co-creation Design Process and Methodology

The approach of this study is based on a co-creation mindset involving an inclusive design process (Figures 9-1 & 9-2: co-creation design) which has four main phases (Figures 9-1 & 9-2):

1) Inspiration and exploration

2) Ideation (synthesis, and generating design solutions)

3) Evaluation and implementation[245]

4) After implementation.

Since this study is not a real project, the process will only continue as far as the evaluation phase (Figures 9-1 & 9-2). In evaluation phase, the final overall design (generated for children aged 4-8 in the context of the space next to the Parkour Park) including different pieces of playground equipment and settings, is evaluated by involving several co-creators. As shown in Figure 9-1 and Figure 9-2, each phase of the co-creation design process can be repeated until the desired result

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[244] The whole design includes the arrangement of playground equipment and facilities in the selected space.
[245] Bringing the final solutions and designs to life in a real context and market.

is achieved (Figures 9-1, 9-2, & 9-3). The methodology of the study will be described in the following chapters.

Some of the methods of the study that have already been applied are: literature review in various fields, observation in playgrounds, benchmarking available playgrounds in Wuppertal, studying playing/playground equipment, and studying various (international) playgrounds. However, due to the scope of available international playgrounds and equipment, many cases have not been presented or discussed in previous chapters. The main methods of co-creation design – some of which have been applied in previous chapters and some of which will be described later – comprise:

- **Phase: exploration phase**
  Domain: expert domain
  Method: literature review
  Literature review is one of the main methods in the exploration phase, especially the expert domain[246] (Figure 9-2 and Figure 9-3, Part 1 & Part 2). Main subject areas included: urban design, public design, playground history and children's play, different types of play and child development, important qualities for developing a high-quality playground, UCD approach and co-creation mindset as a form of UCD approach (Figure 9-2 and Figure 9-3, Part 1 & Part 2).

- **Phase: exploration phase**
  Domain: context domain
  Method: context study – observing, studying, benchmarking various playgrounds and equipment
  Development of a child-friendly playground for children aged 4-8 in the context of Wuppertal, the Nordabahntrasse, and the Parkour Park involves exploration of the gaps, opportunities, and needs framing the study. These have been described in previous chapters; they cover the following subjects and fields:

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[246] Domain of Experts and Relevant Communities is one of the domains in co-creation chain. is one of the main groups (i.e., actors) of the co-creation chain.

- Quality of life in Germany, parents, children, and family model, and educational system (see Chapter 7)

- Wuppertal and its attractions (see Sections 6.2.1. & 6.2.2)

- Sociocultural characteristics and parenting style in Germany (see Section 5.5.6)

- The Nordbahntrasse with its opportunities and gaps (see Section 6.2.3)

- Available playgrounds and equipment in Wuppertal, with gaps and shortcomings (see Sections 6.2.5. & 6.2.7.2.)

- Gaps and opportunities in the Parkour Park area (see Sections 6.2.3.1 & 6.2.7.2).

- **Phase: exploration phase**

  Domain: understanding children aged 4-8

  Method: creative sessions in kindergartens and primary schools

  For understanding children aged 4-8 an innovative method, 'creative session', was designed and performed by the author in kindergartens and primary schools. This method and the collected data and findings will be described in detail in Chapters 10 and 11. Creative sessions explore children's experiences, wishes, wants and values in different fields; the collected data and findings are then applied to generate child-friendly playgrounds in the ideation phase.

- **Phase: exploration phase**

  Domain: understanding stakeholders (parents, grandparents, teachers, etc.)

  Method: group interview sessions and questionnaire

  A list of questions was prepared for understanding stakeholders. These questions were asked of the participants either in group interview sessions or by questionnaires. This method and the collected data and findings will be described in Chapter 12.

- **Phase: ideation phase**

  Aim of the phase: generating playground equipment concepts and presenting complete playground design for the area next to Parkour Park

  Method: benchmarking and data synthesis

In the ideation phase, the concepts for playground equipment and facilities are generated by applying and synthesizing data collected from the previous phase and from benchmarking. The final innovative idea of the future child-friendly playground (including design of various playground settings) is designed by the author, considering design parameters collected in the exploration phase. Whole playground and equipment design ideas will be presented in Chapter 13. The child-friendly status of the designs will be evaluated in the evaluation phase (see Chapters 14 & 15).

- **Phase: evaluation phase**

  Aim of the phase: evaluating final playground design

  Method:

  In this phase the designs will be evaluated by 11 participants who interact with children and/or playgrounds by asking 16 questions in different aspects (based on the design parameters that have been explored in exploration phase) (see Chapters 14 & 15).
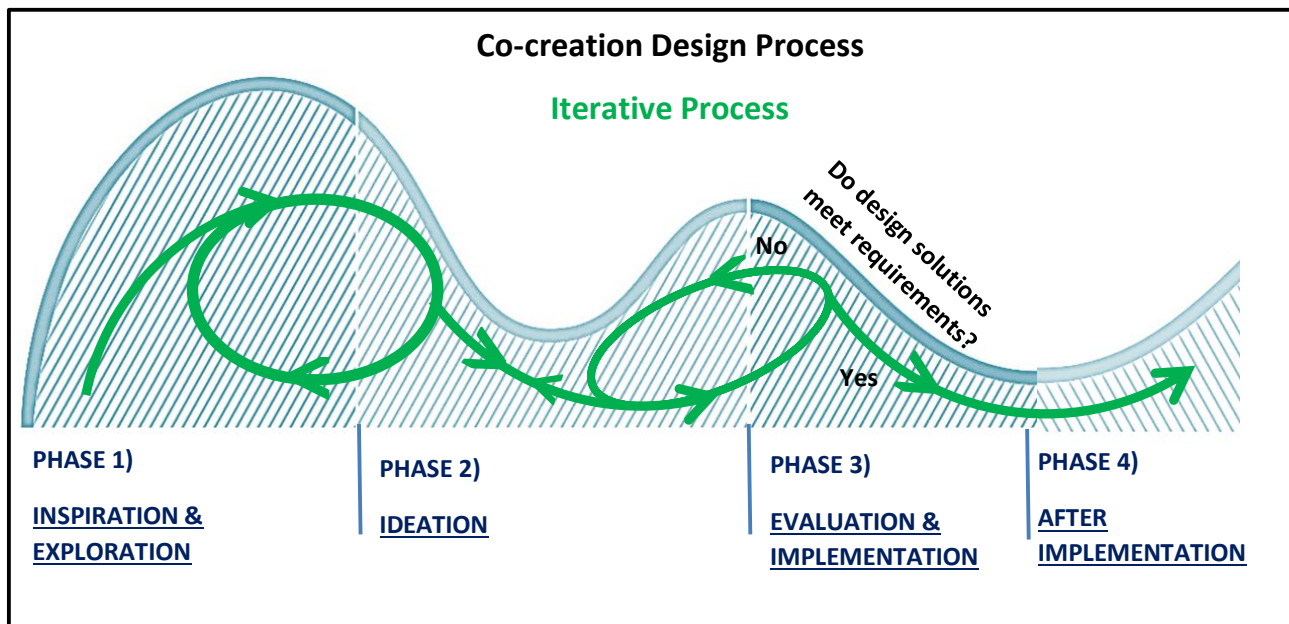
Figure 9-1: *The co-creation design process and its phases (iterative process).*

Source: *Based on information adopted from (IDEO.org & Acumen Fund, 2015, p. 4; Maguire, 2001; Sanders & Stappers, 2012, pp. 26-31).*
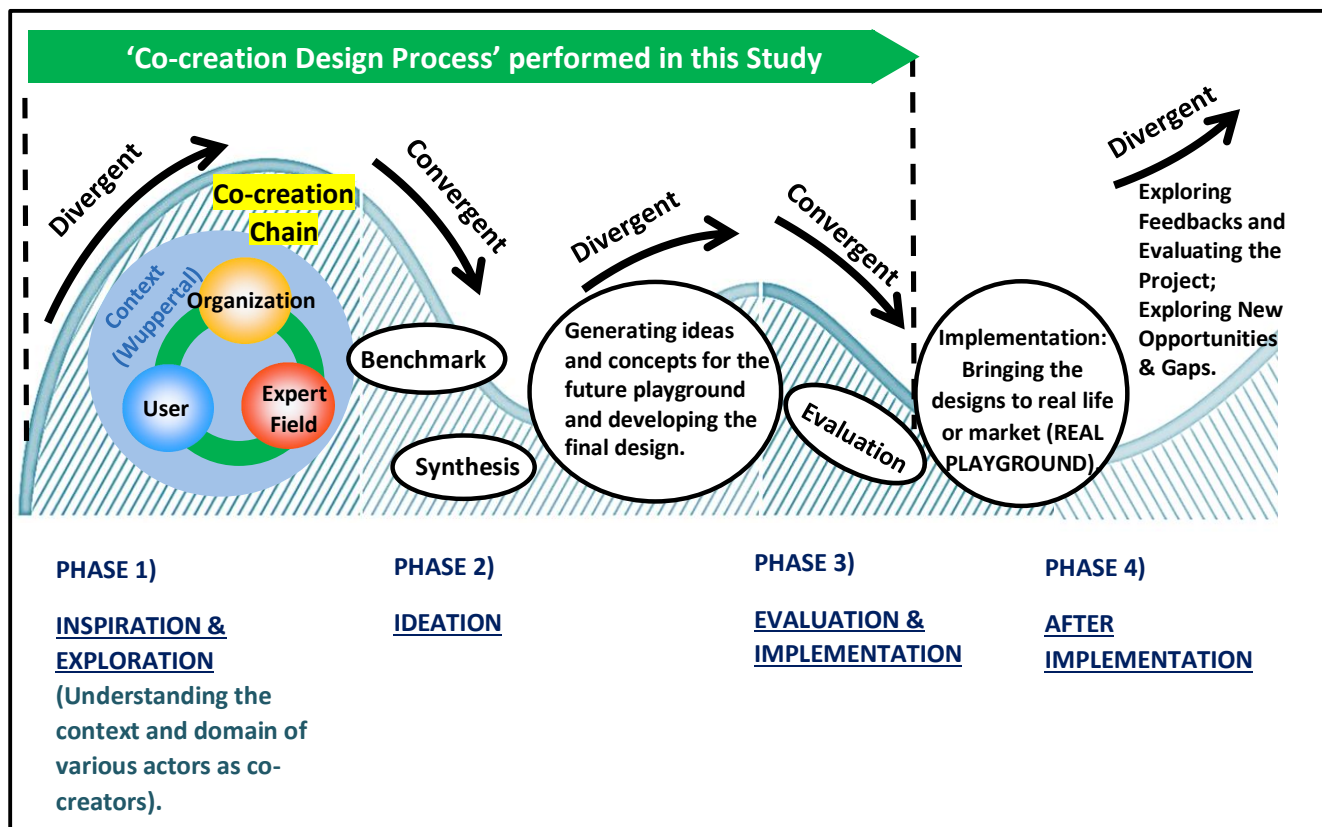
Figure 9-2: *The co-creation design process: main Phases and stages of each phase (each stage/phase can be either divergent or convergent process).*

Source: *Author (Neda Batenipour).*
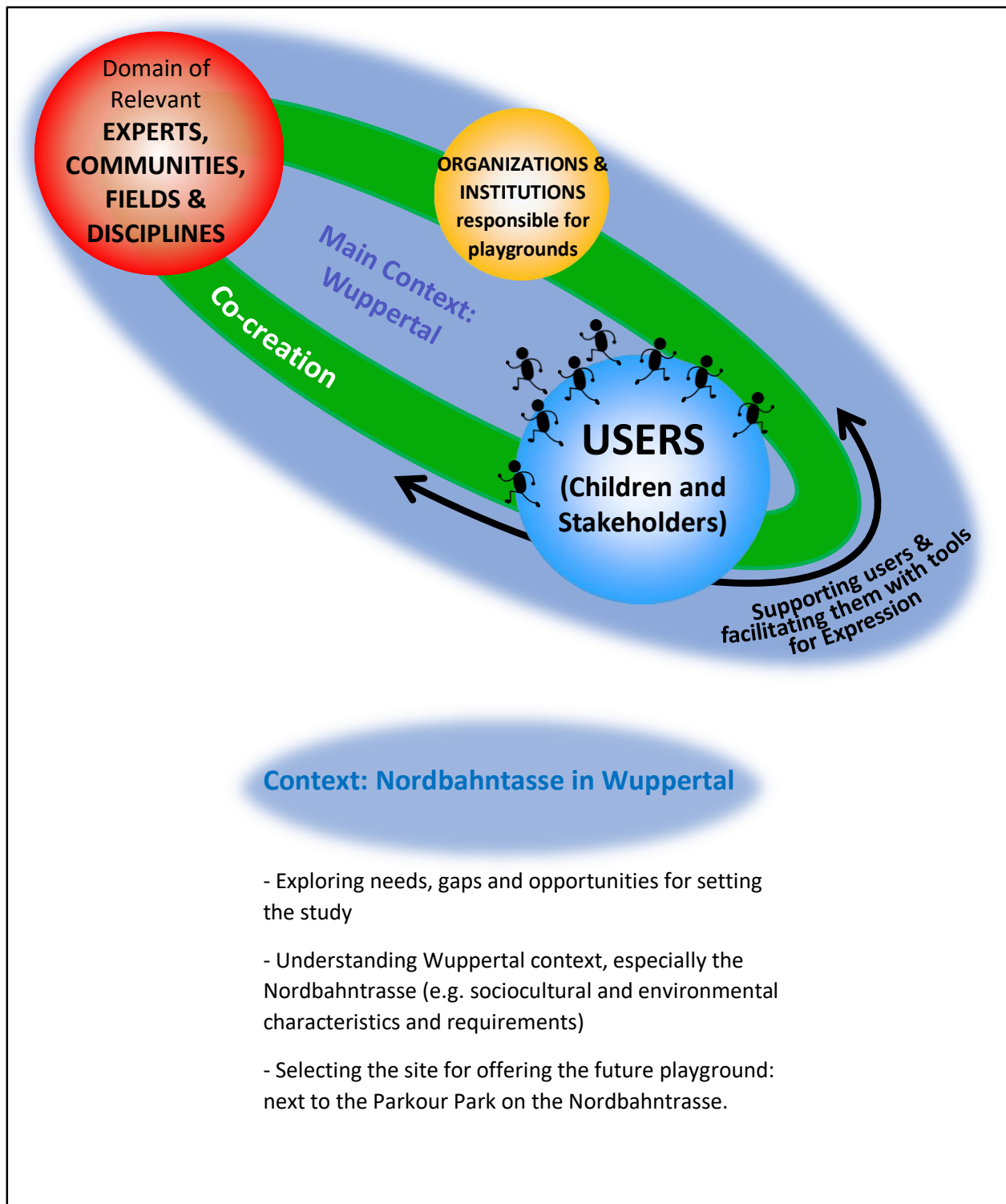
Figure 9-3 (Part 1) (figure continued on the next page):

Co-creation Chain – Actors in co-creation process for developing a child-friendly playground for children aged from 4 to 8 in Wuppertal (see next page).

Source: *Author (Neda Batenipour)*

USER

1) End Users

- Potential end users that are children aged from 4 to 8 years old (in Wuppertal).

2) Stakeholders

(See Chapter 6, Section 6.2.8., No. 2)

- People who bring children to the playground and accompany and support them in the playground like parents, grandparents, babysitters, teachers, and educators.

- The passengers who come to the playground to visit and rest.

- The playgrounds' local mentors/sponsors (in German: *Spielplatzpaten).*

EXPERTS & RELATED COMMUNITIES

Realms

The necessary realms which need to be understood and studied for developing a child-friendly playground include: urban design, public design, playground history and play, children's play and development, requirements for developing a quality playground, etc. In previous chapters, these realms were explored and studied in literature reviews.

ORGANIZATIONS

Organizations

(See Chapter 6, Section 6.2.6.)

- Wuppertal City Hall is the owner and main responsible organization for public playgrounds; mainly two departments in Wuppertal City Hall have responsibilities for public playgrounds:

1) Children, Youth and Family Department– Youth Welfare Office (In German: *Ressort Kinder, Jugend und Familie – Jugendamt*).

2) Green Spaces and Forests Department (In German: *Ressort Grünflächen und Forsten*).

Examples of 'Experts & Related Communities'

that can be considered for consulting and interviewing with in order to explore and understand the necessary realms:

- Experts in play, children's development and pedagogy.

- The playgrounds' local sponsors (*Spielplatzpaten*)*.*

- Teachers and educators who deal with children.

Figure 9-3 (Part 2) (Continuation of previous figure): *Actors in co-creation process for developing a child-friendly playground for children aged from 4 to 8 in Wuppertal.*

Source: *Author*

9.4. Summary

In this chapter, the co-creative design process has been presented in its main phases and potential actors. The main phases include (Figures 9-1 & 9-2):

1) Inspiration & exploration (understanding the context and co-creators)
2) Ideation (generating ideas/concepts/designs)
3) Evaluation (evaluating the final playground design)

The potential actors of the co-creation chain were shown in Figure 9-3 (parts 1 & 2)). The opinions of relevant experts, communities, and disciplines (e.g. urban space, child development, children's play, features of a quality playground, playground equipment) were explored – mainly through the literature reviews – in previous chapters.

Potential users are the main co-creators; these include children aged 4-8 as end users and adults (e.g. parents and grandparents who accompany children in the playground) as stakeholders.

Methods and toolkits such as creative sessions for understanding children and group interview sessions and questionnaires for understanding adults were applied. These methods and their findings will be described in detail in Chapters 10, 11 & 12. From the outcomes of these methods, design parameters will be adopted. These child-friendly and user-friendly design parameters will be applied to design and develop a quality playground for children aged 4-8 (see Chapter 13).

Chapter **10**

PHASE 1—Exploration Phase (Methodology)

- **Understanding the end users (Children aged 4-8).**

- **Method: holding creative sessions in kindergartens and primary schools**

- **Describing the creative session and its steps (i.e. stages)**

- **Understanding individual creativity**

- **Statistics on creative sessions**

End

USER — — — — —   **Understanding children aged 4-8**
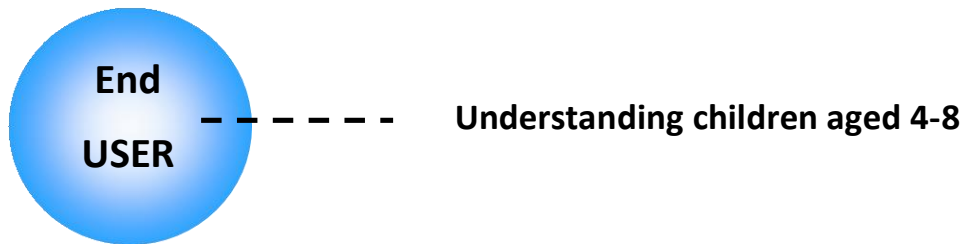
10.1. Introduction

This chapter is dedicated to the description and explication of the creative session method applied in the exploration phase of the co-creative process[247]. Creative Sessions were held by the author in kindergartens and primary schools for understanding children aged 4-8. The features and qualities of the creative session have been described in Section 10.2.1. (e.g. number of children in each session, approximate duration, session supervisors, main activities, setting).

Creative sessions are concerned with understanding children's experiences, wishes, and values through their drawings and stories, which are the sessions' main activities. This will be further discussed in Chapter 11.

Creative sessions were held for children aged 4-6 in kindergartens and for children aged 6-8 in primary schools in Wuppertal, Germany and in Tehran, Iran. Each Creative Session has 7 main phases:

1. Greeting & Introducing
2. Preparation
3. Imagining & Creating Stories
4. Facilitating
5. Drawing
6. Reinforcing Stories and Developing Drawing
7. Communication: Narrating, Exploring the Stories and Naming the Stories

In Section 10.2.2., each phase will be described and some photos of each phase will be presented. In total, 22 main creative sessions were held, 100 children aged 4-8 were involved in these sessions, and 165 drawings were collected (see Section 10.2.4.). The benefits and reasons for holding "Creative Session" in another context like Tehran will be explained in the following (see the answer to 'Where' in Section 10.2.1.).

The aim of creative sessions is to enable children to express themselves and explore their enjoyable experiences, wishes, wants, and values. The findings of creative sessions (from children's imaginary stories and drawings) will be described and analysed in Chapter 11. Design

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[247] The name given to the research-design process (see Chapter 9).

parameters are adopted from children's experiences and wishes. These child-friendly parameters are applied in the design of the child-friendly playground.

10.2. PHASE 1—Inspiration and Exploration

The co-creation design process starts with exploration, applying methodology derived from generative design tools. Generative tools are used in order to explore people's ideas, dreams, and insights. These tools empower people to express themselves, generate ideas and promote alternatives to the current situation. The motto of generative tools is "all people are creative". People can express an infinite number of ideas through a limited set of stimulus items (Sanders & Stappers, 2012, pp. 20-21). To explore the end-user domain, an innovative method called creative session – a 'generative toolkit'— was designed and used in kindergartens and primary schools. The aim of this toolkit is to empower and facilitate children to express their experiences, wishes, and values in different fields, as will be described in the following sections.

10.2.1. Main Features of Creative Sessions

Here, the structure of the creative session and the main points and features of its performance are described.

➢ **WHO? Target group of creative sessions:** children aged from 4 to 8.

➢ **NUMBER OF PARTICIPANTS in each creative session:** around 4-6 children.

➢ **PERFORMANCE: Who organizes and manages the creative session?**
In Germany, each session was performed by the researcher (author) with the assistance of the primary school or kindergarten teacher/educator. Involving the teacher/educator – who already knew the children and interacted with them – increased the quality of (face-to-face) interaction with the children, managing them and exploring their experiences in a practical way.
In kindergartens and schools, teachers are familiar with the individual characteristics of each child – whom they daily interact with — and know how to create communication with them. Hence the children feel more comfortable around them to get involved in creative activities,

express themselves, and create communication. When the children are more intimate with each other and with their teacher, they can enjoy the process more and are more motivated to participate in the activities.

➤ **WHERE? Where are the Creative Sessions held?**

1) **Place:**

The space for the creative session should be big enough and comfortable with a pleasant atmosphere in order to motivate children to get involved in creative activities and express themselves practically. The design and equipment of the selected space/room should support children to feel comfortable, enjoy the process, concentrate and express themselves easily in the session. In Section 10.2.2., the main stages in performing a creative session will be described.

Before performing the main creative sessions the preliminary toolkits and version were pilot tested twice by the researcher. These pilot sessions were held at the Von der Heydt Museum with children participating in the *Mini-Kunst-Treff* (Mini art meeting – a one-session painting course for children which takes around one hour)[248]. After pilot testing the sessions and analyzing the findings from their performance, the methodology of these preliminary sessions was improved and finalized to achieve the methodology of the main creative session.

2) **City:**

Most Creative Sessions were performed in Wuppertal, since it is the context for creating the future playground. However, some creative sessions were held with the children in kindergartens and primary schools located in Tehran, the author's home city, which made it an accessible context.

In addition to Wuppertal as the main context[249], why were some Creative Sessions held in Tehran?

Since the future playground aims to be a cross-cultural child-friendly play environment, it is important to consider a wide cultural variety of children's wishes, wants and tastes.

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[248] https://www.von-der-heydt-museum.de/, accessed: 13.07.2020.
[249] Wuppertal is the main context of this study.

For this aim, in addition to the cultural characteristics of the main context and local users in Wuppertal, a really different context (here Tehran) should be considered for exploration.

Involving children who live in other context(s) with different sociocultural backgrounds from Wuppertal can expand the range of diversity and creativity in the experiences explored and hence increase the quality and quantity of ideas for developing new child-friendly play experiences and playground settings and ideas.

Exploring a collection of creativities rooted in western and eastern contexts enables the designer to come up with more interesting and innovative ideas. Involving children from another context and exploring their positive experiences and values can expand creativity and develop the quality of values for users living in Wuppertal. But it is important to keep in mind that since the main context for this study is the Nordbahntrasse in Wuppertal, the final playground design must satisfy the requirements of this context.

➢ **MAIN ACTIVITIES OF CREATIVE SESSIONS:**

The structure of the creative session is a combination of three main activities:

1) Creating an imaginary story or a story based on an interesting memory

2) Drawing/painting

3) Expression (i.e. narrating and creating communication about their stories).

Drawing and story creation are two really interesting activities for most children in this age group (4-8). These activities enable children to express themselves and encourage them to communicate verbally with adults. It is important to know why.

1) **Stories and Children**

For children, stories are a natural platform to use language and express thoughts, feelings, and ideas. Stories are sites of joy, reflection, sorrow, and change. In stories people recall, reminisce, fantasize and play (Kerry-Moran & Aerila, 2019, pp. 1-6). According to Rikama (2005), life itself is a series of stories, and it is not possible to understand whether our lives give form to the stories or stories give form to our lives.

Children's stories are not only verbal accounts but are often created through play (role play, drawing or physical play) and embodied in gestures and action. Through their stories, children reveal their thoughts, express their feelings and create interaction

between themselves and their environment. Stories can shape and perpetuate culture, since children have an inherent drive to make meaning. Experiences and stories are culturally based but individually unique. In narratives one expresses experiences, feelings, thought, wishes, dreams, and ideas in all their forms from the verbal to the visual and kinaesthetic (Kerry-Moran & Aerila, 2019, pp. 1-6):

> While adults may consider stories only through the mind, the young child investigates stories through the whole body. Children are motion; they engage physically with the world around them using their bodies to experience, explore, and learn about themselves, others, and the environment. While stories and physical development may not appear to be directly related, these constructs can and do influence one another (Kerry-Moran & Aerila, 2019, p. 4).

Children can be strengthened by stories in a variety of ways and contexts. Stories (reading, hearing, creating and telling stories) play an important role in a child's healthy development. Children consume stories when they listen to, watch, play, and read narratives written by others at home, school, and in their communities. And they produce their own stories by playing, drawing, telling, writing, and performing (Kerry-Moran & Aerila, 2019, p. 5).

For many young children, creating a story is a way to deal with and describe their own thoughts and views or to manage their emotions like tragedy and adversity. When children tell stories themselves, they are able to express themselves and be heard as they want to be heard. Telling one's own story is important for children and for the individuals close to them. Children's self-created stories – as in creative sessions – can help adults understand them better, since these stories make children's thinking and knowledge visible to themselves and others (Kerry-Moran & Aerila, 2019, p. 6).

Narratives may even be a source of protection for young children who are unable to articulate their fears directly. Narratives facilitate children as safe mental spaces to nurture their hopes and dreams. Educators, families, and researchers can enable children to create stories that positively influence them as a source of happiness and strength (Kerry-Moran & Aerila, 2019, p. 6).

2) Drawing/Painting and Children

As stated in Chapter 4, children aged 4-8 are both interested and able to paint and use various colors to create products and express themselves. Thus, drawing is an effective tool to be applied in creative sessions for this age group and enable them to express themselves.

➤ **CORE AIMS OF CREATIVE SESSIONS:**

The creative session was designed by the author in order to explore a wider scope than just play and playground, namely the domain of wishes, values, dreams, and experiences of children not directly related to the playground field (for creative session phases see Section 10.2.2.). Some areas may not obviously seem relevant to play and playground field, but they may have the potential to provide important links, insights, ideas, and perspectives in order to form innovative play experiences for the future playground and its equipment.

For this aim, children were asked in a creative session to imagine a day that they truly enjoy. This encourages them to imagine, create and develop stories which may be relevant to different fields (e.g. playing in playground, cooking in the kitchen, and family get-togethers; see Chapter 11). In the Creative Sessions, the researcher and teacher should be careful not to lead the children's imaginations to any specific subjects or themes as this can limit or even block a child's *own* creativity and thus, his/her own enjoyable experiences will not be reflected in the story and drawing. However, adults can encourage and motivate children to create and develop their own stories (see Section 10.2.2.).

After creating stories of an enjoyable day, children were asked to draw their (imaginary) day; after finishing their drawings/paintings, each child was asked to narrate his/her story and talk about her/his enjoyable experiences. By drawing/painting, the children open up their insights to the researcher and teacher. It is a great way to understand children, explore their minds and communicate with them. In the communication phase, talking with the child, the adult can even explore invisible objects and experiences not directly expressed in the child's drawing.

➢ **DURATION:**

The duration of each creative session depends on the number of children who participate and the time that each child takes to create and talk about their story. On average, a creative session with five participants takes an hour and a quarter.

➢ **VIDEO RECORDING THE SESSIONS:**

All the creative sessions were filmed by video camera with the permission of the institutions. Since all the sessions were recorded, no information was lost and the researcher could watch and listen to the communication between the adult and each child and transcribed it accurately, attending to the child's expressions and what he/she said about his/her stories and drawings.

➢ **'SINGLE-SEX' EDUCATION in IRAN & 'CREATIVE SESSION':**

In Iran, primary school education is single-sex – i.e. each Iranian primary school is either for boys or girls. Thus, participants in the creative sessions held in Tehran's primary schools were of the same gender, either boys or girls. However, in kindergartens both genders are mixed.

10.2.2. Phases of the Creative Session

As stated above, the creative sessions held in Wuppertal involved a teacher/educator[250] from the kindergarten or school concerned. In a preliminary meeting the educator or teacher was informed about the main points to be considered and the way the session should be performed with children (see Appendix 1). A written guideline was then presented in order to outline the main points and phases of the session and a date was agreed for the creative session.

The main phases of a creative session are described below. However, each session could be unique considering the characteristics and mood of its participants (e.g. age, gender, cultural background, skills and developmental level). The quality of the tools and characteristics of the

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[250] In most creative sessions held in Wuppertal, the researcher was accompanied by one teacher, in a few sessions by two. In Tehran, the researcher held the session independently, since she could understand the children, communicate with them, and manage the session easily.

selected room or classroom, as well as the individual characteristics/skills/knowledge of the teacher(s) and the number of participants, play a role within each session.

A creative session has 7 main steps:

1. **GREETING & INTRODUCING**

In Step 1, the researcher and children introduced themselves. The presence of the teacher(s) helped children feel more comfortable. In most sessions, the names and ages of children were written on Post-it Notes (i.e. sticky notes). The researcher then briefly clarified her aim: to have an interesting day together and develop a creative play session. In some sessions this clarification was done by the teacher. In Tehran, all sessions were performed by the researcher alone (Figure 10-1).

Figure 10-1: *Step 1 in Creative Session, 'Greeting and Introducing'.*

No. 1: Location: Peyvande Adab Primary School (for Girls) in Tehran, Iran. Date: 25.07.2015.

No. 2: Location: Avin Kindergarten in Tehran, Iran. Date: 26.07.2015.

Source: *Author. The whole Creative Session was filmed.*

2. PREPARATION

In Step 2, the researcher and/or teacher briefly described the creative activities they were going to pursue (Figure 10-2).

Figure 10-2: *Step 2 in Creative Session, 'Preparation'.*

No. 1: Location: Pudelmütze Day Care Center (Kindertagesstätte Pudelmütze e.V.), in Wuppertal, Germany. Date: 19.03.2015.

No. 2: Location: The Kindergarten under Supervision of Nachbarschaftsheim (Nachbarschaftsheim Wuppertal e.V.), in Wuppertal, Germany. Date: 13.03.2015.

Source: *Author. The whole Creative Session was filmed.*

3.   IMAGINING & CREATING STORIES

In Step 3, 'imagining and creating stories', the adult responsible (researcher or teacher) told the

children: "Please close your eyes and imagine a day that you are really enjoying" (Figure 10-3).

When children closed their eyes, after some seconds, the researcher told them: "In your

imaginary world (or story), everything is the way that you most enjoy. You can be wherever you like and do whatever you are interested in". In this step, the researcher needed to encourage and motivate children to develop their stories without directing them to any special theme or subject. While children's eyes were still closed to develop their stories, the researcher or teacher told them: "Maybe you have already experienced your special day or maybe it is completely new and you have created it in your mind".

It is important not to lead children's minds and stories to any specific themes or subjects by using unnecessary words or showing unnecessary reactions. Since the aim is to explore children's stories and creativities as much as possible, it is important to give them enough time to imagine, create and develop their stories in their minds. Though the timing was different for each individual, it took on average around 5 minutes until a child developed it well enough in his/her mind and opened his/her eyes. It was important to wait until all the children had developed their imaginative stories. They then opened their eyes and waited for the others to finish.

Figure 10-3: *Step 3 in Creative Session, 'Imagining and Creating Stories'.*

No. 1: Location: The Kindergarten under Supervision of Nachbarschaftsheim (Nachbarschaftsheim Wuppertal e.V.), in Wuppertal, Germany. Date: 17.04.2015.

No. 2: Location: The Kindergarten under Supervision of Nachbarschaftsheim (Nachbarschaftsheim Wuppertal e.V.), in Wuppertal, Germany. Date: 13.03.2015.

Source: *Author. The whole Creative Session was filmed.*

4. FACILITATING

In Step 4, 'facilitating', the adult (researcher and teacher) gave the children sheets of paper (they could choose either smaller A4 or bigger A3 sheets) and colored pencils in order to draw their stories (visualizing their imaginations). See Figure 10-4.

Figure 10-4: *Phase 4 in Creative Session, 'facilitating'.*

No. 1: Location: The Kindergarten under Supervision of Nachbarschaftsheim (Nachbarschaftsheim Wuppertal e.V), in Wuppertal, Germany. Date: 13.03.2015.

No. 2: Location: Pudelmütze Day Care Center (Kindertagesstätte Pudelmütze e.V.), in Wuppertal, Germany. Date: 19.03.2015.

No. 3: Location: Köttelsladen Day Care Center (Kindertagesstätte "Köttelsladen" e.V.), in Wuppertal. Date: 14.04.2015.

Source: *Author. The whole Creative Session was filmed.*

In the creative session held on April 8, 2015 in Köttelsladen Day Care Center in Wuppertal, the children shared a very large blank sheet of paper. Each child drew her/his story on a separate area of that shared paper close to her/his seat. Most of the participants in this session had earlier participated in a normal creative session; the reasons for repeating that session with a large shared sheet of paper were:

- to increase the sense of cooperation;
- to make children feel more comfortable;
- to increase their self-confidence;
- to diminish any worrying sense of competition (rather than cooperation in an enjoyable activity/game), not having enough self-confidence, and being influenced by other children's ideas or drawings that could lead them to copy their friends' stories and drawings.

Figure 10-5: *Phase 4 in Creative Session, 'facilitating'; facilitating children by a large sheet of paper.*

Location: Köttelsladen Day Care Center (Kindertagesstätte "Köttelsladen" e.V.), in Wuppertal, Germany. Date: 08.04.2015.

Source: *Author. The whole Creative Session was filmed.*

5. DRAWING

Step 5 in the creative session, 'drawing', is when children use the materials to draw their stories (Figure 10-6), for example, their enjoyable experiences/events, the objects they applied in their imaginary stories, and the people they interacted or played with.

During the drawing process, the researcher or teacher sometimes motivated the children with some brief communication such as: "All the stories and paintings are interesting, beautiful and unique". In this way, the adult intended to prevent negative feelings like jealousy, lack of self-confidence, or imitation. The children were given enough time to express themselves, draw their stories and develop them visually (Figure 10-6).

In the 'drawing' step, the researcher/teacher could either participate and draw *slowly*[251] on a sheet of paper, or could just sit and quietly manage the session without being involved in the activity of drawing. In some sessions, when an adult sat and drew (or pretended to do so), children felt and acted more comfortably, since the adult did not seem in a position to observe or directly control them.

In the 'drawing' step, the adult usually just sat quietly and attentively, only responding if a child offered or asked something or if the child was in some kind of difficulty and needed the adult's support.

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[251] Drawing slowly avoid children imitating them (teacher's drawing) and forgetting about their own stories; in fact, it can be said that the teacher only pretends to draw so that the child does not feel controlled by her/him.

Figure 10-6: *Phase 5 in Creative Session, 'Drawing'.*

No. 1: Location: Köttelsladen Day Care Center (Kindertagesstätte "Köttelsladen" e.V.), in Wuppertal, Germany. Date: 14.04.2015.

No. 2: Location: The Kindergarten under Supervision of Nachbarschaftsheim (Nachbarschaftsheim Wuppertal e.V.), in Wuppertal, Germany. Date: 13.03.2015.

Source: *Author. The whole Creative Session was filmed.*

6. REINFORCING STORIES AND DEVELOPING DRAWING

Step 6, was called 'reinforcing stories and developing drawing/painting'. In this phase, when a child finished her drawing/painting, the adult asked her if she was interested to continue her story and develop another story in order for a drawing. If the answer was positive, the adult gave her another blank sheet of paper (Figure 10-7). In this way, some children drew more story-pictures.

The researcher could then explore a wider domain of visually codified experiences for use in generating innovative playground concepts.

Figure 10-7: *Step 6 in Creative Session, 'Reinforcing Stories and Developing Drawing'.*

No. 1 & No. 2: Location: Pudelmütze Day Care Center (Kindertagesstätte Pudelmütze e.V.), in Wuppertal, Germany. Date: 19.03.2015.

Source: *Author. The whole Creative Session was filmed.*

7. COMMUNICATION: NARRATING, EXPLORING THE STORIES AND NAMING THE STORIES

It would be naive to assume that children's drawings are a direct reflection of their mental and emotional state. Children's representational intentions in their drawings are understood practically when the child directly expresses them (Trautner & Milbrath, 2008, pp. 4-6). This shows the necessity of the communication phase in the creative session.

In Step 7, 'communication', when the children finished their drawings, the adult communicated with each of them in turn and encouraged them to talk about their stories and experiences (Figure 10-8), describing and explaining what they had drawn. These elements could be either visible in the drawing or invisible (not shown explicitly in the drawing but available in the child's mind).

After understanding the stories in the communication phase, children were asked to give a name to their drawings/stories. Some children chose a name for their drawings, while others did not. In most cases, but not in all cases, the chosen name was related to the content of the story. The researcher's intention in asking the child to name her/his drawing was to find the related areas and topics on which the child's story and attention focuses.

Maybe later, these names could be applied for naming different play zones or play settings in the future playground or for naming the whole playground design/system and its development as a public brand in Wuppertal.

Figure 10-8: *Step 7 in Creative Session, 'Communication'.*

No. 1: Location: Köttelsladen Day Care Center (Kindertagesstätte "Köttelsladen" e.V.), in Wuppertal. Date: 14.04.2015.

No. 2: Location: Avin Kindergarten, in Tehran, Iran. Date: 26.07.2015.

Source: *Author. The whole Creative Session was filmed.*

10.2.2. Understanding Individual Creativity

Since the 'creative session' has been designed based on creative activities to explore children's ideas of enjoyable experiences, values, wishes, and dreams, it is important to know:

- What are the basic blocks of creativity?

- How does an individual's creativity work?

1. The Basic Building Blocks of Creativity

The innermost layer of individual creativity is the child's mind (imagination) and the ideas to which this gives rise. These basic building blocks of creativity can be expressed pictorially or represented in words (see 'drawing' & 'communication' stapes in creative session) (Figure 10-9) (Sanders & Stappers, 2012, pp. 41-42).

Individual creativity is holistic: it does not happen only in the mind, but it is affected by the emotions, evoked by the body (activity and motion), and influenced by the surrounding environment. The head and heart are in the body which moves and develops over time (Sanders & Stappers, 2012, pp. 41-42 & pp. 47-50).

Figure 10-9, shows a framework for individual creativity. It reveals contexts of creativity that include various layers around an individual's ideas, including mind, heart, body and environment (Sanders & Stappers, 2012, pp. 41-42 & pp. 47-50).
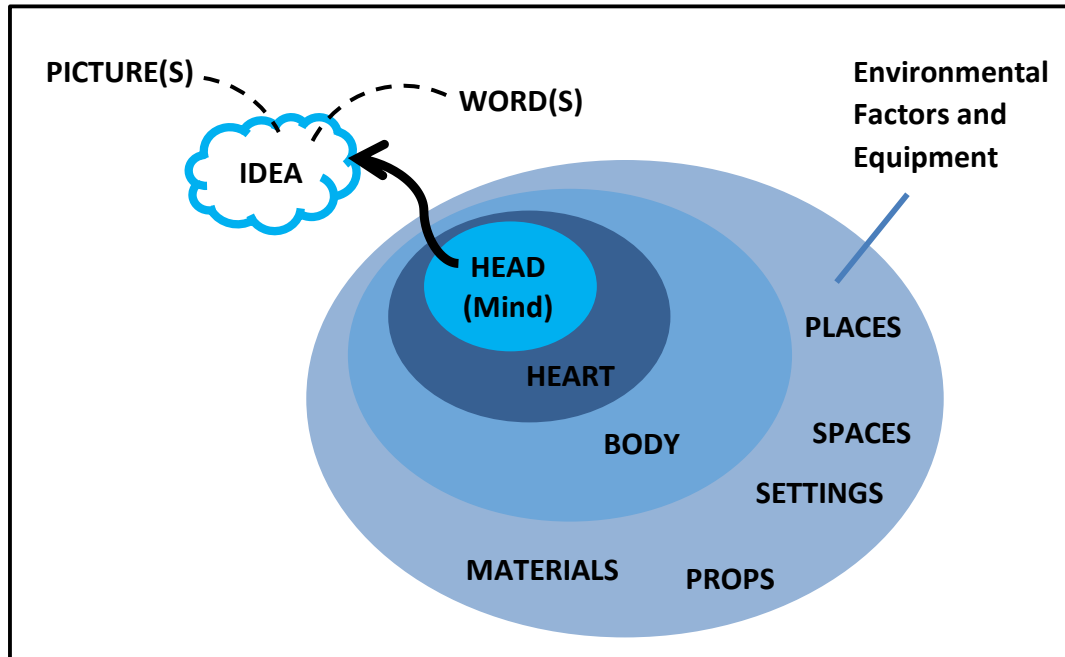
Figure 10-9: *A Framework for Individual Creativity. Individual creativity takes place in the body which is in action and development over time. It is influenced by environmental factors too.*

Source: *(Sanders & Stappers, 2012, p. 41 & p. 50).*

2. Expressing Creativity: How does individual awareness work? What is the path of expression?

Figure 10-10 shows (on the right) "the path of expression" that guides the time course of the creative process. It shows how the experience of the moment (now) is connected to past and future through memories and dreams. The path of expression illustrates how a person's awareness can be guided in steps while they are thinking first of the present, then of the past, then looking for underlying layers, in order to move to the future (Sanders & Stappers, 2012, p. 55).

The path of expression is based on a model for understanding one's experience (Figure 10-9). This model shows that the concept of experience is focused on the moment (now), which connects both backward to past experiences (through memories) and forward to potential future experiences. People's memories (past experience) influence how they behave and feel in the moment. These experiences, including present and past experiences, shape one's dreams and aspirations for the future. Similarly, people's dreams and wishes relating to the future influence their perception of the present (Sanders & Stappers, 2012, p. 56).

To gain an adequate understanding of a child's experience, it is important to facilitate them in the expression of that experience by effective tools and techniques, as in the creative sessions, where their stories described various experiences in different fields which might root in current situations and routines, or in past experiences (memories), or include wishes, dreams, and imaginary constructs for future experiences.
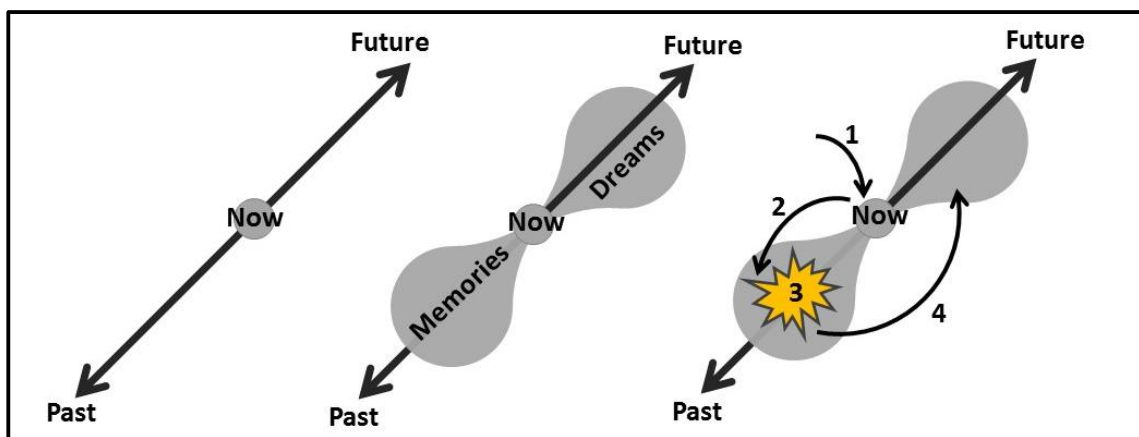
Figure 10-10: *"The path of expression" that guides the time course of the creative process and includes four main steps (on the right side of the figure).*

Source: *(Sanders & Stappers, 2012, p. 55 & p. 75).*

10.2.3. Statistics on Creative Sessions, Participants, and Drawings

Table 10-1 provides the statistics on the creative sessions held in Wuppertal and Tehran, their participants, and the drawings collected there. These statistics include the number of institutes that cooperated, the number of creative sessions held, the number of children aged 4-8 who participated in these sessions, and the number of drawings collected in Wuppertal and Tehran.

In total, 22 main creative sessions were held in 11 institutions (including kindergartens and primary schools in Wuppertal and Tehran) and 165 drawings were collected (Table 10-1). These 165 drawings were made by 100 children aged 4 to 8 who participated in the creative sessions. Among these 100 participants, 73 children participated in Wuppertal and 27 children in Tehran (Table 10-1).

Figures 10-11 show how many children from each age group (including 4-year-olds, 5-year-olds, 6-year-olds, 7-year-olds, and 8-year-olds) participated in the Creative Sessions in Wuppertal and Tehran. In total, 100 children participated in the Creative Sessions. Six of these children participated twice (i.e. in two sessions). This is because one of the sessions was repeated with the same participants to get better results but with a different tool (a shared blank paper to draw) (see Figure 10-5). This chart also illustrates the number of male and female participants in each age group.

Appendix 2 (on the attached CD to this Ph.D. thesis) presents detailed information and statistics on all the creative sessions and their participants such as: the date of the session, name of the institutes, location (Wuppertal or Tehran), number of creative sessions held in each institute, number of participants in each creative session, the reference number assigned to each drawing, and name, gender, and age of the participants.

Figures 10-12 & 10-13, present some of the drawings collected in the creative sessions in Wuppertal and Tehran.

Appendix 3 (on the attached CD) presents the images of all the collected drawings (165 correct samples) with the reference numbers, and the age and gender of the children who participated and drew these pictures.

Table 10-1: *Statistics on Creative Sessions held in Wuppertal and Tehran.*

	The Number of Institutions (including kindergartens and primary schools in Wuppertal and Tehran) that cooperated.	The Number of Creative Sessions Held.	The Number of Children Aged 4 to 8 who Participated in the Creative Sessions.	The Number of Drawings Collected in the Creative Sessions.
In Wuppertal, Germany	7	16	73	132
In Tehran, Iran	4	6	27	33
In Total	**11**	**22**	**100**	**165**

Source: *Author*
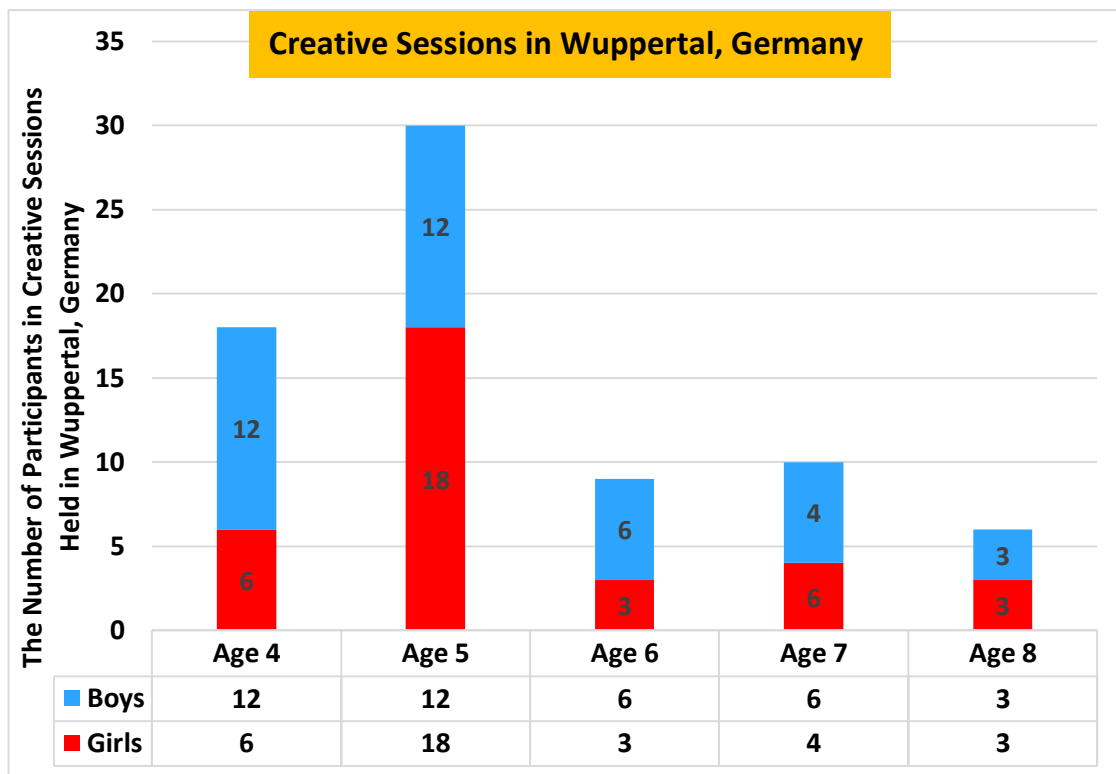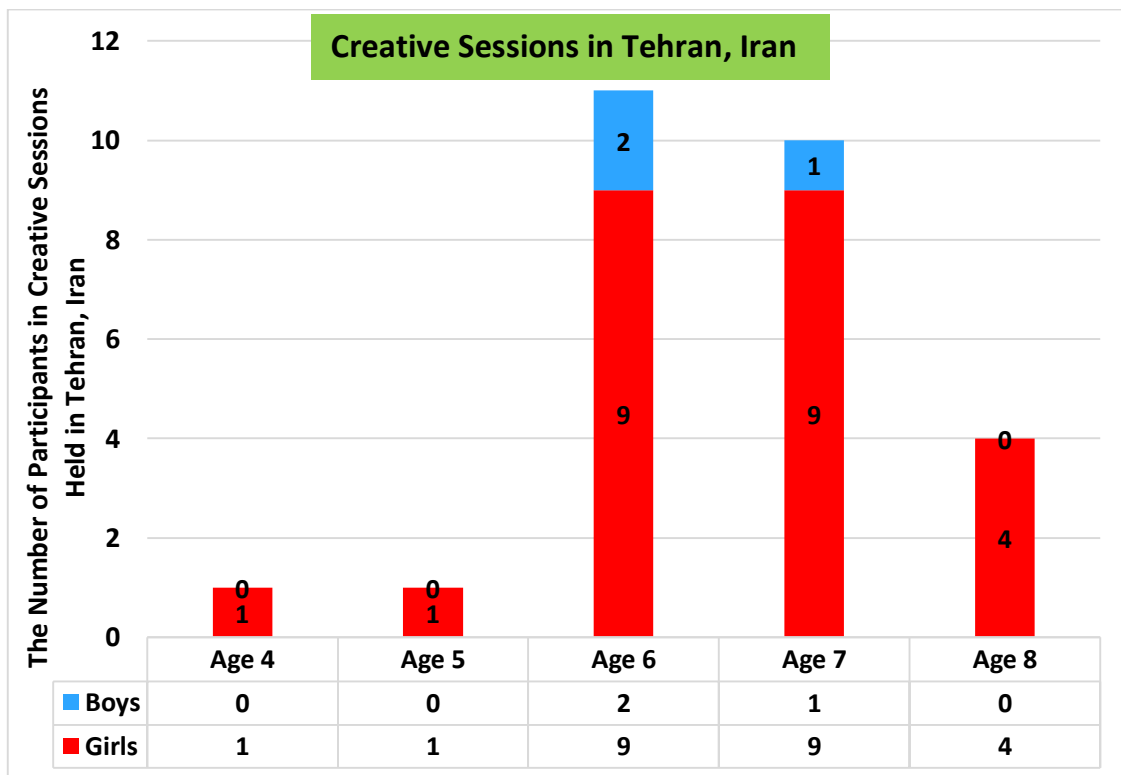
Figure 10-11: *The number of boys and girls from each age group that participated in the creative sessions in Wuppertal and Tehran.*

Source: *Author.*

No. 61

Layomai, 6 years old, Girl

No. 108

Florian, 7 years old, Boy

No. 30

The water slide

The pool

The hammock

The ladder

The ladder

Quinn, 5 years old, Boy

No. 34

Elena, 5 years old, Girl

No. 10
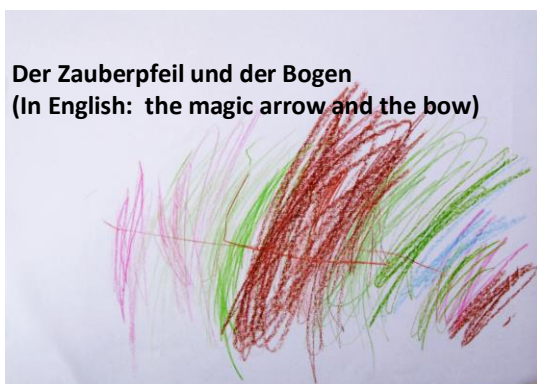
Der Zauberpfeil und der Bogen
(In English: the magic arrow and the bow)

Silas, 4 years old, Boy

No. 111

Reiten

Charlotte, 7 years old, Girl

Figure 10-12: *Examples of children's drawings in the Creative Sessions held in Wuppertal, Germany.*

Source: *Author.*

No. 164

No. 153

The Wonderland (an imaginary world).

Kiana, 8 years old, Girl
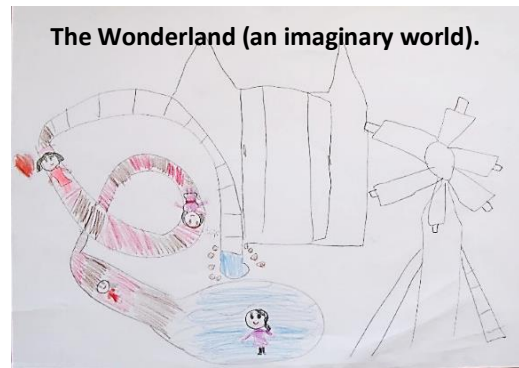
Paria, 7 years old, Girl

No. 146

No. 140

The good queen

The bad queen

Parnian, 7 years old, Girl

Hora, 6 years old, Girl

No. 145

The birds

AVA

The winged snake

The swing

SHAYLI NOORA

The slide

Shayli, 6 years old, Girl

Figure 10-13: *Examples of children's drawings in the Creative Sessions held in Tehran, Iran.*

Source: *Author.*

10.2. Summary

In this chapter, the phases of the creative session were described and shown by pictures in Section 10.2.2. Creative sessions as an innovative method designed by the author were held in kindergartens and primary schools in Wuppertal and Tehran. In each session, around 4-6 children participated in the activities of the session: the main activities are the children's stories and their drawings.

Since the creative session has been designed based on creative activities, the basic building blocks of both general and individual creativity, along with the features and qualities of the creative session (e.g. average number of children, approximate duration of each session, main activities, and location of session) were described. Creative sessions facilitate children in expressing themselves (i.e. creating their imaginary story, drawing it and talking about it to the researcher and their teacher) in order to explore their wishes, values, dreams, and experiences in different fields such as making a picnic in a forest, cooking, or getting together with their relatives (see Chapter 11).

All the creative sessions were filmed by video camera. The duration of each session depended on the number of children who participated and the time that each child took to create his/her story, draw it, and talk about it to the researcher and teacher. On average, a session with five participants took an hour and a quarter.

The findings of these sessions will be described and analysed in Chapter 11. Child-friendly design parameters are adopted from children's enjoyable experiences and wishes (see Section 11.7. in Chapter 11). In Chapter 12, the expectations and wants of adult stakeholders will be explored and the relevant design parameters will be defined. Chapter 13 will apply the design parameters – especially the child-friendly ones — to the design of a child-friendly playground and its equipment (playground settings and zones).

Chapter **11**

PHASE 1—Exploration Phase (Methodology and Data Collection)

- **Understanding end users (children aged 4-8).**

- **Method: data collection and categorizing findings from the "creative sessions"**

  1. **Collecting and categorizing data from children's drawings and stories in Creative Sessions**
  2. **Analyzing the collected data and exploring experiences, wishes and values**
  3. **Categorizing experiences in various groups considering their themes (called 'higher-level experience' or 'representative theme' groups)**
  4. **Design parameters/findings explored to develop the future playground**

End USER – – – – – – **Understanding Children Aged 4-8**
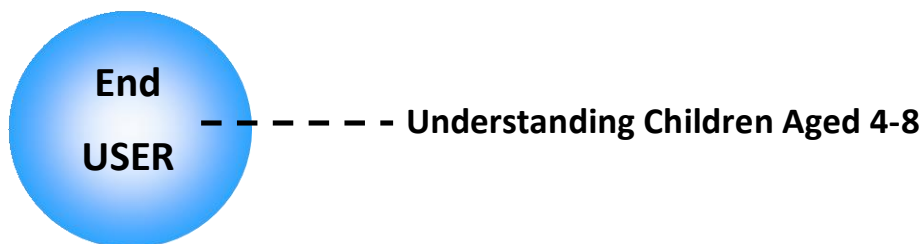
11. 1. Introduction

As stated, for understanding children aged 4-8, creative sessions were held in Wuppertal and Tehran. The children's drawings were collected and relevant stories heard. In this chapter, the necessary data, experiences and findings of the creative sessions are categorized (see Table 11-1). Among all the data from children's stories and drawings in these sessions, the last column is the most important (see Appendix 4 on the attached CD). It presents children's main experiences, wishes, and values in their stories, categorized and set in different groups by content and subject[252].

These groups (higher-level experience groups) are then defined (Table 11-2). Each higher-level experience group is analyzed, with particular reference to experiences mentioned more frequently in stories/drawings (Table 11-3 (from (a) to (z)). The names that children gave their drawings and stories are presented in Section 11.5. These names can be applied to naming and developing different play zones and play settings. Section 11.6 discusses the ways in which children used color in their drawings. Finally Section 11.7 presents child-friendly findings, design parameters, and qualities for developing the future playground.

In Section 11.7., the design parameters (child-friendly findings and qualities)[253] for developing the future playground – which have been explored and deprived from the favorable experiences and enjoyable wishes (i.e. child-friendly experiences) – are presented.

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[252] The experiences, events, and values with similar content and subjects were categorized in the same group (groups of higher-level experiences). These fields may overlap and be relevant to each other (see Table 11-2).
[253] These parameters and qualities have been deprived from the 'explored child-friendly experiences' in drawings/stories.

Table 11-1: *Table of analysis that presents how the explored data about each drawing and story have been categorized.*

Place & date of creative session	Reference no. of the drawing	About the child (participant in creative session)		Information about the child's drawing and story (explored through talking with the child about the story and searching in the drawing)							Interpretation and categorization
		Gender	Age	Name given by the child to the drawing	Place, time, and weather in the drawing/story	Main characters in the story (either visible or invisible in the drawing)	Objects discovered in the story (either visible or invisible in the drawing)	Colors of the drawing (dominant & recessive)	Describing the Story: main experiences explored in the drawing and its story	Additional key points	Representative theme or higher-level experience (key experience addressed as the representative for a group of relevant experiences)

Source: *Author*

11.2. Understanding children's drawings and stories

As stated in Chapter 10, in the communication step, the child was asked to narrate its story and describe that on the relevant drawing(s). In this step, it is important to follow the child and encourage him or her to develop more expression. In the communication phase, the researcher sought to understand the child's story and drawing(s) clearly. The aim of this phase was to explore a wide range of experiences in different fields.

Children's drawings are assumed to be a direct reflection of their stories and experiences. It is important to know that the activity of drawing – which is enjoyable for most children – is just a tool that inspires children's imagination, and encourages them to open up and express themselves. However, without creating communication, the drawings do not have clear meaning for adults. For example, some young children's drawings include the messy lines or shapes that cannot be understood without communicating verbally with these children (see e.g. drawings No. 10, No. 11, No. 12, No, 46, & No. 48 in Appendix 3 and Appendix 4 on the attached CD). Also, even the more developed drawings (often drawn by older children), cannot be understood clearly without creating communication with children and listening to their narratives. This shows how important it is to create a face-to-face communication with the child in order to know his/her story, understand his/her drawing(s) and explore related enjoyable experiences (see Appendix 3 and Appendix 4 on the attached CD).

11.3. Exploring experiences, categorizing them, and defining higher-level experiences (i.e. representative themes) and their realms

In the communication phase, the ideas, experiences, insights, and values in children's story/drawing(s) were explored. By watching the recorded videos of the sessions (watching the communication phase) and transcribing them, children's drawings and stories were understood and the practical information was collected and categorized. Table 11-1 (Table of analysis), shows how the explored data about each drawing and story are categorized (Table 11-1). The information/data about each drawing will be presented in Appendix 4 (see Appendix 3 and Appendix 4 on the attached CD).

The most important part of 'table of analysis' (Table 11-1), is the last part where the explored wishes, events and experiences have been categorized considering their themes and placed in groups with specific titles as the *representative theme* or *higher-level experience* (see Appendix 4 on the attached CD).

Table 11-2 presents all the higher-level experiences. Each experience is a title for a group which includes a collection of relevant experiences revealed in different stories/drawings (Table 11-3). These higher-level experiences include (Table 11-2):

- going or being outdoors
- being indoors
- family-oriented experiences
- discovering and becoming familiar with an occupation or skill and its context
- meeting and spending time with other people; spending time in public places and interacting with people
- holding and attending celebrations and parties; celebrating especial occasions or holidays; getting together
- close interaction with nature and natural elements
- discovering nature, learning and trying adventurous experiences; sense of environmental responsibility
- interaction or close relationship with animals, birds, and insects
- expressing feelings and emotions; having different senses
- being in a high place and having a bird's eye view
- physical play; sports; games with rules
- dramatic or socio-dramatic play (also called role play; make-believe play, pretend play, or fantasy play); miniature play scenes (small world play)
- rough-and-tumble play; fighting with or between imaginary enemies; action/action-oriented experiences
- destroying; manipulating; constructive play; creative play
- relaxing; resting; playing in peace and quiet; observing
- water-based entertainment, experiences and activities

- using, interacting, and playing with play equipment, elements, toys, settings, or street furniture
- adventurous travelling to interesting destinations/lands; visiting interesting places (imaginary or real ones)
- fantasy activities, imaginary elements, and imaginary or magical experiences[254]
- experiences and characters of the story that have been influenced by cartoons, cartoon characters, movies, computer games, or story books
- watching movies or cartoons
- listening to music; dancing
- cooking, baking, and eating
- drinking
- attractive forms and colors
- shopping; money-oriented experiences; luxury items.

These higher-level experiences (i.e. representative themes) describe different realms. These realms include (Table 11-2):
- location
- family and experiences
- jobs and working contexts
- sociability
- nature and its elements
- experiences in nature
- animals and experiences
- feelings and senses
- heights and views
- types of play
- water and experiences
- playing equipment, tools, or settings

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[254] Most of these experiences present the theme for an imaginary dramatic play.

- favorite destinations

- fantasy and experiences

- media and experiences

- music

- nutrition

- visual attractions

- money and experiences.

The realms stated above may overlap each other.

It is important to know that many explored experiences/events/wishes in the stories/drawings were considered in *several* groups (see the last part of Appendix 4 on the attached CD), because each event or experience may deal with *several* aspects and subjects.

Table 11-2: *Higher-level Experience (Representative Theme) Groups and their Realms.*

Each higher-level experience (i.e. each group of experiences) has been defined for a collection of experiences explored in children's drawings and stories. Many of these experiences can be mentioned in several groups. Each group is relevant to a realm.

Realm	Representative Theme or Higher-level Experience
Location	Going or being outdoors
	Being indoors
Family and Experiences	Family-oriented experiences
Jobs and Working Contexts	- Discovering and getting familiar with an occupation or a skill and its working context as an adventurous experience - Being interested in a special occupation and learning about that

Sociability	- Meeting and spending time with other people. - Spending time in public places and interacting with people.	
	- Holding and attending celebrations and parties - Celebrating special occasions or holidays - Getting together	
Nature	**Nature and its Elements**	Close interaction with nature and natural elements.
	Experiences in Nature	- Discovering nature, learning and trying adventurous experiences. - Sense of environmental responsibility – experiences in nature include a wide range of experiences such as **natural visual attractions** (see Table 11-3 (h)).
Animals and Experiences	Interaction or close relationship with animals, birds, and insects	
Feelings and Senses	Expressing feelings and emotions; having different senses (i.e. ability to understand, recognize, value or react to something).	
Heights and Views	Being in a high place and having a bird's eye view.	
Types of Play	Physical play; sport; games with rules.	
	- Dramatic or socio-dramatic Play (also called role play; make-believe play; pretend play; or fantasy play) - Miniature play scenes (small world play)	
	Rough-and-tumble play; fighting with or between imaginary enemies; action; action-oriented experiences.	
	Destroying; manipulating; constructive play; creative play.	
	Relaxing; resting; playing in peace and quiet; and observing.	
Water and Experiences	Water-based entertainment, experiences and activities	

Playing Equipment, Tools, or Settings		Using, interacting, and playing with the play equipment, elements, toys, settings, or street furniture.
Favorite Destinations: Interesting Places or Lands		- Adventurous travelling to an interesting destinations/lands. - Visiting interesting places (imaginary or real ones).
Fantasy and Experiences		Fantasy activities, imaginary elements, and imaginary or magical experiences
The Media	**Media (or New Media) and Stories Themes, Experiences or Characters**	Experiences and characters of a story influenced by cartoons, cartoon characters, movies, computer games, or story books.
	Media	Watching movies or cartoons
Music		Listening to music; dancing
Nutrition		Eating, cooking, baking, grilling
		Drinking
Visual Attractions (Mainly Artificial Elements)		Attractive forms and colors
Money and Experiences		Shopping; money-oriented experiences; or interacting with luxury items

Source: *Author.*

11.4. Analyzing higher-level experience groups and finding favorite experiences

The experiences in children's drawings provide a wide range of individual expectations, wants, values, and potential affordances with which this study aims to develop a child-friendly playground. Forming and presenting a definite pattern from the wide range of experiences in around 165 drawings is really challenging. The researcher sought to: (1) categorize the experiences (see Table 11-1 and Appendix 4 on the attached CD); (2) place them in Higher-level Experience groups and define the title of these groups and their realms (Table 11-2); and (3) present an approximate model and offer a broad child-friendly source and vision for developing child-friendly products, services, and systems – here specifically a playground. In this section, the higher-level experience groups or representative themes categorized in Table 11-3 will be analyzed.

Table 11-1 (a) — In most stories/drawings children enjoyed spending time in a public outdoor environment (e.g. in outdoor public parks, playgrounds, swimming pools, and natural or urban spaces). Among these open and public environments, many children depicted the natural and green spaces as the contexts of their stories such as public gardens, forests, integrated playing spaces, meadows, jungles, and the seaside (Table 11-3 (a)).

Table 11-1 (b) — In comparison with outdoor public environments, *fewer* children depicted indoor environments. Some examples of indoor/enclosed areas and spaces depicted in children's drawing are: various private spaces at home[255], indoor public swimming pools (as an indoor public space), tents (as an enclosed private space), theater halls, private studios, airplanes, mouse holes, gyms, indoor public aquariums, caves, and snail shells (Table 11-3 (b)).

Table 11-3 (c) — In most stories children themselves are the main characters of their stories. While in some drawings/stories they are alone, in other stories they are with other people (e.g. friends and family members). In children's drawings/stories, their companions usually include their parents, siblings, friends, imaginary companions and creatures (e.g. Superman, Spider-Man, Winged Dragon, and fairies), pets, and animals or insects (e.g. a butterfly). In those stories where children's companions were their families, family-oriented experiences were explored. In these

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[255] Like the kitchen, bedrooms, living room, bathroom, and attic.

stories, children usually have a close relationship with their parents and siblings and spend much time with them in both indoor and outdoor environments; they enjoy various activities together like going for a walk, going to a public park, going to the zoo, eating together at home, cooking with mom or grandmother in the kitchen, watching TV with siblings in the living room, and playing with car toys, dolls, and soccer ball with siblings in the bedroom or living room (Table 11-3 (c)).

Table 11-3 (d) – Among all the drawings/stories, a few showed children's especial interest in doing and learning specific occupations and interacting with favorite working contexts. Some of these occupations are: working as a firefighter, working as a physician or nurse in a hospital, being a policeman, working as a teacher or principal in a primary school, being a professional soccer player, being a horse rider or learning to ride a horse and gallop, ranching, being a singer or dancer in a band, etc. Some girls were interested in household chores, and cooking and baking at home. Since many children were interested in interaction with the natural elements and spaces, in various stories children were interested in the activities relevant to nature and natural elements like climbing trees, playing in nature, and gardening (Table 11-3 (d)).

Table 11-3 (e) – Children's drawings and stories showed that they are interested in spending time in public places especially playing spaces or natural environments (e.g. public playgrounds, parks, amusement parks, public green spaces and natural spaces). They are interested in social interaction with other children, friends, classmates, relatives, or neighbors. Hence it is necessary to design a quality public playing space which offers suitable play settings and elements to improve children's social interactions and support their social development (Table 11-3 (e)).

Table 11-3 (f) – The stories also showed that children are interested in attending and holding parties and spending time with their friends and relatives (e.g. holding a birthday party and inviting their friends, relatives, or neighbors over (Table 11-3 (f)).

Table 11-3 (g) & Table 11-3 (h) — In many drawings/stories children showed their close interaction with nature and natural elements (Table 11-3 (g)). They are interested in a wide variety of experiences relevant to their interactions with natural elements and spaces (Table 11-3 (h)). Some examples of interacting with natural elements and experiences in nature are: climbing up and down the trees; picking fruit from the trees; walking, jogging and playing in green spaces like

playing hide-and-seek in the woods and hiding behind trees; hiding behind the rainbow which is an imaginary experience; playing at the beach; and lying on the beach.

Many experiences mentioned in Table 11-3 (q), like the water-based experiences, can also be considered as experiences in nature: like diving into the sea, swimming in the sea, or fishing in the river. Although not all of these experiences in Table 11-3 (q) are listed in Table 11-3 (h), they can be included and considered there when they are relevant.

The stories/drawings showed that the children are interested in a wide range of shapes and colors that represent natural environments and elements. Forms, colors, and textures that represent nature and natural elements inspire children's imaginations and the feeling of being in nature (either real or imaginary) (see Natural Visual Attractions in Table 11-3 (h)). Some examples of experiences relevant to natural visual attractions are: enjoying watching the sea, the beach, (palm) trees, clouds, flowers, the sun and the sky.

Table 11-3 (i) — Some drawings indicated children's interactions with animals, birds, and insects in different degrees. While some children just enjoy watching them, other children have really close relationship with them (Table 11-3 (i)). Some of these interactions – which could be based on real or imaginary experiences – are: watching an owl or pigeon on a tree; playing hide-and-seek with a fox in nature; horse riding in a riding arena or an equestrian field; and watching a herd of the cows (Table 11-3 (i)).

Table 11-3 (j) – Children's stories can reflect their feelings and senses. Children's feelings and senses explored in their stories have been presented in Table 11-3 (j). Some examples of children's feelings and senses are (Table 11-3 (j)):

- sense of humor (funny experiences)
- sense of responsibility and caring
- sense of curiosity, freedom, and exploration
- courage and sense of power, control, and victory
- sense of humanity and justice
- being surprised or surprising someone
- sense of trying and achievement (succeeding)

- enjoyable waiting

- risk-taking experiences and courage

- frightening experiences and adventure

- facing danger

- being independent

- being a fan and having a role model

- sense of speed and agility

- sense of privacy and having one's own space

- sense of creativity and invention, and problem-solving

- attracting attention and being popular

- sense of teamwork

- sense of nostalgia

- sense of being supported and feeling safe.

Table 11-3 (k) — In various drawings/stories children expressed experiences that showed their interest for being in high places and having a bird's eye view (Table 11-3 (k)). Some examples of these experiences are: riding on a Ferris wheel and having a birds eye view; flying in space and travelling to different planets; being on the top of the trees; being on the top of high play equipment; riding in a hot-air balloon; sitting and resting on a hill and watching children who are playing down the hill; living in a room on the rooftop; sitting on the stars and looking at the earth from above (an example of an imaginary experience) (Table 11-3 (K)).

Table 11-3 (l), Table 11-3 (m), Table 11-3 (n), Table 11-3 (o), and Table 11-3 (p) – Children's experiences in their stories indicated their interest in a wide range of different types of play including (Table 11-3 (l), Table 11-3 (m), Table 11-3 (n), Table 11-3 (o), & Table 11-3 (p)):

- physical play; sports; games with rules

- dramatic or socio-dramatic play; miniature play scenes (small world play)

- rough-and-tumble play; fighting with or between imaginary enemies; action; and action-oriented experiences

- destroying; manipulating; constructive play; creative play

- relaxing; resting; playing in peace and quiet; and observing.

A quality child-friendly playground should offer different types of play to reinforce children's healthy development (see Chapter 4). Some common types of children's play in playgrounds were discussed and described in in Chapter 5.

Table 11-3 (q) – Children's drawings/stories showed that in various experiences and activities children enjoy playing with or interaction with water in different contexts (Table 11-3 (q)). Some examples of these water-based experiences, entertainment, and interactions are:

- swimming, playing, and floating in an indoor or outdoor swimming pool or in the sea
- playing with water guns;
- playing with a sister and dolls in the bathtub
- visiting public aquariums and being interested to learn about sea animals (Table 11-3 (q)).

Table 11-3 (r) — Common play equipment used in playgrounds was described in Chapter 5. Children's drawings/stories express a wide range of experiences and activities. In their stories, the characters interact, use, or play with different things such as play equipment, elements, toys, tools, and settings for playing or doing their activities (Table 11-3 (r)). Some examples of such equipment are: the Ferris wheel, slide (e.g. a water slid or spiral slide), swing, sand, ball, balloon, hammock, trampoline, tree house, teddy bear, dolls, toy cars, scooter, bicycle, unicycle, bathtub, horse halter and lead rope, household appliances toy set, kitchenware, boat, parachute, fishing equipment, LEGO bricks, domino tiles, chair, bench, and sun shelter (in public places) (Table 11-3 (r)).

Table 11-3 (s) – Sometimes, in children's stories the characters of the story travel to interesting lands or visit interesting places – real or imaginary – and have adventures (Table 11-3 (s)). Some examples of these lands and places are:

- natural green spaces like a beautiful island, meadow, jungle, forest, garden, integrated playing space, or seaside
- riding arena or an equestrian field
- Phantasialand (a theme park)
- a Sea Life center (i.e. SEA LIFE aquariums) or zoo
- the fantasy Land of Butterflies or Strawberries, Wonderland, Land of Dreams, Land of Magic,

Land of Play, World of Stars, City of the Family (Table 11-3 (s)).

Table 11-3 (t) — Table 11-3 (t) presents fantasy activities, imaginary elements, and imaginary or magical experiences that occur in the children's stories. It shows that many children enjoy interacting with nature and natural places in their imaginary spaces. However, recognizing what sources shape the experiences and characters of children's stories is often unclear. For example, sometimes they are formed by children's own creativity, sometimes they are adopted from real contexts and previous experiences, and sometimes they are based on stories, cartoons, etc.

Table 11-3 (u) – Some experiences and characters in children's stories could be influenced by cartoons, cartoon characters, movies, computer games, or story books (the media or new media) (Table 11-3 (u)). Some examples of these experiences and characters are: having a flexible nose that can get longer like Pinocchio 's nose; interaction with the wild animals in a jungle or forest; developing a story based on the Rapunzel story; conjuring things with a magic wand; getting candies or biscuits that fall like rain drops from the sky to the earth; travelling to the Land of Magic where fairies live; developing a story that centers on the rivalry between a mouse and a cat (like Tom & Jerry cartoons) (Table 11-3 (u)).

Table 11-3 (v) – In a few stories, children expressed the experience of watching movies or cartoons with their family or friends (Table 11-3 (v)).

Table 11-3 (w) – In a few stories children expressed their interest in listening to music or dancing (Table 11-3 (w)).

Table 11-3 (x1) and Table 11-3 (x2) – Table 11-3 (x1) and Table 11-3 (x2) present the food and drink that children like. In addition to the experience of eating favorite food or snacks, Table 11-3 (x1), also presents the experience of cooking, baking, and grilling in the stories.

In most stories in which the experience of eating was expressed, children enjoyed eating ice cream or fruits like strawberries, raspberries, bananas, cherries, apples, pears, or grapes (Table 11-3 (x1)). This was expressed more than eating any other snacks or food. As stated in Table 11-3 (h), some children also enjoy picking fruit from trees.

Table 11-3 (x1) also shows, some children have expressed their interest in eating other foods or snacks like candies, biscuits, flavored ice, potato chips, popcorns, cakes, noodles, fried potatoes, Doner kebab, pizza, and Gheymeh (a Persian food). Furthermore, a few children (especially girls) showed their interest in cooking, baking, grilling or making tea with their parents, grandparents, or relatives.

Table 11-3 (x2), shows that a few children expressed the experience of drinking in their stories such as drinking water, juice, lemonade, and soft drink.

Table 11-3 (y) – As stated in Table 11-3 (h) (experience in nature), most children were interested in a wide range of shapes and colors that represent the natural environments and elements (see Table 11-3 (h)). In addition to these natural forms and colors there are some other shapes and forms (artificial elements) depicted by a few children as visually attractive objects. Some examples of these visual attractions are: the heart shape, star shape, crown shape, butterfly shape, decorated Christmas tree and Easter egg bush, fireworks, balloons and colored paper (Table 11-3 (y)).

Table 11-3 (z) – Table 11-3 (z), presents experiences relevant to spending money (shopping), having money and interacting with luxury items. Some examples of these experiences are:

- buying lots of story books
- picking gold, jewelry and treasure from the 'bush of gold, jewelry and treasure' (an imaginary experience)
- arranging a wedding party
- having lots of money in the bank
- forming a band and doing entertaining performances.

In order to apply these experiences to the creation of concepts for child-friendly play equipment and playgrounds, the designer immersed herself in this wide range of child-friendly experiences with especial focus on the ones depicted and mentioned by *more* children in creative sessions.

Tables 11-3 (from (a) to (z)): *Higher-level Experience Groups and the Collection of Experiences explored from children's drawings and stories (see Appendix 3 and Appendix 4 on the attached CD to this thesis).*

Table 11-3 (a)
Location
Going or Being Outdoors

In most of the stories/drawings children enjoyed spending time in the outdoor environment and natural spaces:

- going to an <u>outdoor public park</u> or <u>playground</u> with family or friends (e.g. drawings No. 5, No. 6, No. 8, No. 22, No. 26, No. 39, No. 74, No. 143, No. 148, No. 156, No. 159).

- going to a <u>natural park or natural playground</u> (e.g. drawings No. 35, No. 53, No. 69, No, 120, & No. 141).

- going to the <u>zoo</u> (drawing No. 161).

- going to a <u>public green space</u> (alone or with family member) and having adventures in <u>nature</u>:

- spending time in a (public or private) <u>garden</u> (e.g. drawings No. 7, No. 35, No. 36, No. 43, No. 85, No. 86, No. 135, No. 139, No. 140, No. 141, No. 154, No. 160, & No. 164).
- going to <u>woods</u>: e.g. pitching a tent in the woods; spending time in a forest with imaginary or wild animals like tigers, bears, winged dragons or snakes (e.g. drawings No. 10, No. 11, No. 139, & No. 144).
- going to a <u>forest</u>: e.g. playing in pine woods (e.g. drawings No. 18, No. 30, No. 40, No. 42, No. 43, No. 49, No. 63, No. 75, No. 76, No. 100, No. 113, No. 126, & No. 133).
- going to a <u>meadow</u>: e.g. a meadow of flowers which has different types of flowers like tulips (e.g. drawings No. 10, No. 11, No. 67, & No. 100).
- playing in the <u>green space</u> near home (e.g. drawings No. 74, No. 135, & No. 164).

- playing on an (outdoor) soccer field: e.g. in an outdoor urban environment or in the schoolyard (e.g. drawings 83, 107, & 122).

- going to Phantasialand – a theme park (drawing No. 28).

- traveling to an island (e.g. drawings No. 31 & No. 137).

- being at the seaside/beach/on an island (e.g. drawings No. 27, No. 31, No. 45, No. 64, No. 69, No. 70, No. 89, & No. 120).

- going to an <u>ice cream shop</u> for buying an ice cream (drawing No. 38)

- being in an outdoor public urban space, going to the city center, and strolling through the streets (e.g. drawings No. 46, No. 48, No. 54, No. 55, No. 61, No. 62, No. 73, No. 110, No. 88, No. 124, & No. 154).

- strolling the street in the car with the family (drawings No. 73, No. 124, No. 154, & No. 165)

- going to an amusement park (e.g. drawings No. 6, No. 28, No. 61, & No. 153).

- going to a <u>horse riding arena</u> or an <u>equestrian field</u> (drawings No. 111, No. 113, & No. 131).

- going to the sea life center (drawing No. 109).

- attending a public celebration, hockey festival, held by the hockey community for children in an outdoor environment (drawing No. 112).

- <u>Going out</u> and eating at a restaurant or in public places (e.g. drawings No. 82, No. 87, No. 88, & No. 116).

- getting together with classmates in the schoolyard (drawing No. 155).

Table 11-3 (b)
Location
Being indoors

- enjoying spending time <u>at home</u> and doing various activities:
  - being <u>at home</u> and playing with pets (e.g., cats) (drawing No. 44).
  - spending time in the <u>bedroom</u>; playing with toys (e.g. playing with toy cars, dolls, etc.) (e.g. drawings No. 44, No. 76, No. 86, No. 95, No. 123, & No. 127).
  - being at home (indoors) and watching cartoons and movies (e.g. watching TV in the <u>living room</u> or in the <u>bedroom</u> at home) (e.g. drawings No. 32, No. 41, No. 74, No. 95, No. 105, & No. 108).
  - being <u>at home</u>: organizing the household furniture (drawings No. 41, No. 134, & No. 140)

- spending time in the <u>kitchen</u>: cooking and baking with grandmother or mother; eating together with the family or alone at home (e.g. drawings No. 35, No. 68, No. 71, No. 72, No. 88, No. 102, No. 105, & No. 134).
- playing <u>in the bathroom</u> (drawing No. 91).
- playing in <u>the attic</u> at home (drawing No. 127).
- spending time <u>at home</u>: inviting friends over and playing with them (e.g. drawings No. 44, No. 76, No. 86, No. 97, No. 140, No. 152, & No. 155).
- organizing the household furniture in <u>the new home</u> and using it (for example sitting down on the sofa and lying on the couch in the <u>living room</u> or the <u>attic</u>) (drawing No. 41).
- interaction with the <u>different spaces of the house</u>; watching the sun out of <u>her room</u>'s window (drawing No. 123).

- being inside a <u>snail's shell</u> (drawing No. 49).

- being/hiding <u>in a cave</u> in a garden (drawing No. 85).

- going to an <u>indoor playground</u> (like the "Upsalla Kinderwelt") (drawing No. 87).

- visiting <u>indoor public aquariums</u> in a Sea Life Center ('Sea Life' is a chain of commercial sea life-themed aquarium attractions) (drawing No. 109).

- spending time in <u>a tent</u> in the woods (drawing No. 144).

- being in <u>a theater hall</u> or in <u>a studio</u> for practicing, performing and recording performances (drawing No. 147).

- spending time <u>at the airport</u> (drawings No. 138 & No. 165).

- flying <u>in an airplane</u> (drawings No. 24, No. 30, No. 138, & No. 165).

- being like a mouse at the <u>mouse-hole</u> (drawing No. 165).

- going to a <u>gym</u> (or <u>sports club</u>) (drawings No. 29, No. 32, & No. 115).

Table 11-3 (c)
Family and Experiences
Family-oriented Experiences

- playing with siblings at home (e.g. drawings No. 68, No. 71, No. 92, No. 95, No. 100)

- going to a park with the family (e.g. drawings No. 5, No. 6, No. 39, No. 65, & No. 142)

- going out for a walk with the family (e.g. drawings No. 16, No. 17, No. 18, No. 62, No. 72, No. 73, No. 75, No. 90, No. 100, No. 110, No. 154, & No. 164)

- travelling to an island or a beach (seaside) with the family (drawings No. 27, No. 89, No. 90, & No. 120)

- watching TV at home (together with the family) (e.g. drawings No. 32, No. 95, & No. 108)

- travelling to an island or a beach (seaside) with the family (drawing No. 28)

- spending time with the family at home like playing *Hütchenspiel*, cooking, or baking with the grandmother; or playing with brother and friends in their garden (drawing No. 35)

- eating at home with the family (e.g. drawings No. 35, No. 71, No. 68, No. 72, No. 102, No. 105, No. 108, No. 100 & No. 134)

- going to a forest with the family, relatives and babysitter (for a walk/exploration) (e.g. drawings No. 17, No. 18, No. 24, No. 75, & No. 100)

- going to grandfather's wedding with Mom (e.g. drawings No. 80 & No. 81).

- going to an outdoor playing spaces or indoor public playground (like the "Upsalla Kinderwelt" in Wuppertal) with the family (e.g. drawings No. 5, No. 6, No. 39, No. 65, No. 82, No. 120, No. 122, & No. 142)

- eating out with the family at a restaurant near the "Upsalla Kinderwelt" (drawing No. 82).

- going to a public swimming pool with the family (drawings No. 92 & No. 110).

- being at home with the family on Christmas Eve, having dinner with the family, and celebrating together (drawing No. 108)

- going to a Sea Life Center with family and relatives ('Sea Life' is a chain of commercial sea life-themed aquarium attractions) (drawing No. 109).

- going out with father and eating out, at the restaurant with him (or the family) (drawing No. 116).

- baking a cake with Mom at home (drawing No. 134).

- grilling on the balcony with parents (drawing No. 136).

- spending time with Mom at home like listening to the story that she is reading (drawing No. 146).

- going to a zoo with the family (drawing No. 161).

Table 11-3 (d)
Jobs and Working Contexts
Discovering and getting familiar with an occupation or a skill and its working context as an adventurous experience. **Being interested in a specific occupation and learning about that.**
- visiting a hospital and becoming familiar with the activities of the physicians and nurses who work there (drawing No. 25). - being a policeman with a silver police car and driving it on the street where there are police trucks and police stations nearby (drawing No. 48). - having deep interest in playing soccer professionally and playing as a goalkeeper/soccer player (on a soccer field) (drawings No. 83 & No. 107). - going to an equestrian field: watching the horse riders while riding and jumping over the obstacles; galloping; vaulting; riding a horse; and learning that (drawing No. 111, No. 113, & No. 131). - visiting the fire department, fire station and the firefighters who work there (drawing No. 121). - being interested in doing household chores and helping Mom with household chores; helping making tea and baking a birthday cake (e.g. drawings No. 134 & No. 140). - being interested in gardening and farming (e.g. drawings No. 7, No. 71, No. 140, & No. 160). - forming a band of three and doing entertaining performances including singing, acting, and dancing professionally; releasing their album (on CD); becoming popular; making lots of money as a successful band (drawing No. 147).

- Spending time in a theater hall or studio for practicing, performing and recording their performances (drawing No. 147).

- wishing to set up a primary school with friends and working as a teacher or principal in a primary school which offers different interesting courses for the children (drawing No. 147).

- being interested in ranching which is the family's job; having a cowshed and a herd of cows (drawing No. 164).

Table 11-3 (e)
Sociability
The quality of liking to meet and spend time with other people. **Spending time in public places and interacting with people.**
- spending time in an outdoor public place like an amusement park, an outdoor playing space or playground, a public water park (e.g. drawings No. 5, No. 6, No. 28, No. 61, No. 74, No. 141, No. 142, No. 148 & No. 153). - going to the city center for walking or shopping (e.g. drawings No. 61, & No. 63, No. 72, No. 88, & No. 110). - going to an indoor (public) playground like going to the "Upsalla Kinderwelt" in Wuppertal (e.g. drawings No. 82, No. 87). - going to a public swimming pool (drawings No. 29, No. 30, No. 33, No. 65, No. 92, & No. 159). - going out for a walk (e.g. drawings No. 16, No. 17, No. 18, No. 62, No. 72, No. 73, No. 75, No. 90, No. 100, No. 110, No. 154, & No. 164). - getting familiar with the people who live in their neighborhood, making new friends and playing with them (e.g. soccer or hide-and-seek) (drawings No. 41 & No. 42). - going to an outdoor soccer field and playing soccer with a friend (drawings No. 83, No. 107, & No. 122).

- going to the beach (seaside) with friends (drawing No. 89).

- going to a Sea Life Center with family and relatives ('Sea Life' is a chain of commercial sea life-themed aquarium attractions) (drawing No. 109).

- going to a riding arena or an equestrian field with the family (e.g. drawings No. 111, No. 113, & No. 131).

- going to the gymnasium (school gym) with friends and riding unicycle (drawing No. 115).

- eating out at the restaurant; sitting in the outdoor environment of the restaurant (e.g. drawing No. 116).

- going to an outdoor public park with the family and giving balloons to the people in the park (drawing No. 156).

Table 11-3 (f)
Sociability
Holding and attending celebrations and Parties;   **Celebrating special occasions or holidays;**   **Getting together.**
- inviting friends, relatives or neighbors over; playing with them; celebrating a birthday; and eating together (e.g. drawings No. 44, No. 76, No. 86, No. 96, No. 97, No. 140, No. 152, & No. 155):   - attending a big party; listening to the music; dancing (drawing No. 14).   - inviting friends and playing with them; or going to a friend's house and enjoying getting together (e.g. drawings No. 44, No. 74, No. 77, No. 86, No. 97, No. 140, & No. 155).   - inviting relatives over and eating together; or going to the relatives' house (drawings No. 102, No. 140, No. 152, & No. 154).   - celebrating a friend's birthday in a public place (like the "Upsalla Kinderwelt" which is an indoor playing space) (drawing No. 87).   - cooking and eating with people in the party (interacting with the people) (drawing No. 73).

- going to her grandfather's wedding with her Mom, in a green open environment (drawings No. 80 & No. 81).

- holding a birthday party; celebrating a birthday at home (e.g. drawings No. 100 & No. 161).

- celebrating birthday with the family (e.g. in the zoo or any outdoor/indoor spaces) (drawings No. 110 & No. 161).

- going to an aunt's house with the family; visiting relatives; eating together (a family-oriented experience) (drawing No. 102).

- celebrating special occasions like Christmas Eve and Easter with the family and receiving gifts (a family-oriented experience) (drawings No. 107 & 108).

- attending a public celebration with friends – like the hockey festival, held by the hockey community for children (drawing No. 112).

- going to a park (or garden) with friends and celebrating a friend's birthday there (drawing No. 141).

- holding a celebration in the classroom or schoolyard (drawing No. 155).

Table 11-3 (g)

Nature and its Elements

Close interaction with nature and natural elements

In many drawings/stories children showed their close interaction with natural elements and their interest in the wide variety of experiences arising from them, for example:

- enjoying sunny days (sunlight); watching the sun (many children liked sunny days and mentioned that in the communication phase).

- interaction with snow, rain, or wind (very few children drew rainy days).

- playing and spending time in a green space like a park, a garden, a natural or integrated playground, forest, or zoo (e.g. drawings No. 7, No. 8, No. 21, No. 24, No. 36, No. 39, No. 40, No. 42, No. 43, No. 53, No. 63, No. 66, No. 67, No. 71, No. 75, No. 76, No. 79, No. 140, & No. 164).

- interaction with the flowers, garden, and water like watering the flowers in the garden (e.g. drawings No. 7, No. 71, No. 118, No. 139, No. 140 & No. 160).

- interaction with sand and grass (e.g. drawings No. 8, No. 22, No. 27, No. 31, No. 35, No. 70, No. 71, & No. 76)

- interaction with the sun, sky and green spaces (in several drawings).

- climbing up stones (natural elements) which are part of the high play equipment in a playground (drawing No. 25).

- interaction with water like: playing on the slide and falling into a puddle or swimming pool; or dipping one's feet into a lake or pool (drawings No. 26, No. 30, No. 65, No. 135, & No. 153).

- going to the beach (seaside): playing in the sand and with the sand at the beach (at the seaside); swimming or playing in the sea (drawings No. 27, No. 31, No. 64, No. 69, No. 70, No. 89, & No. 120).

- surfing on the choppy sea (drawing No. 27).

- being at the seaside on an island (drawings No. 31 & No. 137).

- being inside a snail's shell which is in a flowing river (drawing No. 49).

- interaction with the ground like digging the ground with a shovel (to find buried treasure) (drawing No. 57)

- interaction with the mountains like living in a villa on the mountains or watching mountains (drawing No. 136).

- living in a house in the middle of a green garden or forest with flowers and trees (e.g. drawings No. 126, No. 135 & No. 164).

- looking at the garden and its trees and flowers out of the window (drawings No. 135 & No. 144).

- living in a big tent in the forest (drawing No. 144).

- spending time in the garden or woods and watching the green spaces, trees and flowers (in several drawings like No. 144).

- taking care of nature and cleaning it up (drawing No. 144).

- looking at the stars in the sky at night (drawing No. 160).

- interacting with a rainbow (e.g. drawings No. 9, No. 36, No. 43, No. 66, No. 79, No. 103, No. 104, No. 148, & No. 152).

- interacting with a river or waterfall in a green space (drawings No. 141 & No. 154).

Table 11-3 (h)
Further Experiences in Nature

Discovering nature, learning and trying adventurous experiences   **Sense of environmental responsibility**

In many drawings/stories children showed their close interaction with natural elements and their interest in the wide variety of experiences arising from them. Many experiences mentioned in Table 11-3 (q), including water-based experiences, can be added to this table:

- **Picking fruits from trees** (e.g. drawings No. 18, No. 30, No. 40, No. 42, No. 53, No. 56, No. 66, No. 139, No. 141, & No. 142)**:**
  - picking bananas from banana trees in the forest and eating them.

  - picking apples, pears, or cherries from the trees, eating them, or taking them home.

  - picking grapes from a grape vine.

  - beating the branches of fruit trees to knock the fruit down (e.g. apples).

- **Picking flowers (from the garden or natural park)** (e.g. drawings No. 36, No. 40, No. 71, & No. 143).

- **Sense of environmental responsibility (e.g. planting, gardening, farming and cleaning up nature)** (e.g. drawings No. 7, No. 36, No. 71, No. 138, No. 139, No. 140, No. 144, No. 160, & No. 162)**:**
  - planting trees like: planting a grape vine or cherry tree in the garden
  - planting flowers in the garden and taking care of them
  - planting beans in the soil and enjoying watching their growth stages
  - watering the flowers and trees in green spaces like in the garden or yard
  - watering flowers with a watering can or hand sprinkler
  - taking care of plants, trees and flowers; and enjoying watching their growth stages
  - cleaning the forest with a machine (robot) that picks up and collects trash.

- **Walking or playing in green spaces and natural environments; exploring nature** (in many drawings)**:**

- walking, jogging, or running in natural spaces (e.g. a forest or garden) and exploring nature (e.g. drawings No. 9, No. 18, No. 40, No. 42, No. 63, No. 75, No. 76, No. 77, No. 100, No. 126, No. 133, no. 135, No. 140, No. 144, & No. 164).
- walking in a garden of flowers (e.g. drawings No. 40, No. 67, No. 86, No. 130, No. 139, & No. 149).

- playing hide-and-seek in the forest and hiding behind the natural elements like trees or the rainbow (drawings No. 9, No. 53, No. 42, & No. 75).

- playing with a ball in the forest (e.g. playing soccer) (e.g. drawings No. 42, & No. 76).
- walking or playing at the beach (e.g. drawings No. 27, No. 31, No. 45, No. 64, No. 69, No. 70, No. 90, & No. 120).

- galloping in the forest or riding a horse in the riding arena (drawings No. 113 & No. 131).

- riding a bicycle, scooter, or unicycle in the garden, forest or along the river or sea (e.g. drawings No. 63, No. 90, No. 115 & No. 164).

- camping in a garden near the river and waterfall (drawing No. 154).

- roaming around the garden (e.g. drawings like No. 36, No. 43, No. 86, No. 135, No. 139, No. 140, No. 154, & No. 164).

- **Strolling through the woods (or other natural environment); and learning from the life of the animals and birds that live there:**
  - watching the tigers and the winged dragon (an imaginary creator); watching the sparrows that live in the trees and feed their baby sparrows; and watching the butterflies that fly toward the sun (drawing No. 144).
  - watching the butterflies and bees in the garden when they are looking for pollen and nectar (drawing No. 21).
  - going to a zoo; watching a variety of animal species closely (e.g. the elephants, foxes, rabbits, dogs, and butterflies); interacting with them and learning more about their lives (drawing No. 161).

- **Climbing up and down trees** (e.g. drawings No. 24, No. 32, No. 53, No. 64, No. 69, & No. 70):
  - climbing up a palm or coconut tree at the beach.
  - climbing an apple tree, jumping on trampolines that have been fastened to the top of the apple trees, picking the apples, and having a bird's eye view of nature (drawing No. 53).

- **Natural visual attractions: enjoying amazing sights and watching natural elements**
  - watching the sea, beach, palm trees, clouds, the sun and the sky (e.g. drawings No. 27, No. 31, No. 64, No. 69, No. 70, No. 78, No. 118, & No. 120).

- observing trees, flowers, and fruits on the trees and paying attention to their growth stages (e.g. drawings No. 18, No. 30, No. 40, No. 53, No. 133, No. 135, No. 138, No. 139, No. 140, No. 162, & No. 163).
- looking at different types of flowers in different colors e.g. red, pink, and yellow tulips (drawings No. 67 & No. 71).
- looking at snail shells in the forest (drawing No. 49).
- looking at the colors of nature (at the seaside or forest) (in many drawings).
- looking out from a tent pitched in the forest onto green spaces with flowers and trees (drawing No. 144).
- watching stars at night (drawings No. 148, No. 152, No. 158, No. 160, & No. 163).
- watching a rainbow (drawings No. 9, No. 20, No. 36, No. 43, No. 45, No. 66, No. 79, No. 103, No. 104, No. 148, No. 152, & No. 158).
- looking at a river, waterfall or lake (drawing No. 135, No. 141, No. 154, No. 163, & No. 164).
- sitting on the moon (a fantasy experience) and watching the stars at night (drawing No. 160).
- being interested in the colors of the rainbow (e.g. drawings No. 9, No. 19, No. 20, No. 36, No. 43, No. 45, No. 56, No. 66, No. 79, No. 80, No. 104, No. 110, No. 148, & No. 152); in some of these drawings the rainbow is not visible but the child mentioned that in the communication about the story.
- clouds in different unusual colors (including red, orange, blue, brown, and purple) (drawing No. 76).
- colors of fire – red and blue (drawing No. 77).
- playing with colorful apples (drawing No. 84).

- **Sense of smell**
  - smelling a fragrant flower in the garden (drawing No. 36).

- **Experiences or characters based on the main four elements: water, earth, fire, and air**
  - considering and forming these characters in a role play: Fire Ninja, Blue or Water Ninja, and Earth Ninja (drawing No. 51).
  - enjoying watching the fire, the clouds, and the sky; and interaction with the ground in the forest like playing soccer or walking on the grass (drawings No. 76, No. 77, & No. 78).
  - watching fire and water in an open area (around the house) (drawing No. 102).

- **Lying on the beach (or at the seaside)** (e.g. drawings No. 70 & No. 120).

- **Taking a photo of tree(s) and flowers in the garden** (drawing No. 123).

- **Making a picnic in nature (e.g. in the forest or garden)** (e.g. drawings No. 133 & No. 154).

Table 11-3 (i)
Animals and Experiences
Interaction or close relationship with animals, birds, and insects

- playing hide-and-seek with the fox and hiding behind the rainbow (drawing No. 9).

- following or catching butterflies (drawings No. 19, No. 79, No. 141, & No. 149).

- playing with a rabbit (for example chasing and catching it) (drawing No. 36).

- watching butterflies and bees looking for pollen and nectar (drawing No. 21).

- being inside a snail shell and talking with the snail (drawing No. 49).

- walking with a dog in the woods (drawings No. 52, No. 144, No. 149, & No. 153).

- interaction with a dolphin (drawing No. 52).

- caring about animals: creating holes in the trees –as home– for squirrels to stay (drawing No. 53).

- watching an owl on an apple tree; watching a squirrel near the tree on the grass (drawing No. 61).

- interaction with insects like butterflies, caterpillars, snails, ants, and bees (drawings No. 80 & No. 81).

- having a pet and caressing it (drawing No. 96).

- watching a tadpole (in a woodland pond) (drawing No. 100).

- watching (wild) animals and their interactions in the wild: including a bear, a snake and a dragon (drawing No. 101).

- going to a Sea Life Center and watching the sea animals in the aquariums like jellyfish, colorful fishes that shine in the darkness, sharks, and starfish (drawing No. 109).

- going to a riding arena or an equestrian field, horse riding, galloping, vaulting and watching the riders jumping over obstacles (drawing No. 111, No. 113, & No. 131).

- playing with a dog near a lake (or pool) in the garden; fishing in the lake (drawing No. 135).

- observing birds and butterflies and their life and interactions in the wild (drawing No. 135).

- having a pet (dog); living in a tent in the forest with the family and various animals; having a close relationship with animals and birds like interaction with the dog, tigers, dragon, sparrows, and butterflies; providing a space in the tent for the animals to stay and rest (drawing No. 144).

- walking in a garden and exploring nature with a cat, a dog and a mynah bird (drawing No. 149).

- observing and following butterflies on flowers and covers themselves with nectar (drawing No. 149).

- taking and lifting the birds nest and eggs fallen from the tree because of the wind and placing them again on the tree (drawing No. 160).

- going to a zoo and watching and interacting with the animals like the elephant, fox, rabbit, ducks, and butterflies. For example, watching ducks play in water in the pond or the elephant that tries to climb up the slide but slides down (drawing No. 161).

- watching the birds like ravens, sparrows, or pigeons flying (in several drawings like No. 143, No. 144, No. 160, No. 162, No. 163).

- watching a herd of the cows; owning a cowshed; interacting with the cows; and being interested to ride a cow (drawing No. 164).

Table 11-3 (j)
Feelings and Senses
Expressing feelings and emotions; having different senses (i.e. the abilities to understand, recognize, value or react to something).

• **Sense of humor and funny experiences**
  - having a flexible nose that can get longer like Pinocchio's nose (drawing No. 4).
  - the butterfly tickles the sun and makes it smile (drawing No. 21).
  - playing on a slide, falling into a puddle and getting wet, which can make the user and the spectator laugh (drawing No. 26).
  - sprinkling the sand (at the beach) (drawing No. 27).
  - doing a headstand to see things upside down and splashing the water (drawing No. 29).
  - making a mess all around the home with play equipment which causes Mom to stumble (drawing No. 125).
  - calling the winged dragon "without teeth" (an imaginary creature); since it does not have teeth (it is not dangerous) (drawing No. 144).

- in the magic land, the sizes of people change, for examples some of them get taller, some get fatter, and some get shorter or thinner (drawing No. 149).
- watching an elephant that tries to climb up the slide but slides down (drawing No. 161).

- **Sense of responsibility; sense of caring for other people or animals**
  - taking care of a younger brother and teaching him how to count or count in reverse in hide-and-seek play (drawing No. 53).
  - caring about animals: creating holes in trees – as a home – for squirrels (drawing No. 53).
  - playing the role of a guardian in the role play in order to take care of a younger sister (drawing No. 68).
  - each child swims in the sea in turn while other children –who are on the beach–watch and observe them (drawing No. 89).
  - caressing a pet (drawing No. 96).
  - grooming a horse (drawing No. 113).
  - caring about a grandfather (drawing No. 129).
  - helping and saving the people who live on a sinking island (drawings No. 137 & No. 138).
  - helping parents with their chores including household chores, farming or gardening (like planting trees and flowers in the garden) (drawing No. 140).
  - caring about the life of the birds and their eggs (in nature) and trying to find solutions for supporting and taking care of them (drawing No. 143).
  - helping siblings to climb up a giant strawberry – in the land of strawberry (an imaginary land) – to access its top (drawing No. 151).
  - placing the bird's nest–that has fallen from the tree because of the wind– on the tree and placing its eggs in the nest again (drawing No. 160).

- **Sense of curiosity, freedom, and exploration**
  - strolling through the streets and exploring the environment (e.g. finding a shop sign and looking at the clouds in the sky) (e.g. drawings No. 54 & No. 55).
  - riding a scooter in urban spaces and exploring (in several drawings like No. 33, No. 61, No. 62, & No. 63).
  - going into space, flying and travelling to different planets (drawing No. 84).
  - galloping through the forest (drawing No. 113).

- **Courage and sense of power, control, and victory**
  - acting as a superhero and fighting with a monster or devil (e.g. drawings No. 10 & No. 11).
  - being strong and able to beat everyone; snapping a bag of money (drawing No. 15).
  - being a patriot (drawing No. 33); being a hero like Spider-Man or Superman (in several drawings like No. 33, No. 51, No. 88, & No. 118).

- acting as a hero and cooperating with the police to save a friend who has fallen into the river because of a car accident (drawing No. 46).
- acting as a hero or superhero in a role play with other children based on "power rangers" characters (a socio-dramatic play) (drawing No. 50).
- playing as goalkeeper in a soccer game (drawings No. 83 & No. 107)
- being really rich (drawing No. 88).
- being interested in firefighting (drawing No. 121).
- playing with *remote-controlled* toy cars which can reach 100 km/h (drawing No. 127).
- helping and saving people from a sinking island (drawings No. 137 & No. 138).
- uniting the local people against the evil queen and defeating her; saving the good queen from jail (drawing No. 146).
- developing an imaginary story that depicting three mice who unite and invent a car in order to escape from the cat (drawing No. 165).

- **Sense of humanity, justice, and salvation**
  - uniting the local people against the evil queen and defeating her; saving the good queen from jail (the good queen cares about the people, and rules the land well) (drawing No. 146).
  - developing an imaginary story that depicts mice who unite and invent a car in order to escape from the cat (drawing No. 165).

- **Exploration, finding interesting and favorite things or places, and gaining rewards**
  - Searching the cupboard and finding interesting things like toys, colored pencils, and candies (drawings No. 12 & No. 71).
  - Finding a glass jar with a shiny rainbow ribbon inside, in the Land of Butterflies (an imaginary land) (drawing No. 79).
  - Searching and finding a secret cave in a garden and considering that as a private space; hiding, playing and enjoying being in the cave (drawing No. 85).

- **Being surprised or surprising someone; Making someone happy; Rewarding; Giving or receiving gifts**
  - receiving biscuits from the angels in the sky and sending them to earth (the biscuits fall from the sky to the earth like raindrops) (drawing No. 16).
  - receiving Ninja turtle figures as a gift from Spider-Man who is his hero (drawing No. 33).
  - receiving rings of candy falling from the sky to the earth (drawing No. 34).
  - being surprised when a balloon bursts in the air and falls down (drawing No. 50).
  - receiving a Superman figure as a gift (drawing No. 88).
  - meeting Superman at McDonalds (Superman is his imaginary companion/friend) (drawing No. 88).

- receiving a new soccer ball, a goal, and a new soccer shirt (e.g. the Bremen shirt, or Barcelona soccer shirt) as a gift (drawings No. 107 & No. 108).
- receiving the FC Barcelona bed linen (drawing No. 107).
- receiving the car toys and the Carrera car racing track (drawing No. 108).
- looking forward to have a horse (i.e. looking forward to a dream horse from her parents as an especial gift) (drawing No. 113).
- receiving rewards like new stickers or new dolls from parents for helping them with their chores (drawing No. 140).
- holding a birthday party, buying a birthday cake and gift (a Barbie doll) for a friend (in several drawings like No. 100, No. 141, No. 155, & No. 161); planning a surprise birthday party in the zoo (drawing No. 161).
- receiving gifts or rewards (e.g. receiving special clothes, a theater hall and a palace) from an angel and feeling surprised and happy (a make-believe experience) (drawing No. 147).
- following the angels who surprise children and take them to the "land of wonder" which is equipped with play equipment (a make-believe experience) (drawing No. 153).
- sending a box full of gifts – like toys, dolls, chocolates, and strawberries– to her classmates by airmail, surprising friends and fulfilling their wishes (having a close relationship with friends) (drawing No. 155).
- receiving a painting notebook – which has sample shapes– from friends as a birthday gift (having a close relationship with friends) (drawing No. 155).
- giving balloons – as gifts– to people in the park (drawing No. 156).
- receiving a magical necklace from fairies that can fulfill wishes like being able to fly or becoming a mermaid (drawing No. 158).
- unpacking boxes that are full of toys (drawing No. 163).

- **Sense of trying, exploration and achievement (succeeding)**
  - digging the ground with a shovel, going underground, and finding treasure (drawing No. 57).
  - climbing up a palm in order to catch the sun (drawing No. 64).
  - climbing up a ladder to access a slide which has got the highest starting point and longest sliding section among the available slides in the park (drawing No. 65).
  - diving into the sea and getting coconuts – that are under water (drawing No. 70).
  - Forming a band of three, becoming popular; making lots of money as the singers, dancers and actors (an achievement) (drawing No. 147).

- **Enjoyable waiting**
  - waiting for her dad to come home with a gift (e.g. receiving rainbow butterflies as a gift from dad) (drawing No. 19).
  - looking forward to receive a special gift (e.g. dream horse, dolls or stickers) from parents (in several drawings like No. 113 & No. 140).

- waiting enthusiastically for guests to arrive (drawing No. 140).
- waiting for the tree (e.g. the cherry tree) to bear fruit (drawing No. 140).
- waiting for a brother to be born (drawing No. 149).
- waiting for receiving or buying a cat (drawing No. 149).
- waiting for rain in the magic land where it rains money instead of raindrops (drawing No. 149).

- **Risk-taking experiences and courage (taking risk and courage)**
- coming down from the tree to the ground: sliding down the rope (from the tree to the ground) (drawing No. 24).
- climbing up and down the tree (e.g. drawings No. 32, No. 53, No. 64, No. 69, & No. 70).
- climbing up the stones to access the top of a high play equipment and hanging the rings that are installed on the top of this large play equipment in a playground (drawing No. 26).
- cooperating with a policeman to save a friend who had a car accident and has fallen into the river (drawing No. 46).
- fighting between the child (the one who has drawn the picture), the crocodile and the monster-snake (an imaginary animal/creature) (drawing No. 47).
- being interested in firefighting that needs courage and high risk taking (drawing No. 121).
- playing on a balcony which has short safety bar/rail (an unsafe situation) (drawing No. 136).
- hanging and climbing a rope that was hung from a helicopter; being airlifted by the helicopter (drawing No. 138).
- jumping from a plane; parachuting and skydiving (drawing No. 139).

- **Frightening experiences and adventure (feeling horror and excitement)**
- shooting and conjuring a monster (which is on the tree) with a magic arrow or stick (drawings No. 10 & No. 11).
- going underground to find treasure and facing a ghost child (drawings No. 57 & No. 58).
- going into space like an astronaut, flying in space and travelling to other planets (drawing No. 84).
- sailing in the sea at night (drawing No. 137).
- going to a sinking island and saving the people who live there (drawings No. 137 & No. 138).
- living and hunting in the jungle that has animals like snakes and scorpions (drawing No. 139).
- swimming in the swimming pool which has several fish and a shark (drawing No. 159).

- **Facing danger and/or having an accident**

- jumping from the window of the burning house; falling out of the window on the ground and getting injured (drawing No. 136).
- trying to save the dying fish which is out of the water (pool) (drawing No. 136).

- **Being independent; acting like a sophisticated adult**
  - going alone to the ice cream parlor to buy an ice cream (drawing No. 138).
  - acting like an adult: being alone in the street, driving a car, or having a car accident (e.g. drawings No. 46, No. 48, & No. 88).
  - being a policeman who owns a silver police car and drives on the street (drawing No. 48).
  - riding a scooter and going shopping independently; or going alone to an amusement park on a scooter (drawings No. 61, & No. 63).
  - being alone and going everywhere independently like going to a forest or downtown for shopping (drawing No. 63).
  - having one's own house (a big house) and a girlfriend (drawing No. 88).
  - eating out alone at restaurants (drawing No. 88).
  - strolling alone through the jungle or forest (in several drawings like No. 42, No. 43, & No. 144).

- **Being a fan (e.g. a fan of a soccer team); having a role model**
  - being a true fan of FC Barcelona soccer team and admiring Messi as favorite player and role model (drawing No. 107).
  - being a fan of Bremen soccer team (drawing No. 108).
  - being a fan of Superman or Spider-Man (drawings No. 33, No. 51, No. 88, No. 118 & No. 119)
  - being a big fan of firefighters: Mike –a friend of his dad– is a firefighter and his role model (drawing No. 121).
  - being a fan of the mermaids and fairies (drawing No. 158).

- **Sense of speed and agility**
  - riding in the fast police cars or trucks; or driving a fast car (drawing No. 48).
  - traveling on the ICE train represents interest in speed (drawing No. 56).
  - firefighting needs mental and physical agility and high risk taking (drawing No. 121).
  - playing with his *remote-controlled* cars which can reach 100 km/h (drawing No. 127).

- **Sense of privacy and having his/her own space**
  - being inside a snail shell (drawing No. 49).
  - finding a cave in the garden, considering the cave as a secret and private place, hiding there and making oneself invisible (drawing No. 85).

- spreading blankets on the ground in the forest and using them as groundsheets which define a personal space for sitting, playing and making a picnic (drawing No. 133).

- **Sense of creativity and invention, and problem-solving**
  - using a machine which is called "again-colorful maker" – an imaginary machine that changes the color of the ICE train–which is white and red, making colorful like a rainbow (visual attraction) (drawing No. 56).
  - cleaning the forest with a robot that picks up and collects trash (drawing No. 144).
  - developing an imaginary story that depicts mice who unite in order to escape from a cat (drawing No. 165).

- **Sense of competition, winning and getting a reward**
  - a train driver competes with a cloud for picking an apple from the tree and eating that (an imaginary experience) (drawing No. 56).
  - winning a soccer game (drawings like No. 76, No. 83, No. 95, No. 107, No. 108, & No. 122).

- **Attracting attention; being popular; being famous and powerful**
  - interacting and spending time with superheroes like Spider-Man and Superman (e.g. drawings No. 88, & No. 119).
  - being really rich and having a big house (drawing No. 88).
  - forming a band of three; releasing their album (a collection of their performances including dancing, singing, and acting on CD); and becoming famous and popular among people (drawing No. 147).
  - attracting people's attention by giving gifts to them, surprising them, and making them happy (e.g. sending gifts to friends and fulfilling their wishes or giving balloons to people in the park) (drawings No. 155 & No. 156).
  - attracting people's attention by inviting them over and holding a celebration (e.g. inviting friends over and celebrating a birthday with them) (e.g. drawing No. 155).

- **Sense of teamwork**
  - forming a band of three; team working; getting popular together; releasing an album (the collection of their performances including dancing and singing on CD); making money together; receiving a shared gift from an angel like the theater hall and the palace; living in a palace together; eating, playing and watching recorded performances together (team working, sharing, succeeding and socialization) (drawing No. 147).

- soccer playing with friends (e.g. drawings No. 76, No. 83, No. 95, No. 107, No. 108 & No. 122).

- **Sense of nostalgia (sense of remembering and cherishing the happy memory)**
  - watching old albums (recorded on CD) and remembering their performances and great memories (drawing No. 147).
  - remembering childhood memories like going to the school, going to the swimming pool, going to the dancing and ballet class and other summer courses (drawing No. 147).

- **Sense of being supported and feeling safe**
  - being with the family in public places (e.g. a child likes that when mom sits on the bench and observes her/his playing in the park) (e.g. drawings No. 73, No. 75, No. 100, No. 110, No. 161).

Table 11-3 (k)
Heights and Views
Being in the high place and having a bird's eye view
- riding on a Ferris wheel and having a bird's eye view (drawings No. 6 & No. 153).
- going into space, flying in space and travelling to different planets (drawing No. 84).
- flying on an airplane (drawings No. 24, No. 30, No. 138, & No. 165).
- being on a tree (e.g. climbing up a palm and catching the sun; and being on the tree where sparrows or squirrels live) (e.g. drawings like No. 24, No. 30, No. 32, No. 53, No. 64, No. 70, No. 118, & No. 144).
- climbing up a (palm) tree and lying in a hammock fastened high up (drawings No. 27, No. 30, & No. 32).
- being in the treetops and jumping on a trampoline fastened there (drawing No. 53).

- being on the top of high play equipment (e.g. drawings No. 26, No. 30, No. 65, No. 120, & No. 153).

- riding in a hot-air balloon and jumping on a trampoline there (drawing No. 28).

- sitting on a hill and watching children playing in the playground down the hill (drawing No. 39).

- being/living in an apartment which is on the top floor of a skyscraper (drawing No. 68).

- living in a room on the rooftop close to the sun (drawing No. 118).

- flying in a helicopter (drawing No. 138).

- being in Rapunzel's tower in the middle of the forest (drawing No. 126).

- being in an upstairs room and looking out of the window (drawing No. 135).

- living in a villa on a mountain; playing on its balcony; having a bird's eye view (drawing No. 136).

- being airlifted by helicopter; flying in a helicopter and in an airplane; jumping from the plane; using a parachute and skydiving (drawing No. 138).

- being on the floor of a tent (drawing No. 144).

- jumping on a trampoline in order to approach the birds; riding the birds; riding the winged snake (drawing No. 145).

- being on top of the giant strawberry in an imaginary Strawberry Land (drawing No. 151).

- sitting on the stars and looking at the earth from above (drawing No. 160).

- sticking the wings to one's body and flying in the sky (drawing No. 157).

Table 11-3 (I)
Types of Play
Physical Play; Sport; Game with rules

- playing hide-and-seek (e.g. with a fox in the woods and hiding behind a rainbow or a trees) (e.g. drawings No. 9, No. 42, No. 43, No. 53, No. 75, No. 111, No. 130, & No. 156).

- playing soccer (e.g. drawings No. 13, No. 15, No. 42, No. 76, No. 78, No. 83, No. 85, No. 95, No. 107, No. 108, & No. 122).

- jumping (e.g. drawings No. 15, No. 28, No. 29, No. 30, No. 35, No. 36, No. 49, No. 53, No. 82, No. 87, No. 111, No. 136, No. 138, No. 145, & No. 160).

- swimming in the swimming pool, sea, or river; playing in the water; and diving into the pool/water (e.g. drawings No. 27, No. 29, No. 30, No. 33, No. 65, No. 70, No. 89, No. 92, No. 110, No. 141, No. 153, & 159).

- climbing up/down a tree (like a palm tree) (in several drawings).

- climbing up/down a ladders (in several drawings).

- climbing up stones and hanging on rings – parts of large playground equipment (drawing No. 26).

- playing on a slide and falling into a puddle (drawings No. 26, No. 30 & No. 153).

- surfing on the choppy sea (drawing No. 27).

- doing a headstand (drawing No. 29).

- skateboarding (drawing No. 29).

- playing on a slides (e.g. curved slides, and water slides) (drawings No. 26, No. 30, No. 35, No. 39, No. 65, No. 69, No. 120, No. 141, No. 142, No. 145, No. 148, & No. 153).

- jumping on a trampolines that have e.g. been fastened to the top of an apple tree (e.g. drawings No. 28, No. 35, No. 53, No. 82, No. 87, & No. 145).

- riding a scooter; riding an electric scooter; or riding a bicycle in the urban area or cycling along the beach (drawings No. 33, No. 39, No. 61, No. 62, No. 63, No. 90, & No. 164).

- climbing up or down a hill (or going up and down a mountain) (drawings No. 39 & No. 136)

- running in the forest (drawings No. 42 & No. 43).

- playing (with a ball) in the sea (drawings No. 45, No. 69 & No. 70).

- playing with balloons in the open area and/or releasing them into the sky (drawings No. 50, No. 51, No. 52, No. 110, No. 155, & No. 156).

- playing Mensch Ärgere Dich Nicht (in English: Man, Don't Get Angry) with friends, siblings, or Mom (drawings No. 67 & No. 71).

- playing goalkeeper in soccer (drawings No. 83 & No. 107).

- playing "Tag" ("Tag" is a game that involves two or more players who are chasing other players in an attempt to "tag" and mark them out of play, usually by touching with a hand[256]) (drawings No. 86, No. 87, & No. 130).

 - horseback riding (horse riding) and jumping over the obstacles in an equestrian field/arena (drawings No. 111, No. 113, & No. 132).

- galloping through the forest (drawings No. 113 & No. 132).

- vaulting which is described as doing gymnastics or dance on horseback [257] (drawing No. 113).

- playing hockey (drawing No. 112).

- dancing (drawings No. 112 & No. 147).

- riding a unicycle (drawing No. 115).

- going up an outside staircase to access the rooftop of a skyscraper (drawing No. 118).

- sliding on the pole (as a fire fighter) in the fire station (drawing No. 121).

- boat riding (drawings No. 137 & No. 138).

- climbing the rope hung from the helicopter (drawing No. 138).

- jumping from the plane, using the parachute and skydiving (drawing No. 138).

- hunting (e.g. 'turkey hunting' which can be considered as a sport too) (drawing No. 137).

- using the spinner in the playground (drawing No. 142).

- rough-and-tumble play (e.g. physical play or rough-and-tumble play with animals like a dog or tiger) (e.g. drawing No. 144).

- riding tigers and winged dragons (a make-believe play) (drawing No. 144).

- riding a cow (drawing No. 164).

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[256] https://en.wikipedia.org/wiki/Tag_(game), accessed: 1.10.2020.
[257] https://en.wikipedia.org/wiki/Equestrian_vaulting, accessed: 3.10.2020.

Table 11-3 (m)
Types of Play

Dramatic Play or Socio-dramatic Play **(also called Role Play; Make-believe Play, Pretend Play, or Fantasy Play)** **Miniature Play Scenes (Small World Play)**

Some stories and drawings showed involvement in an (imaginary) socio-dramatic play:

- household role play, interacting with household equipment and furniture like the bed and the pillow (drawing No. 8).

- playing a role play called "mother, father, child" with friends and a teddy bear in the tree house in the garden (drawing No. 35).

- playing "mother, father, child" with sister and doll. The girl plays the role of a guardian like a guardian angel in order to take care of her younger sister (drawing No. 68).

- communicating with the rainbow and the house (a make-believe play) (drawing No. 43).

- describing the scene of a car accident and involving a friend in the story; self and friend acting main roles: police and drivers (drawing No. 46).

- being inside a snail shell and talking with the snail (drawing No. 49).

- acting as a hero or superhero in a role play based on "Power Rangers" characters–a socio-dramatic play (drawing No. 50).

- acting as a hero/superhero or interacting with the heroes as imaginary friends (e.g. acting as Ninjas, Spider-Man, or Superman) (drawings No. 33, No. 51, No. 88, & No. 119):

   - a fighting role play between bad characters (like devils) and good characters (like heroes), for example, a socio-dramatic play based on these characters: the Ninjas (fire, earth, and water Ninjas), Superman, Spider-Man and the devil.

   - making an intimate friendship with Superman and Spider-Man – imaginary companions – playing with them, and going out with them.

   - playing with Superman and Spider-Man figures (at home) (a small world play).

- playing with dolls and sister in the bathtub (a small world play) (drawing No. 91).

- playing with monster figures (a small world play) (drawing No. 106).

- using horse halters and lead rope for a pretend play with other children (drawing No. 113).

- playing with toy cars or *remote-controlled* cars at home or in an outdoor environment (a small world play) (drawings No. 72, No. 88, No. 100, & No. 127).

- travelling to an imaginary world where the child and friend are butterflies that have a house there and play tag and hide-and-seek (drawing No. 130).

- playing with household appliance toy set sand making a picnic in the yard or balcony or in the kindergarten (a pretend play; a small world play) (drawing No. 133).

- communicating with a winged snake: the children show the butterfly to the snake as a sign, the snake lands on the ground and takes them flying in the sky (a fantasy play) (drawing No. 145).

- playing with a mermaid doll in the swimming pool (a make-believe play small world play) (drawing No. 158).

Table 11-3 (n)
Types of Play
Rough-and-tumble Play; Fighting with or between Imaginary Enemies;   **Action; and Action-oriented Experiences.**
- fighting between hero and monster in imaginary meadow or jungle (drawings No. 10 & No. 11).   - fighting with the alien and punching him in the head (drawing No. 15).   - escaping from the robber (drawing No. 23).   - having a car accident and falling into the river (drawings No. 46 & No. 48).   - fighting between child, crocodile and monster-snake (an imaginary creature) (drawing No. 47).

- acting as a hero or superhero in a role play based on "Power Rangers" characters (a socio-dramatic play) (drawing No. 50).

- rough-and-tumble or physical play with animals like a dog and tigers (e.g. drawing No. 144).

Table 11-3 (o)

Types of Play

Destroying; Manipulating; 'Constructive' Play; Creative Play

- uprooting a tree from the soil and cutting it; throwing it on the meadow; breaking windows (drawing No. 11).

- damaging the alien (the monster) and its antennae with the hammer (drawing No. 15).

- building a sandcastle in the sandbox or on the beach (drawings No. 22 & No. 27).

- playing with sand on the beach (drawings No. 8, No. 27, No. 31, No. 70, & No. 120).

- piercing and drilling a wall (drawing No. 23).

- sprinkling sand and playing with that on the beach (drawing No. 27).

- drawing and painting with one's sister (e.g. drawing with colored pencils in painting notebook) (drawings No. 12, No. 71, No. 140, & No. 155).

- destroying the old wooden house and building a new house with the timbers (drawings No. 137 & No. 138).

- setting up a large sturdy tent (drawing No. 144).

- playing with LEGO blocks (drawing No. 140).

Table 11-3 (p)
Types of Play
Relaxing; Resting; Playing in Peace and Quiet; and Observing

- sprinkling sand and playing quietly with sand on the beach (drawings No. 8, No. 27, No. 31, No. 70, & No. 120).

- lying in a hammock, taking a nap, and relaxing (e.g. at the beach or in the forest) (drawings No. 24, No. 30, & No. 32).

- lying on the sand (at the beach) (drawing No. 31 & No. 70).

- sleeping in the bus (while travelling) (drawing No. 33).

- adults and parents sit and rest on the hill and watch the children playing down the hill in the playground (drawing No. 39).

- resting and lying on the green hill (drawing No. 39).

- sitting in the armchair or lying/sitting on the couch in the living room and watching movies and cartoons (drawings No. 41 & No. 108).

- taking the sofa to the yard and sleeping/lying on that in peace and quiet (drawing No. 41).

- lying on the beach and getting a suntan (drawing No. 70).

- hiding in a cave, and playing with a soccer ball there (drawing No. 85).

- lying on the bench under the sun shelter at the beach (drawing No. 120).

- being at home and doing meditation on the bed (drawing No. 123).

- enjoying the atmosphere of the forest; playing alone in the forest like playing with household appliance toys and making a picnic; listening to music and laughing alone (drawing No. 133).

- making a picnic in peace and quiet (drawing No. 133).

- fishing in the lake and playing with a dog near the lake in peace and quiet (drawing No. 135).

- resting and sleeping in the tent (drawing No. 144).

- being interested in reading or listening to stories (at home) (drawings No. 146 & No. 152).

- lying on a groundsheet in the garden and looking at the sky in peace and quiet (drawing No. 154).

Table 11-3 (q)
Water and Experiences
Water-based entertainment, experienses and activities

Some of the experiences that have been mentioned in this table can be considered as the experiences in the nature as well.

- swimming, playing and floating in an indoor or outdoor swimming pool or in the sea (e.g. drawings No. 20, No. 29, No. 30, No. 31, No. 33, No. 65, No. 70, No. 89, No. 92, No. 110, No. 141, No. 153, No. 159, & No. 160):

   - floating on the water and swimming in the swimming pool (drawing No. 92).

   - surfing on the choppy sea (drawing No. 27).

   - playing on the slide and falling into the puddle or the swimming pool (water) (drawings No. 26 & No. 153).

   - diving into the pool or sea (drawings No. 29, No. 70, No. 89, & No. 110).

   - playing in the water like in the sea or swimming pool (e.g. drawings No. 29, No. 45, No. 65, No. 70, No. 91, No. 120, & No. 141).

   - washing himself in the water (drawings No. 29 & No. 91).

   - playing with the water – in the water feature installed in the outdoor playing space (drawing No. 39).

   - playing with the ball in the sea (drawing No. 45).

   - fishing in the lake, in the sea, or in the river (drawing No. 109).

   - boat sailing in the sea (drawings No. 137 & No. 138).

   - playing with her mermaid doll in the swimming pool (drawing No. 158).

   - sliding on the (spiral) water slid and falling into the pool (drawings No. 30, No. 65 & No. 153).

- playing with the water guns (with his friends) (drawing No. 33).

- falling into the river because of the car accident (drawing No. 46).

- being inside a snail shell in flowing water (e.g. in the river) (drawing No. 49).

- playing with sister and dolls in the bathtub (a small world play) (drawing No. 91).

- going to a Sea Life Center and visiting the public aquariums; learning about sea creatures (drawing No. 109).

- dipping one's feet into a lake (a pool or a pond) (drawing No. 135).

- dipping one's feet into a small shallow pond (drawing No. 153).

- swimming and playing in the river and using a swim ring (drawing No. 141).

- getting wet in the rain while visiting a zoo; leaving the zoo and going home (drawing No. 161).

- watching ducks in the water (in a pond in the zoo) (drawing No. 161).

Table 11-3 (r)
Playing Equipment, Tools, or Settings
Using, interacting, and playing with the play equipment, elements, toys, settings, or street furniture

- riding on the <u>Ferris wheel</u> (drawings No. 6 & No. 153).

- playing with the <u>playground equipment</u> and elements like:

  - Playing with <u>sand</u> (drawings No. 8, No. 22, No. 27, No. 31, No. 70, & No. 120).
  - Playing on the <u>slide</u> (e.g. drawings No. 26, No. 30, No. 35, No. 39, No. 65, No. 69, No. 120, No. 141, No. 142, No. 145, No. 148, & No. 153); playing on the <u>slide</u> which has been installed on the beach (drawings No. 69 & No. 120).
  - playing on the <u>swing</u> (in several drawings including No. 8, No. 39, No. 141, No. 143, No. 145, No. 148, & No. 159).
  - Playing on the <u>seesaw</u> (drawings No. 38).

- playing with a (magical) <u>bow and arrow</u> (drawing No. 10).

- using <u>colored pencils</u> for drawing (in the <u>drawing notebook</u>) (drawings No. 12, No. 71, No. 140, & No. 155).

- playing soccer (e.g. drawings No. 13, No. 15, No. 42, No. 76, No. 78, No. 83, No. 85, No. 95, No. 107, No. 108, & No. 122).

- playing with a <u>balloon</u>; and/or releasing the <u>balloon</u> into the sky (drawings No. 50, No. 51, No. 52, No. 110, No. 155, & No. 156); inflating the <u>balloon</u> (drawing No. 156).

- playing in the <u>sandbox</u> in the playground and building a <u>sandcastle</u> (drawing No. 22).

- sliding on a <u>rope</u> (from a tree to the ground) (drawing No.24).

- climbing up <u>stones</u>, hanging on <u>rings</u>, playing on the <u>slide</u> and falling into a <u>puddle</u> (all elements are parts of a large piece of playground equipment) (drawing No 26).

- lying in a <u>hammock</u> (drawings No. 27, No. 30, & No. 32).

- riding in a <u>hot-air balloon</u> and jumping on <u>trampolines</u> installed there (drawing No. 28).

- playing in a tree house with friends and teddy bear (drawing No. 35).

- jumping on a trampoline installed in the garden, playground etc. (drawings No. 28, No. 35, No. 53, No. 82, No. 87, & No. 145):

  - jumping on trampolines fastened to top of apple trees (drawing No. 53).
  - playing with playing equipment in "Upsalla Kinderwelt" in Wuppertal like driving a children's car and jumping on trampolines (with cousin or friends) (drawing No. 87).

- setting off <u>fireworks</u> (drawing No. 35).

- playing with a <u>ball</u> in the sea (water) (drawing No. 45).

 - playing with <u>Superman</u> and <u>Spider-Man figures</u> at home (a small world play) (drawings No. 51 & No. 88).

- playing with <u>monster figures</u> (a small world play) (drawing No. 106).

- watching and buying <u>toys at Toys "R" Us</u> (drawings No. 72 & No. 88).

- Playing with <u>toy cars</u>, <u>Carrera (car racing) track</u>, and <u>remote-controlled cars</u> at home and in the outdoor environment (a small world play) (drawings No. 72, No. 88, No. 100, No. 108, & No. 127).

- playing with <u>dolls</u> (e.g. <u>Barbie dolls</u>) (drawings No. 86, No. 91, No. 100, & No. 140).

- riding a <u>scooter</u> (drawings No. 33, No. 61, No. 62, & No. 63).

- riding a <u>bicycle</u> (drawings No. 39, No. 90, & No. 164).

- riding a <u>unicycle</u> (in the school gym or in the outdoor environment like in a garden or forest) (drawing No. 115).

- playing with <u>dolls</u> and sister in the <u>bathtub</u> (a small world play) (drawing No. 91).

- using <u>horse halter</u> and <u>lead rope</u> for a pretend play with other children (drawing No. 113).

- playing with household appliance toy sets and making a picnic (a dramatic play) (drawing No. 133).

- using household appliances and kitchenware like using the teapot and samovar for making tea and using a <u>baking dish</u> for baking a cake with mom (in reality) (drawing No. 134).

- sailing (drawings No. 137 & No. 138).

- parachuting (drawing No. 138).

- using <u>fishing equipment</u> (drawings No. 135, No. 137, & No. 141).

- playing the <u>board game</u> <u>Mensch Ärgere Dich Nicht</u> (in English: Man, Dont Get Angry) (drawings No. 67 & No. 71).

- playing with LEGO (drawing No. 140).

- playing with domino tiles (drawing No. 140).

- sliding on the spiral water slide and falling into the water (pool) (drawings No. 30 & No. 153).

- lying on a bench installed under the sun shelter on the beach (drawing No. 120).

- sitting on chairs around the table in the zoo to celebrate a birthday (drawing No. 161).

Table 11-3 (s)
Favorite Destinations: Interesting Places or Lands

Adventurous travelling to an interesting destinations/lands;
Visiting interesting places
(imaginary or real)

- traveling into one's own body, like inside one's head or heart (drawing No. 2).

- going to a meadow or forest (e.g. drawings No. 9, No. 17, No. 18, No. 30, No. 40, No. 42, No. 49, No. 63, No. 67, No. 75, No. 76, No. 100, No. 101, No. 113, No. 126, No. 133, No. 139, & No. 144).

- traveling to the land where Rapunzel lives in a tower in the middle of the forest (drawing No. 126).

- traveling to Phantasialand – a theme park– by hot-air balloon (drawing No. 28).

- traveling to a beautiful island (drawings No. 31 & No. 137).

- getting involved in an adventurous story and interesting experiences like sailing a boat and getting lost in the sea; finding an island; meeting new people on that island; parachuting and skydiving with them; discovering a new land for living; and building a new house in a garden in the new land (drawing No. 137).

- being in a fantasy world where everything is made of candy and can be eaten (drawing No. 34).

- going to a natural playing space or an integrated playground (e.g. drawings No. 39, No. 30, No. 53, No. 120, & No. 141).

- traveling to a capital city (drawing No. 56).

- going to an interesting public place for exploration, watching and shopping (e.g. going to Toys "R" Us to see and buy toy cars) (drawings No. 33, No. 38, No. 61, No. 62, No. 63, No. 72, No. 73, & No. 124).

- going to "Kinderwelt" ("world of children") amusement park or going to the "Upsalla Kinderwelt," an indoor playground in Wuppertal (drawings No. 61, No. 82, & No. 87).

- traveling to an imaginary "Land of Butterflies" where she and her friend become butterflies flying in a green space (drawings No. 79 & No. 130).

- going into space like an astronaut (drawing No. 84).

- traveling (with the family) to Wuppertal and going to the aunt's home (drawing No. 102).

- going to Düsseldorf to attend a wedding (drawing No. 80).

- going to a Sea Life Center with family and relatives: visiting public aquariums and sea creatures (drawing No. 109).

- going to a riding arena or an equestrian field: watching the horses and riders; riding a horse; and learning to ride (drawings No.111, No. 113, & No. 131).

- setting up a large sturdy tent in the jungle and living in that tent with parents (drawing No. 144).

- traveling with cousins to a fantasy Magic Land above the clouds; living there with her family in a villa (drawing No. 149).

- traveling to the Land of Strawberry with siblings and a friend (drawing No. 151).

- traveling to an imaginary Land of Wonder which is like a big, well equipped amusement park (drawing No. 153).

- camping in the garden which is near a river and waterfall (drawing No. 154).

- traveling to the north of Iran and spending several days at the Caspian Sea (drawing No. 154).

- traveling to the Land of Dreams (drawing No. 157).

- traveling to the Land of Magic where seven fairies with magical powers live (drawing No. 158).

- going to the Land of Play which is a fantasy park where users' clothes are changed magically at the entrances of the different playing zones there (drawing No. 159).

- traveling to the World of Stars and sitting on the moon surrounded by stars (drawing No. 160).

- going to a zoo; watching a variety of animal species closely; interacting with them and learning more about their lives (drawing No. 161).

Table 11-3 (t)
Fantasy and Experiences
Fantasy activities, imaginary elements, and imaginary or magical experiences   **(Most of them present the theme of an imaginary dramatic play).**

- placing a magic arrow – which shines and produces and spreads poison – on the bow and releasing that (drawing No. 10).

- shooting a monster on the tree with an arrow or wand; doing magic with the magic stick and conjuring trees etc. with the wand (which paralyzes things) (drawings No. 10 & No. 11).

- catching the heart and rainbow butterfly in the sky (drawing No. 19).

- the butterfly tickles the sun and makes it smile (drawing No. 21).

- jumping out of the plane (drawing No. 30).

- going into space and flying in space (drawings No. 15 & No. 84).

- going into space like an astronaut; observing the planets which explode and fall on the earth (drawing No. 84).

- in the garden, when the rabbit jumps, it creates a rainbow in the sky (drawing No. 36).

- creating communication with the rainbow and house and playing with them (a make-believe play) (drawing No. 43).

- talking with the snail and staying inside the snail shell in the river (drawing No. 49).

- a strange cloud which eats the storm and keeps the weather sunny (drawing No. 53).

- a cloud that competes with the train driver for picking and eating an apple (drawing No. 56).

- an imaginary machine that changes the color of the ICE train –which is white and red– and makes it colorful like the rainbow colors (drawing No. 56).

- finding underground treasure and facing a ghost child (drawing No. 57, No. 58, & No. 59).

- climbing up a palm in order to catch the sun (drawing No. 64).

- entering the Land of Butterflies by opening the door of the heart; following the butterfly on the rainbow; and finding a glass jar with a shiny rainbow ribbon inside (drawing No. 79).

- climbing up a tall tree next to a skyscraper to access the rooftop of the skyscraper and climbing down that tree in order to come down from the rooftop onto the ground (drawing No. 118).

- understanding the communication between birds and butterflies: in the story the butterflies help the birds to carry their eggs; also the birds can think and find solutions; for example, they lock their nests to prevent their eggs from falling because of the wind (an imaginary experience) (drawing No. 143).

- riding a tiger and winged dragon in the jungle (drawing No. 144).

- riding a winged snake and flying birds (drawing No. 145).

- creating communication with the winged snake: when they show him the butterfly as a sign, the snake lands on the ground and takes them for a trip in the sky (drawing No. 145).

- developing an imaginary story: fighting between the good and evil queens; receiving advice and support from an angel in order to save the good queen; uniting the people of the land against the evil queen to save the good queen who has been in jail (drawing No. 146).

- talking with an angel who guides them, encourages them, rewards them, gives them special gifts, and fulfills their wishes (drawing No. 147).

- travelling to the Magic Land above the clouds where the sizes of people change; for examples, some of them get taller, some get fatter, and some get shorter or thinner (drawing No. 149).

- in the Magic Land, when it rains, money falls from the sky instead of raindrops (drawing No. 149).

- in the Magic Land people can see behind the scenes of the events that happen on the earth (drawing No. 149).

- living with the family in a villa in the Magic Land above the clouds (a family-oriented experience) (drawing No. 149).

- exploring the Land of Strawberry; climbing up a giant strawberry to access its top (drawing No. 151).

- in the Land of Strawberry, the strawberries and raspberries fall from the sky like raindrops (drawing No. 151).

- talking with the angels and traveling with them to the Land of Wonder (drawing No. 153).

- magical experiences in the Land of Dreams: picking ice cream from the ice cream tree; picking wings from the wing tree; sticking the wings to one's body and flying; using the "automatic hair salon chair" that cuts, brushes, combs, arranges, dries and styles an individual's hair; picking gold, jewelry and treasure from the "bush of gold, jewelry and treasure" (drawing No. 157)

- in the Land of Magic the fairies do magic, like changing the colors of the sun, sky, etc.; splashing water and creating a rainbow; shaking the light and bringing the stars to the sky at night; providing and serving tasty food; offering a magical necklace to people that can fulfill their wishes like being able to fly or becoming a mermaid (drawing No. 158).

- the user's clothes are changed magically at the entrances of the different playing zones in a fantasy park called the Land of Play; for example, going from the playground to the swimming pool the clothes are changed magically from normal clothes to bikini (drawing No. 159).

- traveling to the World of Stars in the sky; sitting on the moon and looking at the stars; jumping from the moon to the earth (drawing No. 160).

- traveling to the City of Family (drawing No. 162).

Table 11-3 (u)

The Media (or New Media)

and

Stories Themes, Experiences or Characters

Experiences and characters of a story influenced by cartoons, cartoon characters, movies, computer games, or story books

- having a flexible nose that can get longer like Pinocchio's nose (drawing No. 4).

- fighting between a monster and a hero (drawings No. 10 & No. 11).

- shooting a monster a on a tree with an arrow (drawing No. 10).

- conjuring things with a magic wand and transfixing them (paralyzing them) (drawing No. 10).

- fighting with an alien (drawing No. 15).

- imaginary angels make biscuits in the sky which then fall from the sky to earth (like raindrops) (drawing No. 16).

- receiving Ninja turtle figures as gifts from Spider-Man (drawing No. 33).

- getting candies (rings of candy) that fall from the sky to earth (like raindrops) and eating them (drawing No. 34).

- a play fight between bad characters like the devils and the good characters like the heroes (an imaginary pretend play); some examples of these good and bad characters are: the Ninjas (fire, earth, and water Ninja), Superman, Spider-Man , the good and bad queens, and the devil (e.g. drawings No. 51 & No. 146).

- unearthing a treasure; facing a child ghost underground (drawings No. 57, No. 58, & No. 59).

- going into space like an astronaut, flying in space and traveling to other planets (drawing No. 84).

- describing a natural environment (like a forest) where wild animals live (e.g. bear, snake, tiger, and dragon) (drawings No. 101, No. 144, & No. 145); and observing their interactions and lives in the wild like watching tigers at play, watching the bear showing its teeth, watching the snake that moves toward the wind, watching or riding the winged snake that flies, and observing the dragon that takes the dead snake to its house (drawing No. 101).

- developing a story and drawing based on Rapunzel (a German fairy tale): her stepmother aims to use her hair as a rope and climb up to enter her tower in the forest (drawing No. 126).

- getting involved in an adventures story and exciting experiences: sailing a boat and getting lost in the sea; finding an island; meeting new people on that island; jumping from the plane, parachuting and skydiving; discovering a new land and building a new house (drawings No. 137, No. 138, & No. 139).

- developing a story based on the life of wild animals in the jungle (drawing No. 144).

- riding tigers or a winged dragon called Toothless (drawing No. 144).

- fighting between the good and evil queens; receiving advice and support from an angel to save the good queen; uniting the people of the land against the evil queen in order to save the good queen (drawing No. 146).

- traveling to the Land of Magic where 7 fairies that have magical powers live; they manage the land and do magic, like fulfilling people's wishes or changing the colors of the sun and sky (drawing No. 158).

- being a fan of mermaids; thinking of oneself as a mermaid (drawing No. 158).

- developing and drawing a story that centers on the rivalry between mice and a cat (which are the characters of the story), like Tom & Jerry cartoon (drawing No. 165).

Table 11-3 (v) **The Media**
Watching movies or cartoons
- watching Immenhof. - watching movies and cartoons like Mickey Mouse and Tom and Jerry. - watching Ninjago on TV in the bedroom. - watching Sandmännchen on TV. - watching Rapunzel.

Table 11-3 (w)
Music
Listening to music; Dancing
- attending a big party; listening to music and dancing (drawing No. 14). - attending the Hockey Festival: it is a celebration with music, a DJ, and a dance hall with colored lighting (drawing No. 112). - listening to music in the forest and laughing alone (drawing No. 133). - being in a theater hall or in a studio for practicing, performing and recording performances (including dancing, singing, and acting) (drawing No. 147). - listening to the music while using the automatic hair salon chair that has a speaker (an imaginary experience in the Land of Dreams) (drawing No. 157).

Table 11-3 (x1)
Nutrition
Eating, Cooking, Baking, and Grilling

- eating fruit like <u>strawberries</u>, <u>bananas</u>, <u>cherries</u>, <u>apples</u>, <u>pears</u>, and <u>grapes</u> (drawings No. 1, No. 9, No. 18, No. 30, No. 40, No. 71, No. 102, No. 139, No. 140, No. 151, & No. 155).

- eating <u>strawberries</u> and <u>raspberries</u> in the imaginary Land of Strawberry (drawing No. 151).

- eating <u>ice cream</u> (e.g. drawings No. 5, No. 8, No. 11, No. 35, No. 38, No. 61, No. 62, No. 73, No. 74, No. 88, No. 110, No. 157).

- eating <u>candies/gumdrops</u> (drawings No. 8, No. 12, No. 34, & No. 35).

- baking and eating biscuits (drawings No. 16, No. 102, & No. 134).

- baking or cooking with grandmother at home (drawing No. 35).

- cooking and/or eating noodles (with <u>ketchup</u>, <u>meat</u>, or <u>spinach</u>) with family at home (drawings No. 68, No. 86, No. 71, & No. 73).

- eating fried potatoes, chips, flavored ice, popcorns, and pizza with her family or friends in Upsalla Kinderwelt (an indoor public playground in Wuppertal) (drawings No. 82 & No. 87).

- eating fried potatoes with mayonnaise and ketchup at McDonalds (drawing No. 88).

- eating popcorn (while watching a cartoon with his brother at home) (drawing No. 95).

- eating sausage (at home) (drawing No. 97).

- eating birthday cake (drawings No. 100, No. 134, No. 141, & No. 161).

- eating salami (drawing No. 102).

- eating snacks (drawings No. 88, & No. 112).

- eating Doner kebab with French fries (drawing No. 116).

- buying and eating potato chips at the kiosk (at the beach) (drawing No. 120).

- eating Gheymeh – a traditional Persian food (in a picnic) (drawing No. 133).

- grilling on the balcony with her parents (drawing No. 136).

- turkey hunting and grilling (drawing No. 139).

Table 11-3 (x2)
Nutrition
Drinking

- drinking water (drawings No. 7 & No. 102).

- drinking lemonade (drawing No. 8).

- drinking juice and soft drinks (drawing No. 102).

- drinking tea (drawing No. 134).

Table 11-3 (y)
Visual Attractions (Mainly Artificial Elements)
Attractive Forms and Colors

- being in the heart house (a heart-shaped house) (drawing No. 14).

- being interested in rainbow butterflies and heart shapes in the sky (drawing No. 19).

- representing Phantasialand–a theme park–by flags and heart shapes (drawing No. 28).

- setting off fireworks (drawing No. 35).

- releasing balloons into the sky creates a visual attraction (drawing No. 50 & No. 155).

- water slides in different colors in the park create a visual attraction (drawing No. 65).

- designing wedding invitation cards; putting on make-up; putting on a crown; using heart-shaped pattern (drawings No. 80 & No. 81).

- a decorated Christmas Tree and an Easter Egg bush in an outdoor environment (drawing No. 107).

- a decorated Christmas Tree in the living room at home (drawing No. 108).

- a place with colored lighting for dancing in the evening (in the hockey festival) (drawing No. 112).

- tents that have been set for the hockey festival (drawing No. 112).

- hockey arena or field (drawing No. 112).

- colorful design of the restaurant and its entrance (drawing No. 116).

- imaginary world based of butterflies (e.g. the 'Butterflies' House' decorated with butterfly and star shapes) (drawing No. 130).

- buying a Cinderella birthday cake for a friend (drawing No. 141).

- using balloons in different colors (drawings No. 110, No. 155 & No. 156); decorating the classroom with balloons and colored paper; designing a gift box with colored paper and balloons (drawing No. 155).

- using colorful tiles in the schoolyard (drawing No. 155).

Table 11-3 (z)
Money and Experiences
Shopping; Money-oriented Experiences; and Interacting with Luxury Items
- buying tickets for travelling to Phantasialand –a theme park– by hot-air balloon (drawing No. 28). - being able to afford to buy everything (drawing No. 52 & No. 88) - buying toys at Toys "R" Us (e.g. buying car toys) (drawings No. 72 & No. 88). - arranging a wedding party in Düsseldorf; putting on a crown (drawings No. 80 & No. 81). - being really rich (thinking of oneself as a rich person); having deep interest for being outdoors and money-oriented experiences like shopping and eating (drawing No. 88). - having one's own house (drawing No. 88). - having lots of money in the bank (drawing No. 88). - *going to a* bookshop and buying lots of story books (drawing No. 88). - eating out at restaurants (drawing No. 88). - eating out at restaurants; buying Doner kebab with French fries and paying attention to the prices (banknotes and coins drawn in the drawing) (drawings No. 116 & No. 117). - buying drinks and snacks at the portable kiosk (in the hockey festival) (drawing No. 112). - forming a band of three and doing entertaining performances including singing, acting, and dancing professionally; releasing their album (on CD); becoming popular; making lots of money as a successful band (drawing No. 147). - receiving gifts and rewards like a theater hall and a palace from an angel (drawing No. 147). - picking gold, jewelry and treasure from the "bush of gold, jewelry and treasure" in the Land of Dreams (drawing No. 147).

Source: *Author.*

11.5. The Names of the Drawings/Stories

As stated in Communication Phase (Chapter 10) the children were asked to choose a name for their story/drawing. Some children did so, others were reluctant. In most cases the chosen name or title was related to the content of the story, while in rare cases the name or title was not related to the content – e.g. when a child chose the name of his story/drawing based on the content or name of another child's drawing. In some cases the children drew one picture for their story and in some cases they drew several pictures. Children who had several drawings, sometimes gave the same name to all their drawings and sometimes gave different names to each drawing. The names or titles of the stories in most cases show the main point(s) of the story and center of the child's attention.

The researcher's intention in asking the children to name their drawings/stories was to find the fields, subjects and topics on which the child's story focuses. These names and subjects could then be applied to naming different play zones and settings in the future playground.

Table 11-4 lists and presents the names the children gave their drawings in the creative sessions in Tehran and Germany.

Table 11-4: *List of Names that Children Gave their Drawings/Stories*

List of names that children gave their stories/drawings
Drawing No. 1: Blabla
Drawing No. 2: Schnack Schnack
Drawing No. 4: Leno-Pinocchio
Drawing No. 7: The Flower
Drawing No. 9: Baby
Drawing No. 10: The Magic Arrow and Bow
Drawing No. 11: The Monster
Drawing No. 12: The Cupboard
Drawing No. 13: The Heart House
Drawing No. 14: Tchiu tchiu
Drawing No. 16: Learn adventure!

Drawing No. 17: The Summer

Drawing No. 24: The Hammock

Drawing No. 33: Munzur (the child's name)

Drawing No. 34: The Candy; The Sweets

Drawing No. 40: Zoo Paradise

Drawing No. 41: Mikail from Germany (the child's name)

Drawing No. 42: The Land of Trees

Drawing No. 43: The Butterfly; Heart-butterfly

Drawing No. 45: In the Sea

Drawing No. 46: Police Station

Drawing No. 47: Monster Police; Mr. Bs Monster

Drawing No. 48: Police Station

Drawing No. 49: The Rainbow

Drawing No. 50: Police Station

Drawing No. 51: Spider-Man

Drawing No. 53: ELIAS (the child's name)

Drawing No. 56: Ach, Charlotte (the name of the child's relative)

Drawing No. 57: The train driver and treasure

Drawings No. 76, No. 77, & No. 78: Tom (It is the child's name)

Drawing No. 80 & No. 81: Lisa and Marmitsch or Marmortisch (Lisa is the name of the child's mother)

Drawing No. 83: The Football Field

Drawing No. 84: Latzerunka (a fantasy name)

Drawing No. 85: The Soccer/Football Field

Drawing No. 86: The Field of Flowers

Drawing No. 87: Upsalla (the name of an indoor playground in Wuppertal)

Drawing No. 89: The Beach

Drawing No. 90: The Beach

Drawing No. 91: Alina (her friend's name)

Drawing No. 92: Hanna (the name of her kindergarten teacher)

Drawing No. 95: The Soccer Field

Drawing No. 100: The Summer

Drawings No. 101 & No. 102: Bulo (a fantasy name)

Drawing No. 103: The Summer Vacation

Drawing No. 104: The Summer Vacation

Drawing No. 107: Soccer/Football

Drawing No. 108: Christmas Eve

Drawing No. 109: Sea Life

Drawing No. 110: Whirlpool

Drawing No. 111: Riding Arena or Equestrian Field

Drawing No. 113: My dream horse

Drawing No. 114 & No. 115: Riding a Unicycle

Drawings No. 116 & No. 117: Pomm-Döner Bunt abbreviation for Pommes Döner Bunt (In English: Colorful French fries & Doner)

Drawings No. 118 & No. 119: The Strange Place or The Day of Fun

Drawing No. 120: The Colors

Drawing No. 123: at Home

Drawing No. 124: Street of Play

Drawings No. 125 & No. 126: Air

Drawing No. 135: The Balcony

Drawing No. 136: Shima (the name of a relative)

Drawing No. 140: Garden

Drawing No. 141: The garden of river

Drawing No. 142: The day of joy

Drawing No. 143: Calendula Flower

Drawing No. 144: The jungle of animals

Drawing No. 145: The fragrant garden

Drawing No. 148: Arian Park (the name of a park)

Drawing No. 151: Strawberry World

Drawing No. 152: The City of stars

Drawing No. 153: Wonderland or Land of Wonder

Drawing No. 154: Pleasant

Drawing No. 155: Our lovely day or The Good day to me and my friends

Drawing No. 156: Sana and I

Drawing No. 157: The City of Dream(s) or The Land of Dream(s)

Drawing No. 158: The City of Magic

Drawing No. 159: The Two Lands of Playing

Drawing No. 160: World of Water; World of Stars; World of Flowers

Drawing No. 161: The beautiful zoo

Drawing No. 162: The City of Family

Drawing No. 163: The City of Goodness

Drawing No. 164: The Green Garden or The Lush Garden

Drawing No. 165: The journey of mice

Source: *Author.*

11.6. Color in Children's Drawings

The children used a wide range of different colors in their drawings. Most of the children (especially the older ones) used colors in such a way that it could present the content and theme of the drawing well and visualize the objects as in reality (e.g. using green and brown to present a tree, using yellow to present the sun, and using blue to present the sky in their drawings) (see Picture No. 1 in Figure 11-1(a1)). Some children used colors in an unusual or innovative way (e.g. drawing an orange sky or red trees) (see Picture No. 2 in Figure 11-1(a1)).

Some of the children drew black-and-white pictures. Although objects may look black and white to the viewer, in the child's mind each object may be colored. The imaginary colors of the drawn objects were understood by talking to the child in the Communication Phase. For example, although picture No. 3 is black-and-white, in conversation with the child it was realized that in her mind the sun and the rings were yellow and the table and two chairs at the table were brown (see Picture 3 in Figure 11-1(a)). Some children especially small ones may draw their story in a messy and unclear way. For example, in picture 4, a four year old boy has used the colors and shapes that look ambiguous and unclear to the observer. His story was understood by talking to him (see Picture 4 in Figure 11-1(a)).

1. Using colors to visualize objects as in reality.

Drawing No. 71 in Appendix 3, on the attached CD.

Drawn by: German girl, 6 years old.

2. Using colors in an unusual way: drawing red trees.

Drawing No. 30 in Appendix 3, on the attached CD.

Drawn by: German boy, 5 years old.

The table and chairs   Candy Rings
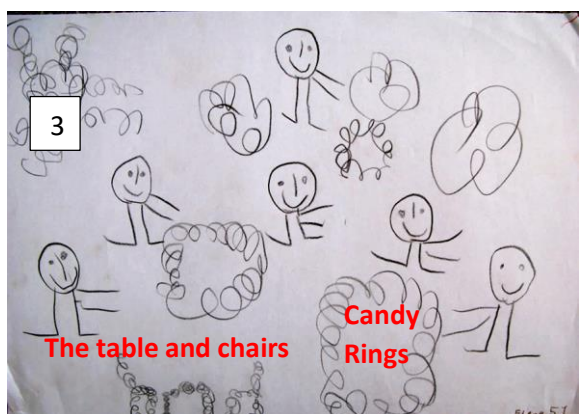
3. A black-and-white drawing: the (imaginary) colors of the objects in this black-and-white picture were figured out by talking to the child.

Drawing No. 34 in Appendix 3, on the attached CD.

Drawn by: German girl, 5 years old.

4. Using shapes/colors in unclear/meaningless way by a small child; his story was understood by communication with the child.

Drawing No. 12 in Appendix 3, on the Attached CD.

Drawn by: German boy, 4 years old.

Figure 11-1 (a): *Colors in Children's Drawings*

Source: *Author.*

Drawing No. 143

Drawn by: <mark>Iranian</mark> girl, 7 years old.

Drawing No. 164

Drawn by: <mark>Iranian</mark> girl, 8 years old.

Drawing No. 137

Drawn by: <mark>Iranian</mark> boy, 7 years old.

Drawing No. 43

Drawn by: <mark>German</mark> Girl, 6 years old.

Drawing No. 110

Drawn by: <mark>German</mark> Girl, 7 years old.
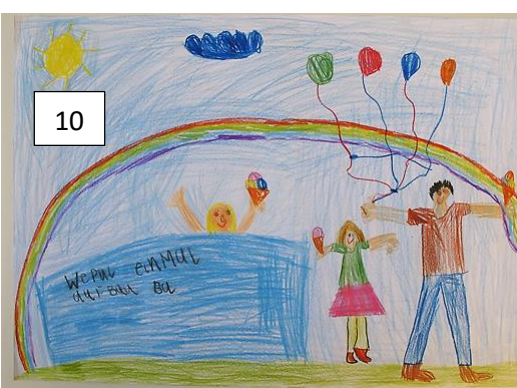
Drawing No. 110

Drawn by: <mark>German</mark> Girl, 7 years old.

Figure 11-1 (b): *Colors in Iranian and German Children's Drawings.*

Source: *Author.*

Children's stories/drawings showed that many children (in Wuppertal and Tehran) are interested in a wide range of shapes and colors that represent natural environments and elements.

In the design of the future playground the colors should be applied in a meaningful way and reflect the theme, meaning, function, and feelings that the space and its equipment aim to support (e.g. the forms, colors and textures that inspire children's imaginations and feelings of being in nature).

The information discussed in Chapter 5 can be a good guide for using colors to design a playground space and equipment.

As mentioned, in the drawings collected in creative sessions, a wide *variety of experiences* were mentioned by Iranian and German children; many of them were similar enjoyable experiences, though the types of presentation and coloring were different in different children. For example, in some drawings (especially Iranian children's drawings), warm and strong colors were used more. However, the use of color in most children's drawings was so varied (see pictures in Figure 11-1 (b)) (i.e. they used a wide range of different colors) that it could not be categorized in a specific way easily.

In interviews with adults and parents of children (described in Chapter 12), many participants stated that children and even themselves like playground equipment in attractive colors (e.g. colorful play equipment, equipment in bright colors or wooden things).

11.7. Child-friendly Findings, Design Parameters, and Qualities for Developing the Future Playground

Some of the more frequently occurring higher-level experiences explored here[258] were considered suitable as design parameters for the future playground.

1. Creating a design which arouses feelings of being in a natural environment

Since many stories showed children's interest in being in an outdoor environment (specially natural spaces), it was clear that the overall design of the playground and its equipment and

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[258] The more favorable ones that were addressed in more stories/drawings.

settings should arouse corresponding feelings (e.g. being in the forest, in woods, in a meadow, in the garden, or at the beach) (Table 11-3 (a) & Table 11-3 (g)).

2. Providing play equipment, elements and settings that support experiences like those in a natural environment

The structure of the playing equipment and playing space should offer experiences adopted from nature, e.g. climbing up and down trees, picking fruit, lying on the beach, etc. (Table 11-3 (h)).

3. Offering design(s) which are visually attractive and intelligible to children

Children's stories/drawings from creative sessions showed that many children are interested in a wide range of shapes and colors that represent the natural environment and natural elements, e.g.: drawing a rainbow, sea, butterflies, fruits on trees, trees, flowers, and clouds in different colors (see Natural Visual Attractions in Table 11-3 (h)). However, some other artificial elements were used as visual attractions too (Table 11-3 (y)).

As stated in Chapter 5, if the color is used skillfully, it can direct activity within a space and promote a certain mood or feeling (e.g. inspire children's imaginations and feelings of being in the nature). Applying color in design of a playground should contribute to child's healthy development and give meaning to the image of the space as a part of the urban landscape. The information provided in Section 5.5.13 can serve as a guide for using colors to design a playground space and playing equipment.

4. Providing play equipment that supports different types of play

Playground design should offer equipment, settings and spaces which support different types of play proper to the outdoor playground. Children's experiences (in their stories) which reflected different types of play have been presented above (see Table 11-3 (l), Table 11-3 (m), Table 11-3 (n), Table 11-3 (o), and Table 11-3 (p). The main types of play were described and discussed in Chapter 4. Playground games and activities were described in Chapter 5 (see Section 5.5.9.). From

information in Tables 11-3 (l-p) the more frequently mentioned children's experiences can be chosen randomly, synthesized and applied to form the concept of play equipment, settings and spaces of the future playground.

Some of the main types of play that can be supported in the future playground are as following:

- **Rough-and-tumble Play and Action-oriented Experiences**

  These types of play were mentioned just by a few children, mainly boys and small ones. If possible, the playground space or its surrounding area should offer enough empty space for such activities.

  Some examples of children's experiences in their drawings/stories that can be considered as rough-and-tumble play or action-oriented experiences are: fighting between the hero and the monster in the meadow or jungle, and rough-and-tumble play with animals like dogs or tigers (Tables 11-3 (n)).

- **Manipulative or Constructive Play; Creative Play**

  Some examples of these games expressed in children's drawings/stories are: playing with sand in a sandbox or on the beach and making different things (e.g. building a sandcastle), playing with LEGO bricks, and drawing/painting (Tables 11-3 (o)).

- **Dramatic or Socio-dramatic Play[259]**

  Some examples of children's experiences – expressed in their drawings/stories – that can be categorized as dramatic or socio-dramatic games are: acting as a hero or superhero, travelling to an imaginary world where the child thinks of itself and friend as butterflies that are flying in the green space, and playing the game of "Mother, Father, Child" with sister and doll (Table 11-3 (m)). Also some of the experiences and contexts that were mentioned in Table 11-3 (s) and Table 11-3 (t) can be considered as an (imaginary) involvement in a dramatic or socio-dramatic game. These experiences have the potential to be the theme for various dramatic or socio-dramatic games in the real world and in the playground.

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[259] Also called Pretend Play, Make-believe Play, Role Play, or Fantasy/Imaginative Play.

When play equipment has *abstract* instead of *concrete* shapes, then it can meet a wider range of tastes and wishes, because each child can imagine and perceive it as she/he wishes and wants. This means, during using the same play equipment different children can play differently (i.e. get involved in dramatic games with different themes).

- **Physical play; Sport; Game with rules**[260]

    Some examples of these games expressed in children's drawings/stories are: jumping (e.g. on a trampoline), climbing up/down trees, playing on a slide, climbing up/down a hill, running, playing hide-and-seek or playing soccer (Table 11-3 (l)).

- **Social Play**

    Any type of play in which children play and interact with each other or with adults can be considered as a social play. It helps children learn different social skills.

    The playing space should be able to encourage children to interact with each other and get involved in social play like getting involved in different types of socio-dramatic or physical games or games with rules. An example of social play is playing hide-and-seek, which can be considered as a physical play and a game-with-rules.

- **Playing in Peace and Quiet**

    A playground should also offer suitable space for playing in peace and quiet, especially for small children. This play space is usually near the seating area for adults. Some examples of the experiences that reflect this type of play are: playing with sand on the beach, lying on the sand, lying in a hammock (Table 11-3 (l)).

- **Sensorial Play**

    As stated in Chapter 5, a sensory play provides opportunities for children to use all their senses or encourages the use of one particular sense. Some experiences that were mentioned in Tables 11-3 (l-p) or Table of Water and Experiences (Table 11-3 (q)) can also

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[260] The types of 'games with rules' which are more physical.

be considered sensorial. For example, playing with sand or water at the beach, dipping feet into the lake and playing with water, or climbing a tree.

5. Providing play settings that let children enjoy being in high places and having a bird's eye view

The experiences explored in children's drawings/stories showed that many children are interested in heights and views. For this reason, a playground should offer high play equipment that allows children to climb, be in a high place and have a good view. Some examples of the experiences that reflect this type of interest are: sitting/climbing up a tree, lying in a hammock or jumping on trampolines that have been fastened to the top of trees, riding on a Ferris wheel, and riding in a hot-air balloon (Table 11-3 (k)).

6. Providing opportunities for interacting with water: offering real or make-believe water-based experiences

The experiences explored in children's drawings/stories showed that many children are interested in interacting with water. Some examples for this type of interest are: swimming in the sea or swimming pool, spending time at the beach or along the river, playing with in the sea, playing with water guns, playing on water slides, etc. (Table 11-3 (q)).

If possible, a playground should provide equipment for playing or interacting with water in the summer. However, limitations or conditions make it impossible to provide water-based equipment in some playgrounds e.g.:

- not being cost-effective due to limited usable time for water-based settings[261];

- lack of sufficient budget since the design, building and installation of water-based playing equipment is usually expensive;

- the impossibility of installing water equipment in the space [262].

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[261] Usually water-based playing equipment and settings in the open spaces (e.g., parks, outdoor playgrounds or urban spaces) are only usable in the summer time.
[262] For example, if the space is too small, or environmental characteristics make it impossible to install water pipes, fountains etc. in the area.

When it is not possible to install water-based equipment and offer *real* interaction with water, the design could provide elements and equipment that – by their colors, shapes, and texture – support *imaginary* playing and interaction with water. For example, providing blue space and wave-shaped play equipment which are similar to the shape of lake, river or sea, sets a stage and encourages children to get involved in dramatic play. If the play equipment has *abstract* shapes instead of *concrete* shape, then it can meet a wider range of tastes and wishes, because each child can imagine and perceive it as she/he wishes and wants. This means that two children can play really differently with the same equipment.

7. **Offering a suitable space for sitting, resting, and relaxing**

    The playground or its surrounding area should provide a suitable space for sitting, resting, relaxing and eating (e.g. eating snacks and drinking juice) for children and adults. Many children were interested in eating fruit, ice cream, and snacks. In the playground, the area for resting and sitting is usually built near the quiet play area. It is of advantage if users have easy access to places for buying healthy food and drink. In the playground or playing spaces located in a natural environment (e.g. Nützenberg/Kaiserhöhe or Hardt Park in Wuppertal), users can have a picnic. The shapes and colors of food and snacks that are attractive to children can be used in the design of specific elements. However, as stated, it is better to present the design in an abstract way so that it can meet a wider range of wants and wishes.

8. **Providing play equipment that supports children's imaginative involvement in their favored form of dramatic play**[263]

    In some drawings, children depicted the places or lands (real or imaginary) that were interesting for them (or for the characters of their stories which mainly represented themselves). Some examples of children's favored lands and places are natural green spaces like: a beautiful island, a meadow, a jungle, a forest, a garden, an integrated playing space, or the seaside (Table 11-3 (s)).

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[263] i.e. the feeling of being in their favorable places and interacting with the relevant make-believe elements.

Many favorite places were natural environments. Children's favored fantasy experiences – which could serve as themes for pretend play – were presented in Table 11-3 (t).

The *more* favored themes for children are selected randomly, synthesized, and applied for creating play equipment or play spaces in a playground. In this way, the design of the playground can offer a great stage to inspire children's imaginations and facilitate their dramatic play. As already stated, when the designs of playground settings are abstract, they support a wider range of children's imaginations and enjoyable experiences.

Some experiences and characters in children's stories have been (or may be) influenced by cartoons, cartoon characters, movies, computer games, or story books. However, this is according to the author's perception, and sometimes it is not possible to say exactly what the main root of the formation of an object is in children's stories and paintings.

Some children have close interaction with animals, birds, or insects (Table 11-3 (i) & Table 11-3 (u)). If possible, the playground equipment can be designed to encourage such imaginative experiences and interactions, and hence facilitate fantasy play.

9. **Providing a suitable space for families and supporting social interactions in the playground**

Family-oriented experiences showed that in many situations or activities, children's companions are their families (e.g. parents, siblings, and relatives). They enjoyed a wide range of experiences that they could enjoy spending time with their families (Table 11-3 (c)). Thus, a playground should offer a suitable space for children's families as well, since they are the ones who accompany their children on the playground.

Also, the experiences explored in the sociability realm showed that many children are interested in spending time in public places. They are also interested in interacting with their friends in both outdoor and indoor spaces; some children also enjoy interacting with other children (unfamiliar ones) in spaces like playgrounds, parks, etc. (Table 11-3 (e) & Table 11-3 (f)). The design should support and develop children's social interactions; providing suitable playground equipment and settings to support children's social play.

10. Offering the designs which evoke positive feelings and develop children's senses[264]

Some experiences explored in children's stories address and reflect children's feelings or senses (Table 11-3 (j)). Some of these feelings and senses are:

- sense of humor and funny experiences

- risk-taking experiences and courage

- courage and sense of power, control, and victory

- being surprised or surprising someone; making someone happy

- sense of responsibility and caring for others

- sense of curiosity, freedom, and exploration

- frightening experiences and adventure (horror and the feeling of excitement)

- attracting attention; being popular; being famous and powerful

- sense of trying, exploration and achievement (succeeding)

- exploration, finding interesting and favorite things or places, and gaining rewards

- being independent; acting like a sophisticated adult

- sense of creativity and invention, and problem-solving.

The design of the playground should be able to evoke children's positive feelings and develop their senses by providing suitable play equipment and spaces. Some higher-level experiences or realms like money-oriented experiences, watching movies or cartoons, and music were only expressed by a few children.

For applying the experiences in different realms to achieve the necessary qualities, form the design, and develop the playground, experiences can be selected randomly and combined creatively by the designer, depending on their theme, the possibility of being combined with other experiences, the level of children's interest in them, and the extent of meeting different children's wants and values. The experiences that are of interest to more people are the priorities to be considered. However, other factors like environmental, contextual, and organizational characteristics influence the final designs. For example, water-based experiences may be valued

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[264] Senses here refer to the abilities to understand, recognize, value or react to something (e.g. sense of humor, sense of responsibility, and sense of being independent).

by many children, but it may not be possible to set up such equipment and devices in the selected site.

11.8. Summary

In this chapter, the experiences, wishes, and values of children aged 4-8 determined in the creative sessions were explored and categorized in groups by theme and subject (see last column of Appendix 4 on the attached CD). For each group of relevant experiences, a title or theme was defined as higher-level experience or representative theme. Each group is relevant to a special realm (see Tables 11-3 from (a) to (z)) (Table 11-2).

These higher-level experiences include (Table 11-2):

- going or being outdoors
- being indoors
- family-oriented experiences
- discovering and getting familiar with an occupation or a skill and its working context as an adventurous experience; and being interested in a specific occupation and learning about that
- the quality of liking to meet and spend time with other people; spending time in public places and interacting with the people
- holding and attending celebrations and parties; celebrating especial occasions or holidays; getting together
- close interaction with nature and natural elements
- discovering nature, learning and trying adventurous experiences; sense of environmental responsibility
- interaction or close relationship with animals, birds, and insects
- expressing feelings and emotions; having different senses[265]
- being in the high place and having a bird's eye view
- physical play; sports; games with rules
- dramatic play or socio-dramatic play; miniature play scenes (small world play)
- rough-and-tumble play; fighting with or between imaginary enemies; action/action-oriented experiences

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[265] Senses describe the abilities to understand, recognize, value or react to something.

- destroying; manipulating; constructive play; creative play

- relaxing; resting; playing in peace and quiet; and observing

- water-based entertainment, experiences and activities

- using, interacting, and playing with play equipment, elements, toys, settings, or street furniture

- adventurous traveling to interesting destinations/lands; visiting interesting places (imaginary or real)

- fantasy activities, imaginary elements, and imaginary or magical experiences[266]

- experiences and characters of the story influenced by cartoons, cartoon characters, movies, computer games, or story books

- watching movies or cartoons

- listening to music; dancing

- the experience of cooking, baking, and eating

- drinking

- attractive forms and colors

- shopping; money-oriented experiences; or luxury items.

In Section 11.4., each higher-level experience group[267] was analyzed and the *more favored* experiences of these groups were explored (Tables 11-3 from (a) to (z)).

In Section 11.5., the names that children gave their drawings and stories were presented; and in Section 11.6., the ways in which children used colors in their drawings were discussed. The collected data in these sections can be applied in naming and developing the concept and design of the playground equipment.

In Section 11.7 the designer derived child-friendly findings, design parameters, and qualities[268] for developing the future playground from a consideration of the collected data, experiences and wishes of the children as expressed in their drawings and comments. These factors and parameters include:

1. Creating a design which arouses the feelings of being in the natural environment

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[266] Most of these experiences present the theme for an imaginary dramatic play.
[267] Each higher-level experience group includes various experiences shown in Tables 11-3 from (a) to (z).
[268] These parameters and qualities have been derived from the explored child-friendly experiences in drawings/stories.

2. Providing play equipment, elements and settings that support the experiences which are similar to the available experiences in the nature

3. Offering design(s) which are visually attractive and understandable for children

4. Providing plenty of play equipment that supports different types of play

5. Providing play settings that let children enjoy being in high places and having great views

6. Providing opportunities which supports children's interests for interacting with water (i.e. offering water-based activities either as real interactions or make-believe experiences and play)

7. Offering a suitable space for sitting, resting, and relaxing

8. Providing play equipment that supports children's favored dramatic games and the feeling of being in their favorite places

9. Providing a suitable space for families and supporting social interactions in the playground

10. Evoking positive feelings and developing children's senses.

These child-friendly design parameters and qualities are applied in this study to the development of a new playground for children aged 4-8. These factors and parameters influence a wide range of criteria for developing the future playground such as: selecting the location, generating innovative ideas for play concepts and affordances (e.g. play opportunities and other services) offered in the playground, designing the playground equipment and settings based on these user-friendly concepts and ideas, and finally developing the final design of the whole playground.

Chapter 12

PHASE 1 – Exploration Phase (Methodology and Data Collection)

- **Understanding adult stakeholders**

- **Method: holding group interview sessions or sending questionnaires**

- **Collecting and analyzing data**

STAKEHOLDERS – – – – **Understanding adults like parents, teachers/educators, and grandparents.**

12.1. Introduction

In this chapter, the methodology for understanding adults (as stakeholders of playground) is described. The applied methods in the exploration phase to understand adults (e.g. parents) are holding group interview sessions and presenting a list of questions (as questionnaire).

As stated in Chapter 6 (see Section 6.2.8.), stakeholders mainly include parents, grandparents, local playground sponsors, teachers, educators, or babysitters who bring children to the playground. They accompany, observe, and support children when they play in the playground. To gain the requisite information, a list of 13 questions was prepared in this project phase and 17 adults responded in group interview sessions or by filling out the questionnaire (see Appendix 5).

Their answers to questions are categorized in Appendix 6 (see attached CD) and the relevant design parameters are derived from these answers (see Sections 12.2.2. & 12.3.).

12.2. Understanding stakeholders (adults)

STAKEHOLDERS

In the exploration phase, it is also necessary to understand adult stakeholders (see the answer to question number 2 in Section 6.2.8). The stakeholders are also considered to be users of the playgrounds but in a different way from the children that are the end users.

As well as those mentioned above, a small number of stakeholders could be adults who do not accompany any child but have come to the playground in order to sit, rest, observe children, and enjoy their time in the seating area or natural free spaces of the playground.

In the Nordbahntrasse, adults and children who are over 8 years old can play and spend their time in Parkour Plateau. Apart from the available green space[269], this area of the Nordbahntrasse does not offer suitable options or equipment for children under 4 years old. Thus, children under 4 (e.g. the siblings of the children aged 4-8) can be considered as the stakeholders of the future playground.

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[269] The grassed area of the selected play space.

In the playground, usually children in this age group are with their parents or other adults who may accompany them. Thus, it is necessary that some area of the future playground (e.g., the seating area and sandbox/sand area) should serve the parents and their small children while the older children are actively playing.

12.2.1. Method: holding group interview sessions or sending questionnaires

A list of questions was prepared for stakeholders. These were either asked adults in group interview sessions or sent as a questionnaire (Appendix 5). In total, 17 adults responded. Among these 17 participants, 11 people participated in the group interview sessions and 6 answered the questionnaire. The primary version of the question list consisted of 9 items[270], then the number of questions increased to 11[271], and in the last version 13[272]. This questionnaire was prepared in both English and German. The participants were German, but since the language of the thesis is English, Appendix 5 presents the list of these 13 questions[273] in English.

In the group interview session, each question was asked of all participants. Each session was videotaped and in this way participants' responses were recorded and collected accurately. In total, two group interview sessions were held by the researcher in a kindergarten and a school in Wuppertal. The first group interview session was held in Rabbatz Day Care Center and the second in Küllenhahn Primary School. Both sessions were filmed (Figure 12-1).

The participants of the session held in Rabbatz Day Care Center, included the researcher and 6 educators who worked in that kindergarten. Table 12-1, presents the list of participants in the first group interview session and their personal information including age, gender, occupation, number of their own children or grandchildren, and their relationship with children aged 4-8 years.

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[270] Participants No. 1- No. 6 (the adults who attended the first "group interview session") answered 9 questions.
[271] Participant No. 14 & Participant No. 15, answered the questionnaires with 11 questions.
[272] Participants No. 7- No. 11 (the adults who attended the second "group interview session") answered 13 questions.
[273] This list is the last version of the list of questions.

The participants of the second group interview session, held in Küllenhahn Primary School, included the researcher and 5 other participants (2 parents, 2 educators, and an assistant principal who worked in that school). Table 12-2 presents the list of participants in the second group interview session and their personal information.

As stated, the list of questions was also presented as a questionnaire (Appendix 5). This questionnaire was given manually or sent via email to the adults. These adults were the ones who had some kind of relationship with children aged 4 to 8 or had responsibility in relation to play and playgrounds (e.g. parents, educators/teachers, and playground sponsors/mentors[274]).

Table 12-3 presents the list of participants who filled out the questionnaire and their personal information. In total 17 participants answered the questions, either by participating in the group interview sessions or filling out the questionnaire.

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[274] German: *'Spielplatzpaten'*
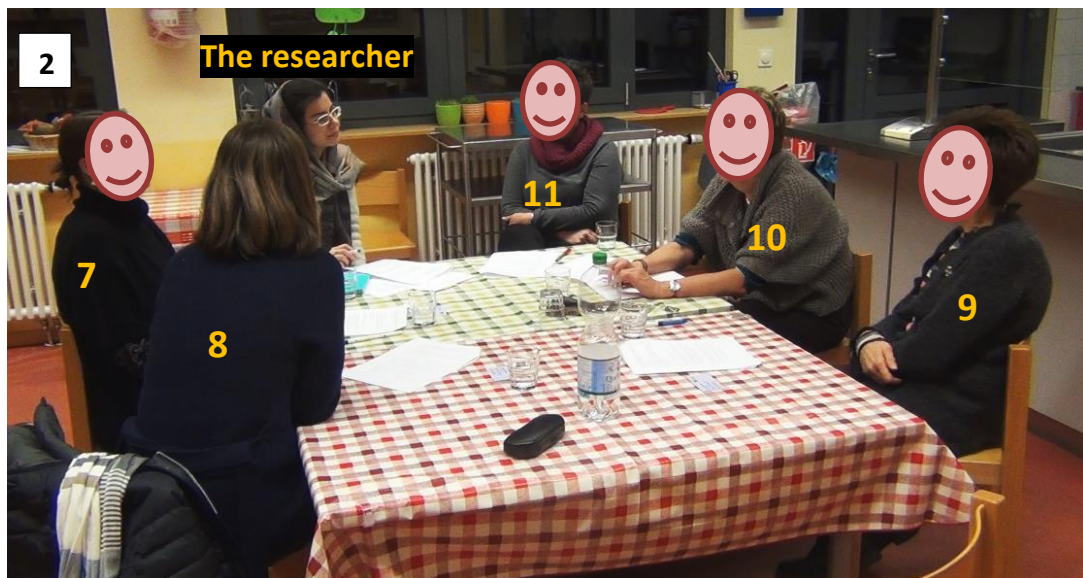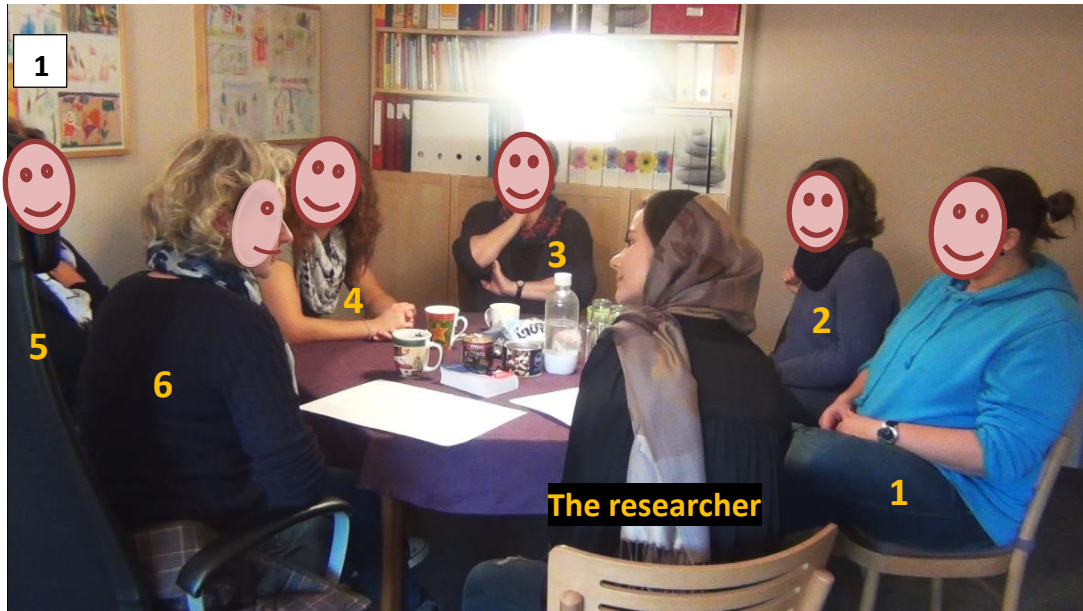
Figure 12-1: *The two Group Interview Sessions held by the researcher in Wuppertal.*

No. 1: First Group Interview Session held in Rabbatz Day Care Center in Wuppertal. Date: 26.10.2015.

No. 2: Second Group Interview Session held in Küllenhahn Primary School in Wuppertal. Date: 25.11.2015.

Source: *Author. Both sessions were filmed.*

Table 12-1: *List of participants (No. 1 – No. 6) in the first Group Interview Session held in Rabbatz Day Care Center in Wuppertal. Date: 26.10.2015.*

Group interview session held in Rabbatz Day Care Center Date: 26.10.2015				
Participant	**Gender, age**	**Occupation**	**Number of children or grandchildren, age and gender**	**Participant's relationship with children aged 4-8 (end users of the playground)**
Participant No. 1	Female, 27 years old	Educator	-	- <u>Educator</u> in the kindergarten. - Interacting with her <u>friend's sons</u>: a 5 year old and a 6 month old boy.
Participant No. 2	Female, 55 years old	Educator	Two daughters; 25 and 29 years old.	<u>Educator</u> in the kindergarten.
Participant No. 3	Female, 54 years old	Educator	Two daughters; 25 and 27 years old.	<u>Educator</u> in the kindergarten.
Participant No. 4	Female, 34 years old	Educator	One daughter: 11 years old.	<u>Educator</u> in the kindergarten.
Participant No. 5	Female, 30 years old	Educator	-	<u>Educator</u> in the kindergarten.
Participant No. 6	Female, 51 years old	Educator	Two daughters; 23 and 27 years old.	<u>Educator</u> in the kindergarten.

Source: *Author.*

Table 12-2: *List of participants (No. 7 – No. 11) in the second Group Interview Session held in Küllenhahn Primary School in Wuppertal. Date: 25.11.2015.*

<table>
<tr><td colspan="5">Group interview session held in Küllenhahn Primary School

Date: 25.11.2015</td></tr>
<tr><td>Participant</td><td>Gender, age</td><td>Occupation</td><td>Number of children or grandchildren, age and gender</td><td>Participant's relationship with children aged 4-8 (end users of the playground)</td></tr>
<tr><td>Participant No. 7</td><td>Female, 37 years old</td><td>Teacher in vocational school.</td><td>Two daughters; 2 and 7 years old.</td><td><u>Mother</u>: two daughters (4 and 7 years old).</td></tr>
<tr><td>Participant No. 8</td><td>Female, 44 years old</td><td>Head of department.</td><td>One daughter; 7 years old.</td><td><u>Mother</u>: a 7 year old daughter.</td></tr>
<tr><td>Participant No. 9</td><td>Female, 59 years old</td><td>Educator in the primary school.</td><td>One daughter and one son; 25 and 27 years old.</td><td><u>Children's educator</u> in primary school.</td></tr>
<tr><td>Participant No. 10</td><td>Female, 59 years old</td><td>Assistant principal/Vice-principal in the primary school (In British English: Deputy Head Teacher).</td><td>Two daughters; 32 and 35 years. One grandson; 5 years old.</td><td>- <u>Assistant principal</u> in primary school.

- <u>Grandmother</u>: a 6 year-old grandson and a 2-month granddaughter.</td></tr>
<tr><td>Participant No. 11</td><td>Female, 53 years old</td><td>Pedagogical specialist in primary school</td><td>One daughter and one son; 25 and 27 years old.</td><td><u>Pedagogical specialist</u> in primary school.</td></tr>
</table>

Source: *Author.*

Table 12-3: *List of participants (No. 12- No. 17) who filled out the questionnaires (who answered the 13 questions in the questionnaire).*

Filling out the Questionnaires				
Participant	**Gender, age**	**Occupation**	**Number of children or grandchildren, age and gender**	**Participant's relationship with children aged 4-8 (end users of the playground)**
Participant No. 12 Date: 14.12.2015	Male, 30 years old	Education officer	One son; 3 years old.	- Member of ABA Association for Open Work with Children and Young People[275]. - Father: 3 year old son.
Participant No. 13 Date: 14.12.2015	Female, 48 years old	- Play Pedagogue (Spielpädagogin) - Educator	Two sons; 18 and 17 old.	- Member of ABA - Play Pedagogue and Educator. - Playground sponsor (called *Spielplatzpatin*) for 14 years in Essen.
Participant No. 14 Date: 08.01.2016	Female, 26 years old	Educator	-	Children's educator in the kindergarten.
Participant No. 15 Date: 16.12.2015	Female, 30 years old	Educator	-	Children's educator in the kindergarten.

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[275] In German: ABA Verein für offene Arbeit mit Kindern und Jugendlichen e.V. (Association for Open Work with Children and Young People)

Participant No. 16 Date: 17.04.2016	Female, 40 years old	Biologist (researcher)	One son and one daughter; 7 and 4 years old.	Mother: a son (7 years) and a daughter (4 years).
Participant No. 17 Date: 18.04.2016	Female, 42 years old	Bank Clerk	One son; 7 years old.	Mother: a 7 year-old son.

Source: *Author.*

12.2.2. Structure of questionnaire

The main structure of the list of questions in Appendix 5, is based on the path of expression in Figure 10-10 (see Chapter 10, Section 10.2.2.1.1.3).

In general, the list of questions has been structured according to the time index, shifting from present to past and present to future. Regarding content and subjects, the questions move from *scope* area (fields not directly relevant to the playground realm) to *focus* area (fields directly relevant to playground realm).

As can be seen in Appendix 5, the *first* and *second* questions of the list explore adults' *current* experiences, activities, and interactions. This wide scope includes different fields, an understanding of which may provide important links and perspectives around the focus area. Then, the next question (Question No. 3) directs adults to recall their memories from the *past* and explores their hobbies, activities, and unfulfilled wishes in the *past*. After that, the content of the questions comes nearer to the focus area and the time course gets closer to the present and future. These questions seek to understand children's activities and experiences in different contexts, explore interesting playgrounds that they have used, and find the qualities of an ideal playground in their opinions (Figures 12-2 & 12-3).
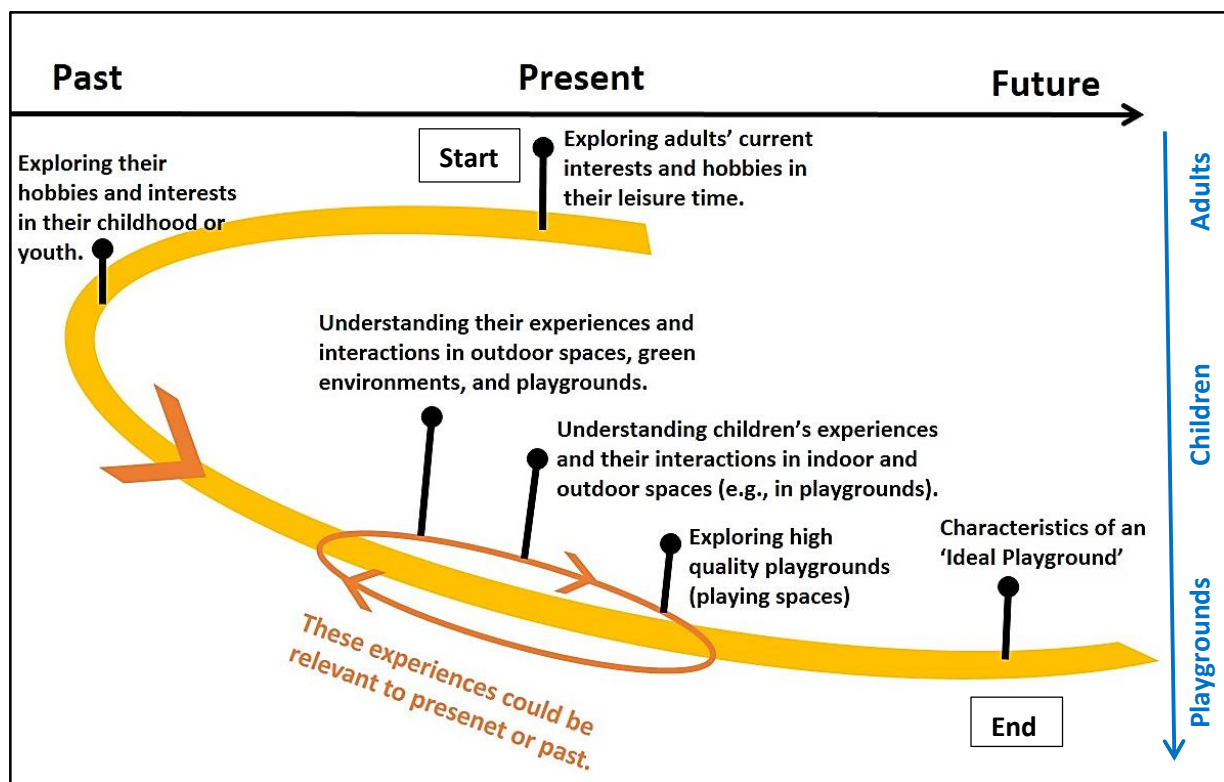
Figure 12-2: *The main structure of the list of questions (Appendix 5) considering their **time course** (present---> past---> present---> future) and **content** (understanding adults, children, and playgrounds; moving from 'Scope' to 'Focus' area).*

Source: *Author.*
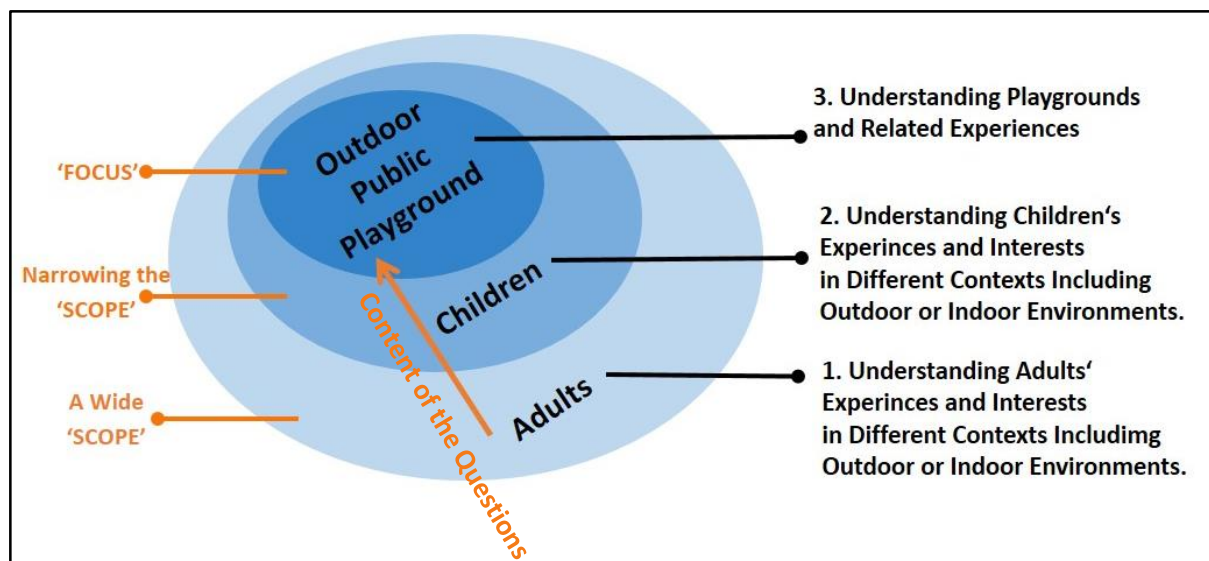
Figure 12-3: *The general structure of the list of questions (Appendix 5) considering their **content.** The content of questions starts from the Scope area (understanding adults in different contexts); then, step by step the 'Scope' gets narrower (understanding children in different contexts) and comes nearer to the Focus. Finally, the contents of the last questions are relevant to the Focus area of the playground realm.*

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Source: *Author.*

12.2.3. Data collected from the group interview sessions and questionnaires

In this section, participants' answers to each question are summarized and presented. These answers can also be found in Appendix 6 (on the attached CD).

Question 1 explores participants' hobbies. A wide range of entertainments was described as hobbies and enjoyable experiences in different contexts, either outdoors or indoors (see Appendix 6). Hobbies include: cooking and baking, getting together with friends or relatives, inviting friends/relatives over, knitting, sewing, reading, painting, photography, gardening, going to the café, walking (with or without dog), travelling, cycling, swimming, hiking, spending time outdoors, geocaching[276], sailing, listening to the music, singing, playing flute, going to the theater, visiting a museum, going to the cinema, playing cards, playing with children or friends, going to the playground with their children or grandchildren, shopping, going to the fitness club, going to the disco, and dancing.

Through Question No. 2, participants' regular or leisure companions were identified. Most of participants mentioned that they spend their free time mainly with their families (including their partner/husband/wife, children, parents, etc.), and friends. Some participants also had good relationship with neighbors and enjoyed spending time with them and their children. The educators who worked in the primary school or kindergarten spent much time dealing with the children. Those who had dogs said that they spend part of their free time with their dogs.

Through Question No. 3, participants' hobbies in their childhood and youth were ascertained. This question was not asked in the first group interview session; it was added later and exists in the final version of the list of questions.

Some childhood hobbies are:

- playing with dolls (e.g. Barbie dolls or teddy bears)
- designing clothes and crocheting/knitting/sewing clothes for dolls
- playing with toy blocks (e.g. LEGO blocks) and making different things like houses

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[276] https://en.wikipedia.org/wiki/Geocaching, accessed on: 06.05.2021; https://www.geocaching.com/play, accessed: 06.05.2021.

- playing outside, playing in the forest, playing in the garden

- building a small tree house, climbing the tree to access the tree house and playing there

- riding a bicycle, in-line skating, playing hide-and-seek, swimming, playing jump rope (i.e. skipping)

- playing with coins outdoors

- getting involved in free play, and playing in the woods

- playing in an adventure playground and doing various activities there such as building their own booths or stalls, making campfires, and cooking together (see answers to Question 3).

Popular youth hobbies include:

- being active in a youth program

- getting together with other young people in communities

- collaboration in the youth center

- camping, and going on excursions.

The most popular experiences of childhood were:

- Spending time and playing outdoors – especially in the surrounding areas – such as playing in the garden, in the forest, on the street, or in the playground usually with other children.

- Interacting with natural spaces and natural elements such as playing in the woods and garden. There, they got involved in various activities with other children such as building a tree house and climbing a tree.

- Getting involved in physical games or sports such as cycling, playing jump rope (i.e. skipping), (in German: *Gummitwist*), swimming, and playing hide-and-seek.

- Getting involved in manipulative or constructive play, imaginative , and creative play such as designing and sewing clothes for dolls, teaching a teddy bear, building houses with LEGO blocks, building house on trees, or some activities in the adventure playgrounds like building their own booths or stalls and making campfires.

Through Question No. 4, unfulfilled wishes or favorite activities that respondents were unable to experience or have not had enough of, were ascertained (e.g. not attending harp class because of money or time).

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Some of these unfulfilled wishes and favorite activities include: riding in a hot-air balloon, floating on the air in a wind tunnel, diving into the sea and scuba diving, driving a motorcycle at high speed, rafting along the fast-flowing river, sailing, jumping out of the plane and skydiving, learning to play a (new) musical instrument (e.g. playing harp or flute), having one's own harp, having more time for sketching and painting, having more time to spend with the family and friends, having more free time to spend in public/outdoor environments (e.g. in the café), having more free time or enough money for more travelling, more skiing, and trying yoga (see answers to Question 4, in Appendix 6).

Question 5 explored favorite outdoor spaces and relevant activities. Respondents visit outdoor spaces like Hardt Park, Botanical Gardens, vineyards, green spaces, Nordbahntrasse and Sambatrasse (converted former suburban railroad tracks), and private or public gardens; they also travel to neighboring cities (like Münster), neighboring states, or neighboring countries (e.g. the Netherlands) especially on weekends. Some participants go to places like forests, playgrounds, parks, zoos, or lakes. Their activities include: walking, jogging, cycling, in-line skating, geocaching, exploring the countryside, and playing with their children or other companions (e.g., partner, husband, wife, or friends) (see Appendix 6 on attached CD).

Question 6 gathered information about adults' relationship with playgrounds. For example it was found whether they go to the playground or not, how often they go, their reasons for going, who their companions are and what they do there, when they go, and how long they stay at the playground (see Appendix 6). Participants who have young children or grandchildren, often went to playgrounds with them. However, some participants went to playground in the course of their jobs, such as kindergarten teachers, nannies, or playground sponsors/mentors[277].

In the playground adults sit, rest, relax, read a book, make a picnic, talk with other adults, and watch their children playing at a distance. But sometimes they get more involved; for example, they themselves play with the children (e.g. with a ball game or sand) or accompany/support them in the playground (e.g. when small children are climbing or sliding). Some parents allow

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[277] In German: 'Spielplatzpaten' or 'Spielplatzpatinnen'.

their children to go alone to nearby playgrounds or play areas to play with each other. These playgrounds should be safe and have no dangerous or heavy traffic in their vicinity.

In the kindergarten, the educators take the children daily (one or two times a day[278]) to the nearby playground. Each time, they usually stay around an hour and a half. Sometimes, they take the children to natural spaces (e.g. forests or natural parks) and interesting playgrounds/parks by bus. There, children can get involved in various activities such as playing, walking, and exploring nature.

When there is a suitable (natural) playing area or playground in the neighborhood of their home, children spend much time playing, chatting and exploring with their friends and neighbors. Usually small children go with their parents or older siblings. But as stated, the older children (7 or 8-year-olds) are usually allowed to go independently when the area is safe and there is no traffic in its vicinity.

Usually when there is a playground near the house, some parents take their children there. Some go two or three times a week, and some do not maintain any regularity. On weekdays, people usually go to the playground in the afternoon. When they go to the playground on weekends, they often stay longer in comparison with weekdays. In general, most users spend an hour and a half to three hours in the playground.

Most parents are interested in and take their children to playgrounds/parks which have a natural environment and/or a wide range of quality play equipment/facilities, and offer good seating areas for adults. Some examples of these playing spaces in and around Wuppertal are: Nützenberg/Kaiserhöhe playing spaces, Loher Brücke playground, Hardt Park and Botanical Gardens, Ketteler Hof in Haltern, and Herminghaus Park in Velbert[279].

Question 7 ascertained the importance for adults of spending free time *outdoors*. For almost all participants, spending time in the outdoor environments was really important. However, a few did not have enough free time for that (see Appendix 6).

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[278] Once in the morning and once in the afternoon.
[279] This part is relevant to Questions No. 12 & No. 13.

The participants in the first group interview sessions – educators in Rabbatz Day Care Center – explained some of the abilities and skills that children can learn in different places in an outdoor environment. These abilities and skills include: improving problem-solving skills, developing interaction with each other, learning social life, doing and learning various physical play routines like balancing on wood, playing with each other, learning about nature and animals, learning about traffic signs and rules (e.g. how to cross the street safely and independently), and developing imagination and creativity.

Question 8 explored and explained some of the places participants had already visited and enjoyed. Also, their companions and the positive as well as negative points of the place were discussed (see Appendix 6). These places or areas include: Hardt Park and Botanical Gardens in Wuppertal, Nordbahntrasse in Wuppertal, the area along the Rhine River in Cologne (e.g. Rhein Park), Xanten (an old Roman city on the Lower Rhine), Hohenstein in Witten[280], Halde in Recklinghausen, at the beach in Spain or at the Baltic Sea (in Germany), Ketteler Hof (an amusement park in Haltern am See), the playground in Schönebecker Busch Park in Wuppertal, the gardens in Radevormwald[281] (a small neighboring town to Wuppertal). Respondents went to these places with their families (children, husband or relatives), partners, and/or friends.

Their activities in these places include: making/having a picnic (e.g. in a meadow), grilling, shopping, watching people in public spaces (e.g. in the climbing park), sitting in a café or bistro, eating lunch or ice cream, making a break and resting, going to a flea market, chatting with friends, getting together with friends, exploring and having fun in nature, riding a bicycle, water skiing, sunbathing, swimming, walking or jogging (e.g. in the forest or along the Rhine River), in-line skating, exercising, mowing the lawn, watching and accompanying children, playing in the playground and feeding animals in the petting zoo. Some of these activities are for adults, some are for children, and some are for adults with children.

Question 9 was about the children whom participants (adults) dealt with or had relationship with. These included: their own children, grandchildren, children whom they are responsible for or take

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[280] https://www.ruhr-guide.de/freizeit/natur-und-erholung/hohenstein-in-witten/8607,0,0.html, accessed: 10.11.2020.
[281] https://en.wikipedia.org/wiki/Radevormwald, accessed: 10.11.2020.

care of because of their job (e.g. the children in the kindergarten, primary school, or the children that they take care of as nannies and babysitter) (Table 12-1, Table 12-2, & Table 12-3). Among the children that the adults dealt with, the activities of those children *aged under 8* (i.e. the ones who could be the potential users of the future playground) were especially considered[282]. In Question No. 9, the favorite activities of these children, activities in summer and winter and their usual requests or wishes were ascertained.

These activities included physical activities/physical plays, ball games, climbing, running, playing hide-and-seek, swimming, riding a bicycle, riding a scooter, playing (indoors or outdoors), playing in an outdoor environment (e.g. in the outdoor playground, park and natural environment), being in nature, playing with toys and dolls, role play (i.e. pretend play), doing handicrafts, painting or drawing, dancing with music, playing Stop Dance (in German: Stopptanz), reading story books, reading aloud, social games, playing soccer (e.g. on the soccer field), visiting museums, going to the theater, and going to the zoo.

In comparison with summer, in winter children spend less time outdoors. Most of the activities mentioned above can be considered as children's hobbies in winter and/or summer. Some outdoor activities that children get involved in especially in winter include: sledding on a slope or hill and building a snowman. They also participate in indoor physical activities (e.g. in a gym) like the gymnastics courses held in the Bayer Sports Club in Wuppertal and playing soccer (or other sports or physical games) in the gym. Bayer Sports Club (SV Bayer Sporthalle[283]) is a popular facility in Wuppertal offering various sports courses and physical games (e.g. playing soccer) in different indoor and outdoor environments.

In summer, children enjoy activities such as playing with water and mud, playing with sand, and swimming especially in the outdoor swimming pool. They also enjoy many other activities such as cycling, playing in the playgrounds, playing in nature, going outside, playing on the soccer field, and going to the zoo.

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[282] In the responses, the children of some participants were teenagers or adults who could not be the users of the future playground. Thus, their answers did not considered.
[283] https://www.sv-bayer.de/, accessed: 7.5.2021.

Among children's wishes or requests from adults are: baking or cooking, going out, meeting friends, playing with other children, going to the Ketteler Hof, playing with adults, getting help with handicrafts, asking for closeness or distance in their relationship with parents[284], asking for help with getting dressed and hygiene, moving, trying out and discovering new things with other children, going to the Nordbahntrasse, going to a climbing park, and having their own farm.

Question 10 asked where children enjoy spending time. Some of these areas and places are: outdoor environments, outdoor playgrounds or parks, natural spaces (e.g. Nordbahntrasse or Hardt Park in Wuppertal), playing areas around their home, their own rooms or other spaces at home (e.g. they enjoy playing at home alone or with their siblings), different functional rooms or spaces in the kindergarten[285], yards, schoolyards, gardens, zoo, public swimming pools, the places they can meet and play with their relatives (e.g. grandparents, uncles, aunts, and cousins), any ground or floor they can play on/in (e.g. where they play soccer or board games), and the places they can play in peace and quiet (e.g. in the relaxation room in the kindergarten or in their room at home).

Question 11 explored children's enjoyable activities in indoor/enclosed spaces such as: playing with toys (e.g. playing with Barbie dolls, wooden blocks, LEGO bricks, toy cars, Schleich animal figures[286], Playmobil[287]), watching TV, playing on a computer, painting, doing handicrafts and constructive play, solving puzzles, reading books, reading aloud, looking at books, listening to stories read by adults , listening to the radio, making music (in the kindergarten), role-playing games, doing physical play, sports and exercises in the gym. As stated, in winter children spend more time indoors and get more involved in indoor activities.

Questions 12 and 13 addressed examples of attractive playgrounds for participants and their children, and the characteristics of an ideal playground in their opinion (see Appendix 6). Some examples of attractive playgrounds/playing spaces for adults and their children in and around Wuppertal are as follows:

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[284] Sometimes a child likes to be emotionally close to his or her parent and sometimes feels distant.
[285] They enjoy playing with other children in the kindergarten.
[286] https://www.schleich-s.com/en/GB/, accessed: 07.05.2021.
[287] https://en.wikipedia.org/wiki/Playmobil, accessed: 30.10.2020.

- Nützenberg/Kaiserhöhe Park, Schönebecker Busch Park, Loher Brücke playground, Hardt Park, Klever Platz, Rhön Street (Küllenhan), open area of SV Bayer Sports Club, and Wuppertal Zoo playground. Pictures of some of these playing spaces were presented in Chapter 6.
- Ketteler Hof Amusement Park[288] in Haltern am See
- Herminghaus Park[289] in Velbert
- adventure playgrounds like Eller Adventure Playground[290] in Düsseldorf
- Youth Farm in Bonn[291]
- water playgrounds for summer like Herminghaus Park
- playground in Volkspark Batenbrock, in Bottrop
- Hohenstein Playground (Spielplatz Hohestein) in Witten.

In general, favorite playgrounds/playing spaces can be categorized as follows:

- playing spaces which offer the opportunity to interact with nature
- playing spaces which offer the opportunity to interact with animals (e.g. in the petting zoo)
- water-playground for playing and interacting with water in the summer
- adventure playground
- playgrounds that have a variety of play spaces and equipment
- playgrounds that are visually and functionally attractive.

Some features of an ideal quality playground/playing space in adults' opinions are:

- offering a wide range of play equipment: wooden play equipment, nest swings or normal swings, settings for climbing, slides, balancing facilities, giant trampoline, tree house, etc.
- offering a sand area for digging and building (e.g. with toy cranes or large excavator)
- offering opportunities for role play
- being visually attractive (e.g. colorful equipment and applying natural textures and forms in the design seem attractive to some adults)
- having suitable seating area for adults

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[288] https://www.kettelerhof.de/start/; accessed: 30.10.2020.
[289] http://www.herminghauspark-velbert.de/spielplatz-im-herminghauspark/; accessed: 30.10.2020.
[290] In German: Abenteuerspielplatz Eller e.V.; http://www.asp-eller.de/; accessed: 30.10.2020.
[291] In German: Jungendfarm Bonn e.V.; https://www.jugendfarm-bonn.de/; accessed: 30.10.2020.

- providing shade/shelter for sunny or rainy weather

- offering play options for different ages

- if possible, having water-based play equipment/options for the summer

- having no car traffic in the vicinity

- having different levels, including hills, valleys, and open spaces

- being spacious enough to romp around, move, run, and play physical games

- having an access to a wilderness and natural area for interacting with nature (e.g. walking through bushes, hiding, and climbing trees) and relaxing (e.g. making a picnic)

- having access to or providing natural playing spaces which let children/adults interact and play with the natural elements, explore nature, and make a picnic.

12.3. Exploring Design Parameters and Qualities for Developing a Future Playground

From the answers to the Questions 1 – 13, experiences relevant to urban or playground design and mentioned by several participants were considered as design parameters. Among these characteristics and features are:

1. **Opportunities in the playground or site[292] that support adults' hobbies and interests**
   Hobbies relevant to playground design include: hiking, jogging, cycling, in-line skating, exploring and enjoying nature, photography, outdoor socialization, going to a café, making a picnic, spending time in the playing space with children, and walking their dogs. Adults' interests or hobbies in childhood and youth, and their unfulfilled wishes were surveyed in Questions 3 and 4 or found randomly during the interview sessions. However, since adults are not the main users of the playground, desires not relevant to children, playground design, or urban design were not used as design parameters for the future playground.
   In general, adults' hobbies and interests can be categorized as follows:
   - **Interacting with nature and natural elements** (e.g. spending time in the woods, going to gardens or parks, geocaching, gardening, and climbing trees in their childhood).

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[292] In this study the location of the future playground is the empty site next to the Parkour Park.

- **Doing physical activities outdoors especially in a natural environment** (e.g. hiking, cycling, and in-line skating).

- **Adventurous and exciting experiences** (e.g. riding in a hot-air balloon, parachuting and skydiving, floating on the air in a wind tunnel, and scuba diving).

- **Water-based experiences** (e.g. sailing, rafting, walking by a lake, and scuba diving).

- **Socialization** (e.g. going out with friends, going to a café with them, being a member of a community, talking to other moms on the playground).

- **Family-oriented experiences** (e.g. going to the zoo, forest, park and playgrounds with their families, children and grandchildren and doing various activities).

- **Relaxing in peace and quiet** (e.g. reading, drinking coffee in peace and quiet, doing yoga, making a picnic and resting in a natural environment).

Hence, the selection of the site and design of the future playground should be achieved in a way that meets adults' *relevant* demands and interests. But it is important to keep in mind that since the end users of the playground are children aged 4-8, their wishes, experiences and values will supply the main developmental parameters. However, if possible, the playground space especially its seating area and surroundings should also offer facilities that support adults' interests as indicated above.

2. **Opportunities for different types of users (multifunctionality)**

The answers to Question 2 showed that many participants (adults) go outside and spend their time with their families, children, partners, friends, relatives, etc. Thus, the area of the future playground should be welcoming and multifunctional to attract different types of users and stakeholders.

3. **Support for developing social interactions in the playground or its site**

The future playground as a public environment should support social interactions between and among children and adults (e.g. by offering a suitable seating area).

4. **Experiences which reflect the natural environment**

The answers to the questions in the questionnaire or group interview session (see Appendix 5), showed that most adults as well as children enjoy spending time outdoors especially in *natural* environments (e.g. gardens, forests, natural parks, and green spaces) and getting

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involved in the experiences that a natural environment provides (e.g. sailing, rafting, climbing trees, playing in the tree house, gardening, scuba diving).

If possible, it is a good option when the playground is combined or surrounded with the natural spaces and elements and offers experiences relevant to a natural environment.

When it is not possible to combine a playground with natural spaces, e.g. when designing for an empty space, the design should be done in a way that offers some experiences *similar* to those available in nature. Thus, the design of the future playground should reinforce the (imaginary) feeling of being in nature and inspire and provide relevant experiences[293].

5. **Opportunities for different types of play and learning different skills**

   From participants' responses, it was found that the future playground area should be able to offer different types of play and activities (see literature review and Table 4-2 in Chapter 4; Section 5.5.9. in Chapter 5). Some types of play mentioned by the participants are:

   ● **Physical play and sports**

     If possible, the playground or its surrounding area should offer suitable opportunities and spaces for physical play such as climbing, running, jumping, cycling, in-line skating, playing hide-and-seek, ball games, and playing soccer.

   ● **Manipulative or constructive play**

     A playground area should offer options for manipulative or constructive play such as digging and building in the sand area, building a tree house, building booths or stalls and making campfires in adventure playgrounds, building houses with wooden or LEGO blocks, solving puzzles, painting, handicrafts, etc.

   ● **Dramatic or socio-dramatic play (also called pretend play)**

     A playground should offer options for getting involved in dramatic play. Some dramatic games mentioned by adults include playing with toys inside the tree house, being in a wooden ship or Indian tent, and playing with dolls and teddy bears.

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[293] .g. via play equipment/settings that support imaginative involvement in dramatic play analogous to children's experiences in a natural environment; this can be derived from children's drawings/stories.

- **Social play**

  A playground or playing space should be able to encourage children to interact with each other and get involved in social play (e.g. socio-dramatic games, hide-and-seek). A playground should offer equipment which supports children's social play and facilitates social interactions among users, both children and adults.

- **Playing in peace and quiet**

  A playground should also offer a suitable play area for playing in peace and quiet especially for small children and if possible for handicapped children. The space for this type of play is usually near the seating area where adults sit, rest, and observe their children.

According to the adult respondents to interview sessions and/or questionnaire, some examples of the skills that children can learn to use in different outdoor spaces are: problem-solving, social life and interactions, interaction with the animals and nature, developing imagination and creativity, and learning traffic signs and rules.

6. **Opportunities for children of different ages**

   According to some participants, the play space should offer equipment and settings for children of different ages. Since in this study the end users of the future playground are children aged from 4 to 8, the playground should provide play equipment and options suitable for this age group. However, as stated, smaller children (mainly siblings of end users) can also be considered as stakeholders.

7. **Different play zones and equipment for different types of play**

   The literature review in previous chapters (e.g. Chapter 5.5.9 and 5.5.11) indicates that the playground should provide different play areas and a variety of equipment and facilities for different types of play. For example:

   - wooden play equipment, different types of swings (e.g. nest swings), settings for climbing, slides, balancing facilities, giant trampoline, tree house, etc.

   - different levels, including hills, valleys, and open spaces.

   - space to romp around, move, run, and play physical games.

8. **Suitable seating area**

Many participants stated that a playground should offer a good seating area for adults while their children are playing in the playground. This will usually be close to the quiet play zone appropriate for small children or children with disabilities, where their parents can be close to them, play with them and observe them. The quality seating area should have a roof, canopy, or shelter which makes it suitable in rainy or sunny weather.

9. **Safe access to the playground**

The future playground and its surrounding area should be safe for the users especially children (see Chapter 5, Table 5-3). Some participants stated that they prefer playgrounds where there is no traffic close by. This contributes to safe access and a safe play environment for children.

10. **A pleasant atmosphere to stay and use the playground for several hours**

The playground space should be designed so that adults and children can enjoy their time there which may take an hour and a half to three hours.

11. **Possibilities to interact or play with water in summer**

Some enjoyable experiences mentioned by adults included water-based entertainment and activities such as sailing, rafting, scuba diving, swimming, and being at the sea or by a lake. So, if possible, the playground should support play or interaction with water in the summer. As described in parameter No.6, in Chapter 11.7, when it is not possible to install water-based equipment and offer *real* interaction with water, the design could provide elements and equipment that evoke children's imagination and support *imaginary* play and interaction with water (dramatic play).

12. **Visual attractiveness**

For most adults, it is important that the playground offers a visually attractive environment. The visual attractiveness of the playground depends on various factors such as the shape, and color of the spaces and equipment, texture of the materials used, and arrangement of the equipment and settings (i.e. overall design and appearance, see Section Chapter 5.13). For example, some adults considered play equipment in different colors, and using natural elements/textures/forms visually attractive.

12.4. Summary

The chapter presented the results of the interviews and questionnaire – submitted to test groups of adults in Wuppertal — in order to establish parameters for the design of a future playground on the selected site. It discussed the method applied to derive these parameters and explored their appropriateness. The design parameters are qualities and features determined in the exploration phase. They include (see Section 12.3.):

1. offering opportunities in the playground or its site[294] that support adults' hobbies and interests

2. offering opportunities for different types of users (being multifunctional)

3. supporting and developing social interactions in the playground or its site

4. offering experiences which reflect the natural environment

5. offering opportunities for different types of play and facilitating children to learn different skills

6. offering different play zones and a wide variety of play equipment for different types of play

7. offering a suitable seating area for sitting, relaxing, sheltering and observing children

8. offering a pleasant atmosphere for a stay of several hours

9. offering possibilities to interact or play with water in summer.

These parameters have been adopted from adults' expectations and values as per group interview sessions and questionnaires. However, since the end users of the playground are children aged 4-8, the design parameters obtained from the creative sessions have priority for the design of the future playground.

It may not be possible to apply all design parameters simultaneously and to the same degree. But all the design parameters obtained from this data help to guide the designer for creating a quality child-friendly playground. This will be presented in the next chapter.

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[294] In this study, the potential area selected to develop the future playground is the empty site next to Wuppertal's Parkour Park.

Chapter **13**

PHASE 2– Ideation/Design Phase (Synthesis and Generating Concepts)

13.1. Introduction

This chapter presents designs for a future playground generated on the basis of design parameters[1] discussed in previous chapters. The final design is presented as a child-friendly playground for children aged 4-8 and offered as an exemplary solution for the available empty space next to the Parkour Park on the Nordbahntrasse, in Wuppertal.

13.2. Ideation phase (synthesis and generating concepts)

Based on the collected data and findings of the exploration phase, the present chapter is concerned with the ideation phase. Here, the ideas, concepts and designs for children's play, playground equipment, settings, facilities, zones, and the playground as a whole are created by applying and synthesizing the collected data, and benchmarking.

In the exploration phase, the necessary data and findings were collected mainly by the following methods (see Section 9.3., in Chapter 9):

- literature review relating to urban design, public design, playground design, playground history, play and child development, playground equipment and facilities, and necessary qualities to develop a high-quality playground, UCD approach and co-creation mindset (Chapters 1 to 9).

- studying and understanding the context (Germany, Nordbahntrasse, Wuppertal); benchmarking, observing, and studying various playgrounds and play equipment (see Section 5.5.6. in Chapter 5, Chapter 6, and Chapter 7).

- holding creative sessions in kindergartens and primary schools in Wuppertal and Tehran to understand children aged 4-8 as end users (Chapters 10 & 11).

- preparing a list of questions (group interview or questionnaire – see Appendix 5) to understand adults as stakeholders (see Chapter 12).

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[1] These parameters have been adopted from necessary qualities (explored from literature review), children's enjoyable experiences (explored from creative sessions) and adult's values (explored from group interview sessions and questionnaire).

13.2.1. Site of the future playground and generated concepts/designs

The available potentials, characteristics and shortcomings of the selected site (an empty space next to the Parkour Park on Wuppertal's Nordbahntrasse) show the opportunity and need for developing a new playground for children aged 4-8 (see Section 6.2.7.2 in Chapter 6).

Here, in the ideation phase, considering the explored qualities and parameters, the ideas are generated and presented for the selected site. The available area is around 950 sq. m. The approximate dimensions are presented in Figure 13-1 (including plan and different views of this area).
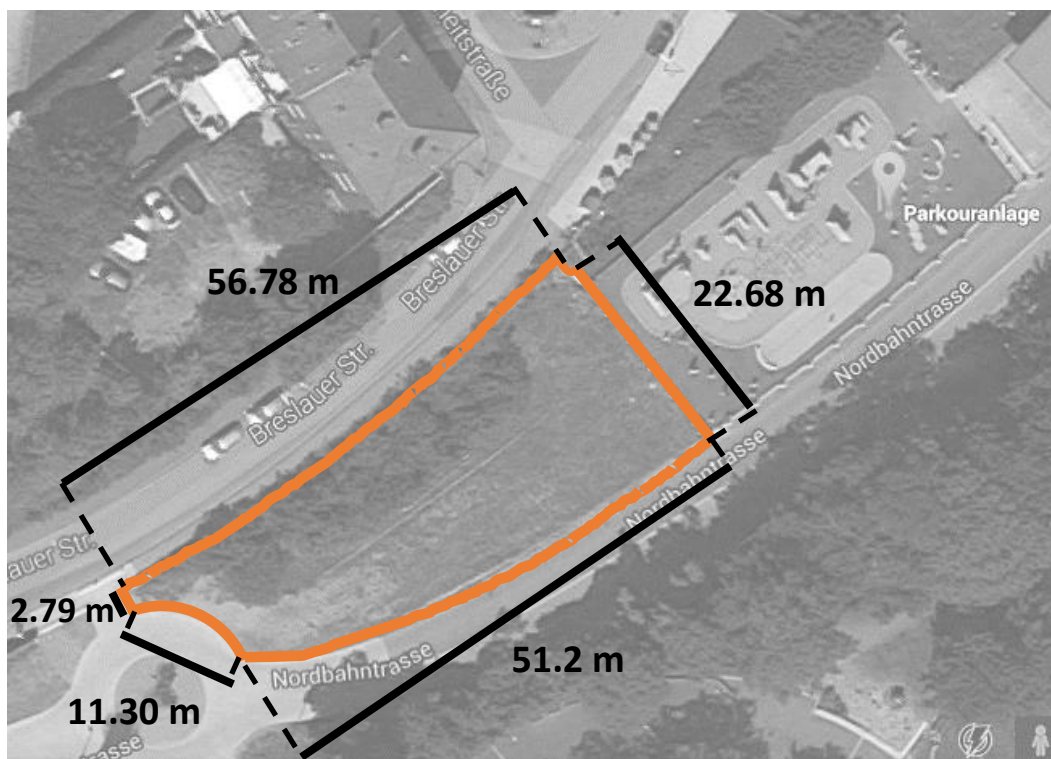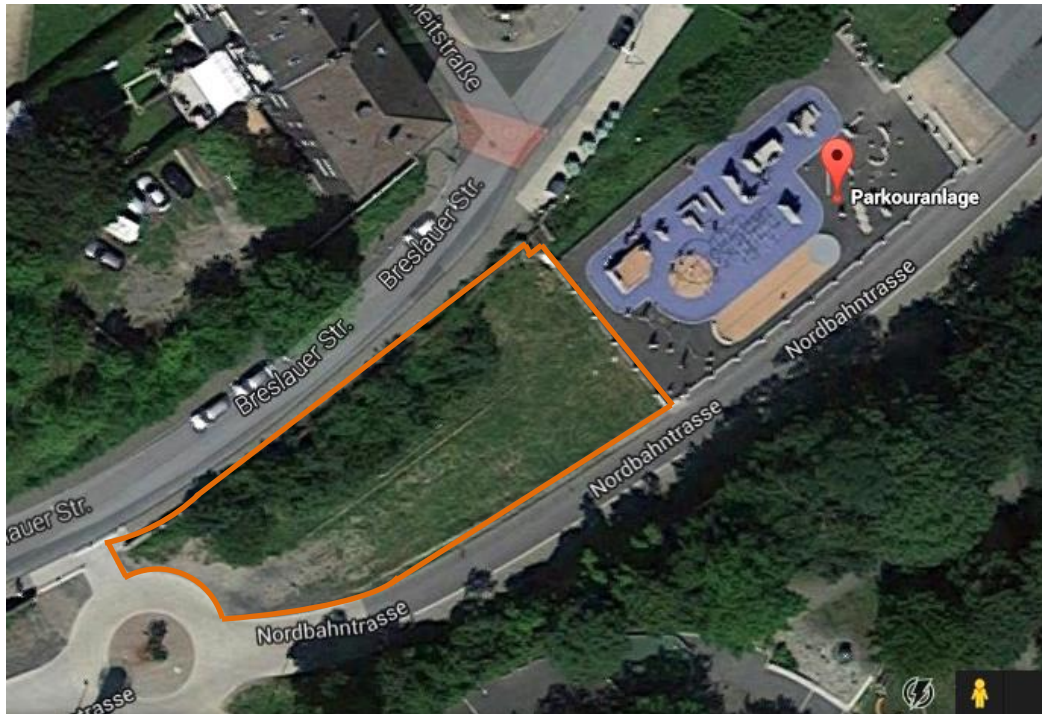
Figure 13-1: *The plan and approximate dimensions of the selected site for the future playground next to the Parkour Park, on the Nordbahntrasse in Oberbarmen, Wuppertal.*

Source: *Google Maps.*
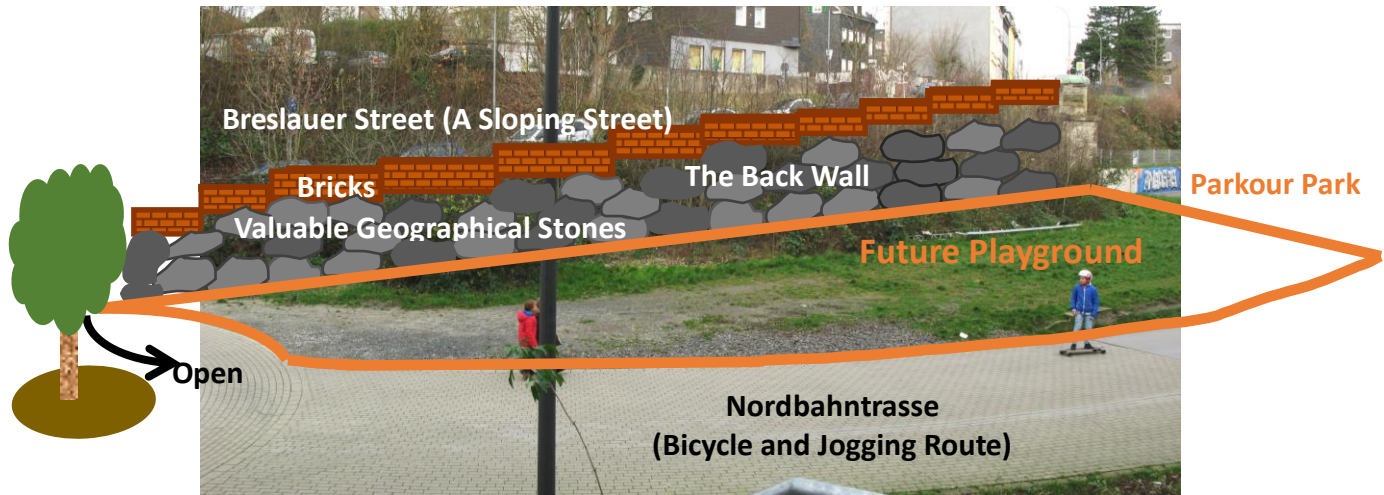
Figure 13-2: *Front view and left view of the selected site for developing the future playground (next to the Parkour Park, on the Nordbahntrasse, in Oberbarmen, in Wuppertal).*

Source: *First Photo: Author. Second photo: (Kalnpour, 2015, p. 48).*

13.2.2. Primary ideas, concepts, and designs for the future playground

The ideas, concepts and designs generated in the ideation phase are as follows:

1. Concepts for **innovative play, services and affordances**: the concept of play and services that the playground offers are based on data collected in the literature review, and in interaction with children and adults (in creative sessions and in group interview sessions) as detailed in previous chapters.

2. **Playground equipment, settings, and facilities** taking account of child-friendly ideas of play, affordances, and user-friendly services.

3. **Primary overall designs:** primary overall designs are presented in the arrangement of playground equipment and settings designed for different zones of the playground. This involves different types of playground equipment and facilities in different play zones to account for varying user age groups, types of play, size and shape of equipment, etc.

4. **Final overall design**: one concept will be chosen from the primary overall designs and developed as the final overall design. This will be evaluated by involving the users and experts in the evaluation phase.

The *primary* ideas, concepts, and designs developed for the present project are shown as sketches and 3D computer models in Appendix 7, on the CD attached to this thesis. The feasibility of their construction was tested against benchmark cases for selected concepts. Appendix 7 also presents some of the drawings and stories on which these concepts are based.

13.2.3. Final design of a child-friendly playground for 4-8 year-olds

The final overall design includes different play zones, playground equipment, play settings, and facilities that will be described and presented in this section. The design parameters informing the final design of the future playground have been presented in previous chapters; however, barrier-free design (as a design parameter) calls for an additional note.

Before presenting the final design, some of the essential parameters that were found mainly from creative sessions and group interview sessions are briefly described (see Section 11.7. in Chapter 11 and Section 12.3. in Chapter 12).

13.2.3.1. Main qualities and design parameters to develop the final design

As stated in previous chapters, some of the main qualities and design parameters that are applied to generate the final design include:

- **Supporting different types of play (i.e. offering play equipment and settings which support different types play)**

  A quality playground should offer various opportunities for different types of play such as Sensorial Play, Creative Play, Physical Play, Manipulative/Constructive Play, and Dramatic or Socio-dramatic Play. Considering the criteria of social interactions, it is necessary to provide opportunities for both 'Social Play' and 'Playing in Peace and Quiet' (see Section 4.5. in Chapter 4 and Sections 5.5.8. and 5.5.9. in Chapter 5).

  For designing a playground equipment/setting which is child-friendly and supports different types of play/activity, children's more favorable experiences and adults' expectations and wants explored in 'Creative Sessions' and 'Group Interview Sessions' (or 'questionnaires') are applied (see Sections 11.4. and 11.7. in Chapter 11; see Sections 12.2.2. and 12.3. in Chapter 12).

- **Meeting children's enjoyable experiences and wishes**

  The design of playground equipment and space should be child-friendly. It means the experiences that the playground equipment and settings offer should be designed based on design parameters that have been adopted from children's favorite experiences, wishes, and values that described in Chapter 11 (see Section 11.7.):

- Creating a design that supports <u>the feelings of being in natural environments</u>.

- Providing play equipment, elements and settings that support <u>the activities and experiences that nature offers to people</u> (i.e. offering experiences similar to the available experiences in natural environment that are enjoyable for children/users).

- Providing play settings that let children enjoy <u>being in high places and having bird's eye view</u> (i.e. wonderful views)

- Providing opportunities which support children's interests for interacting with 'water' by offering <u>real or make-believe experiences which are water-based</u> (i.e. offering real or

imaginary water-based entertainment and experiences either by real water feature or make-believe elements).

- Providing play equipment that supports children's imagination and feeling for getting involved in their favorable 'dramatic play' (i.e. the feeling of <u>being in their favorable places</u> and interacting with the <u>relevant make-believe elements</u>).

- Providing a <u>suitable space for families</u> and supporting <u>social interactions</u> in the playground.

- Offering the designs which evoke <u>positive feelings</u> and <u>develop children's senses</u>[2].

- **Offering various play zones**

  In a playground space different play zones should be defined where different types of play equipment and setting are installed considering different factures such as the age group of the users, the dimensions and shape of the equipment, and the types of the play that it offers (see No. 7, in Section 12.3., Chapter 12).

- **Offering play opportunities for both genders (boys and girls)**

  The future playground should provide play equipment and settings that are suitable for both genders, girls and boys (see Tables 4-6 & 4-7, and Sections 4.8.1. & 4.8.2., in Chapter 4).

- **Considering ages of end users**

  The future playground should provide various play equipment and play spaces in a way that are suitable for children aged 4-8 years old as end users.

- **Supporting child development**

  A quality playground should offer different types of play equipment and opportunities which reinforce children's healthy development including socio-emotional development, physical development, cognitive development, and language development.

- **Being visually attractive**

  As stated in previous chapters, playground equipment and spaces should be visually appealing to users. For this purpose, it is important to use attractive colors, forms, and

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[2] Senses here refer to the abilities to understand, recognize, value or react to something (e.g. sense of humor, sense of responsibility, and sense of being independent).

textures in the design of play equipment. As stated in Chapters 11 and 12, the colorful spaces, bright colors (e.g. red, green, and yellow) and colors/textures that visually reflect the natural elements like trees (e.g. colors of brown and green, and wooden elements) are interesting to the users (see No. 3, in Section 11.7., Chapter 11 and No. 12, in Section 12.3., Chapter 12).

However, the visual elements (e.g., color, shape/form, and texture) should support other factures such as children's behavior/activity/play, child's development, identity/meaning of the space, user's social interaction, and necessary emotional responses (e.g., feeling happy, relaxed, calm, active) (see Section 5.5.13. in Chapter 5).

- **Offering a suitable seating area to users (e.g. children, adults, parents and families) for sitting, resting, relaxing, observing children, and social interaction**

  (See No. 7 & No. 9, in Section 11.7., Chapter11; see No. 8, in Section 12.3., Chapter 12).

- **Meeting adults' enjoyable hobbies and interests**

  If possible, the playground area itself or its surrounding area should support adults' enjoyable experiences (see No. 1, in Section 12.3., Chapter 12). As stated, because of having high potential, the area next to the Parkour Park, was selected as the site for developing the future playground.

- **Providing a safe and easy access to the playground**

  (See No. 9, in Section 12.3., Chapter 12).

- **Having a pleasant atmosphere to stay and use the playground for several hours**

  (See No. 10, in Section 12.3., Chapter 12).

- **Having a Barrier-free (i.e. Accessible) Design[3]**

  Universal design (i.e. inclusive design) and accessible design (i.e. barrier-free design) are *not* interchangeable terms[4]. An inclusive or universal playground is a safe place for children of all abilities to play together. It is developmentally appropriate for children with and

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[3] Taking people with disabilities into account (i.e., considering them) to some extent in design.
[4] https://media.lanecc.edu/users/howardc/PTA103/103UniDesign2/103UniDesign25.html, accessed on: 6.12.2020.

without disabilities (see Section 3.3., in Chapter 3 and Section 5.5.4. in Chapter 5). Barrier-free design addresses the issue of access. Accessibility is *not* a parameter of universal design since it doesn't intend to accommodate everyone. The term barrier-free design was first used in the 1950s to describe the effort of removing physical barriers from the "built environment" for disabled people[5].

Every society has people of different ages with different types of disabilities. For designing an inclusive playground, it is necessary to apply methodology for understanding the abilities, limitations, and interests of children with different disabilities – considering their age, type and percentage of the disability — in the context. It takes much time and also needs in-depth research which must remain a project (further research) for the future. This study does not aim to present an inclusive design.

However, here in this study, the child-friendly playground will be designed in such a way that is accessible (i.e. barrier-free) for handicapped users to enter and spend time in the playground; it is important to keep in mind that the design of most play equipment will focus more on the abilities, development, and interests of children of unimpaired ability. The future playground in this study will have some play equipment (i.e. one or two play settings) that allows able and disabled children to interact and play together.

13.2.3.2. Final overall design with play equipment, settings, and facilities

The final overall design for the future playground was generated and developed by considering the necessary qualities and design parameters more precisely. The question of evaluation, involving both users and experts, will be addressed in the next chapter.

The overall playground design is presented for a specific space – next to the Parkour Plateau, on Wuppertal's Nordbahntrasse – which provides an overriding parameter for the project. However, the designs of playground equipment can apply to any such project (potential location); in different projects, the concepts of child-friendly playground equipment and settings could be presented and arranged on a different scale (i.e. with different standardized sizes), installed in different directions, or arranged together in different groupings.

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[5] https://media.lanecc.edu/users/howardc/PTA103/103UniDesign2/103UniDesign25.html, accessed on: 6.12.2020.

In the previous section, the *primary* overall playground designs/concepts were presented as sketches and 3D computer models (see Appendix 7 on the attached CD). In this section, the *final* overall design and its playground equipment and facilities will be presented (see Appendix 8 on the attached CD).

The final design includes different play zones, playground equipment and settings for different types of play and activities. Each main piece of playground equipment (installed in a special play zone) has a special name. The name of each piece (or zone) was created by the designer (author) considering various factors such as:

- The visual appearance of the playground equipment/settings
- The experiences or activities that this playground equipment or zone offers, reflecting design parameters
- The names of children's stories or drawings in the creative sessions which are relevant to the concept of playground equipment/setting and the types of play, activity, or entertainment that it offers.

The names of main playground equipment/settings in the final design of the future playground (i.e. final complete/whole design) include (Figures 13-3 & 13-4) (see Appendix 8 on the attached CD):

1. **Peace under Sky** (the name of seating area located in the left area of the playground)
2. **Sense of Sea** (the name of sand area/the area of sand table)
3. **Hill of Flying Balls**[6] (the name of green hill-shaped structure which offers colorful balls and trampoline to children for playing).
4. **Tree of Adventure** (the name of a large tree-shaped play setting with different parts located almost in the middle).
5. **Clouds of Joy** (a large play setting including 4 main cloud-shaped spaces which are linked and located in the right area of the playground).

In the following, these playground settings and zones are described in detail.

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[6] First names of this zone were 'Hill of Candy' and 'Palette of Colors'.

The main playground settings/zones including:

1. **Peace under Sky**
2. **Sense of Sea**
3. **Hill of Flying Balls (previous names: Hill of Candy or Palette of Colors)**
4. **Tree of Adventure**
5. **Clouds of Joy**

Figure 13-3: *The plan of future playground and its main play settings/zones.*
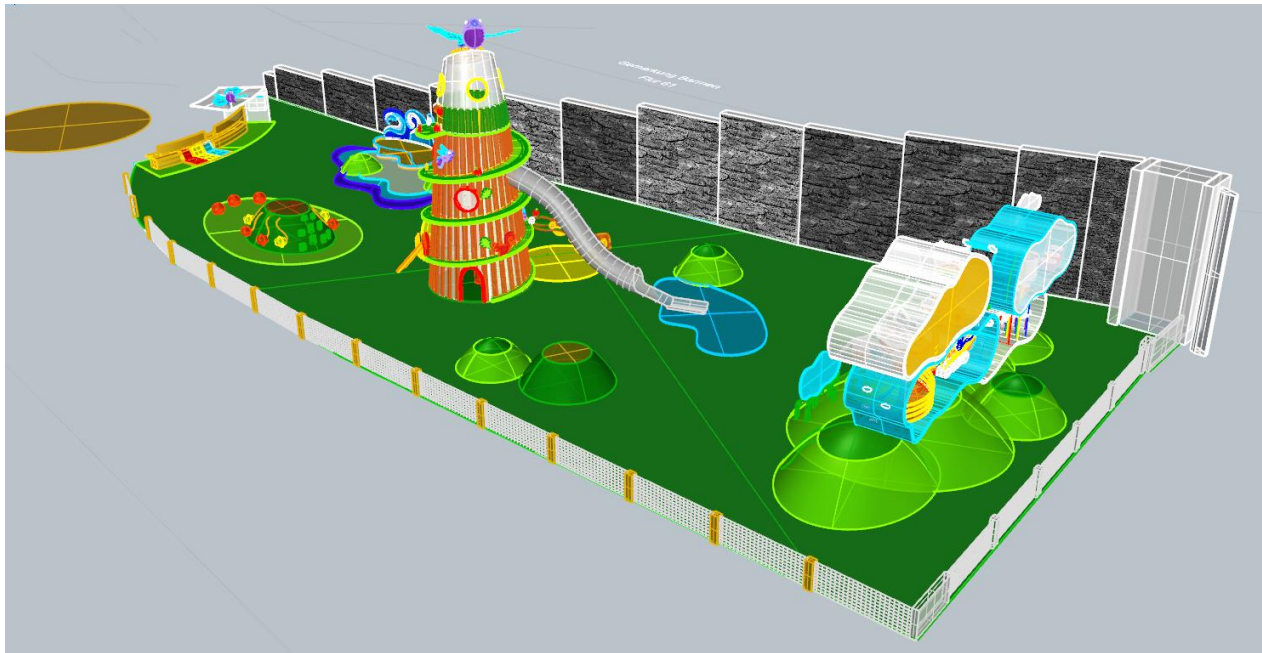
Designer: *Author.*

Figure 13-4: *The perspective views of the future playground and its play settings/zones.*

Designer: *Author.*

1. Playground Setting/Zone No. 1– Seating Area called "Peace under Sky"

Trash Bin
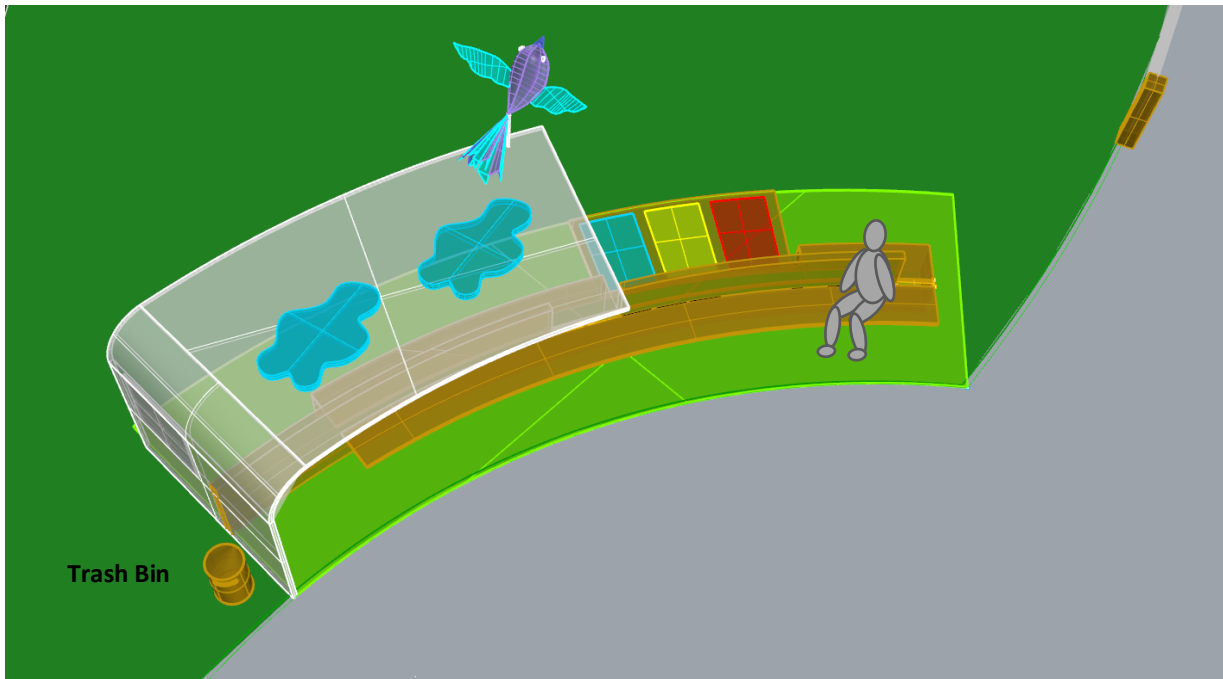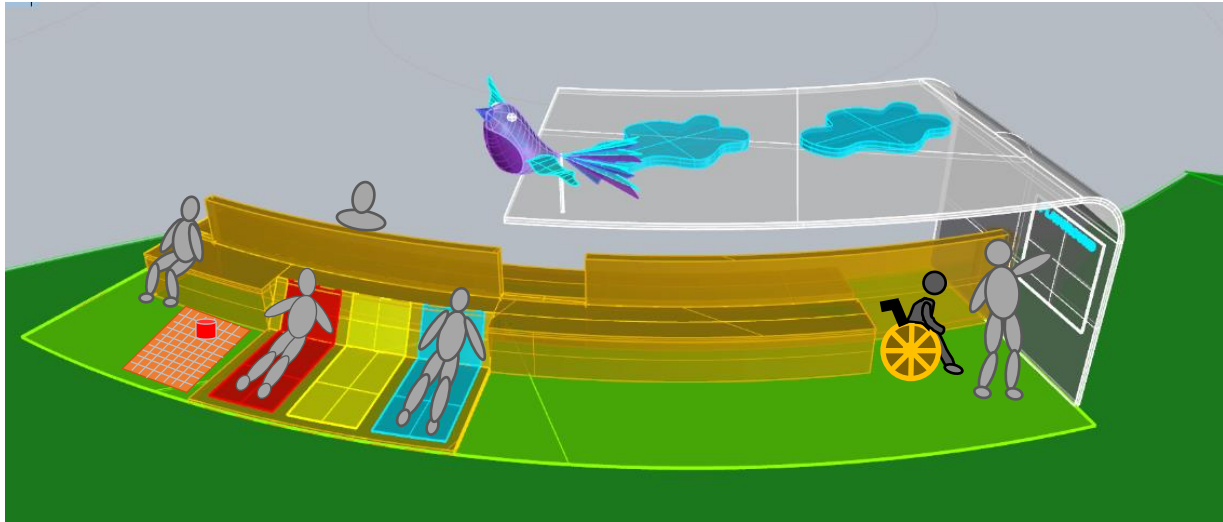
Figure 13-5: *Playground Setting/Zone No. 1 called "Peace under Sky" and its Users (also see the photos of this zone in Appendix 8 on the attached CD).*

Designer: *Author.*

The seating area has been designed for the left part of the playground near the entrance. This area – which is arched – has been designed for users to sit, rest, relax, drink or eat something, or lie down and enjoy the sun. For example, people can sit in this area and enjoy their time; they can read a newspaper or book, talk with each other, and watch their children playing in the playground (see 13-4 & 13-5; also see Appendix 8 on the attached CD). Other photos of this space are presented in Appendix 8 on the attached CD.

A part of this long arched seating area is roofed and users can shelter and stay there in rainy, snowy or sunny weather. It is possible to sit on both sides of this arched seating area (see Figure 13-5; see Appendix 8 on the attached CD).

An information board is installed on the wall. The board presents information about the playground, its equipment, settings, functions and special services. Each setting or item of equipment could be labeled with a QR code,[7] both on the information board and on the equipment itself, providing information about the equipment; e.g. name, design, function, guidelines, and age group of target users (see Figure 13-5; see Appendix 8 on the attached CD).

In this area, alongside the arched benches, there are special places near the wall – on both sides – where wheelchair users can stay easily. Next to this setting, there is a trash bin (see Figure 13-5; see Appendix 8 on the attached CD).

On the roof, two cloud-shaped elements and a sculpture of a bird have been installed which make the design of the area in harmony with other parts of the playground, contributing to a corporate identity/image. The design of the area also offers a suitable space for a picnic (see Figure 13-5; see Appendix 8 on the attached CD).

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[7] https://en.wikipedia.org/wiki/QR_code, accessed: 25.05.2021.

2. Playground Setting/Zone No. 2– "Sense of Sea", a Play Zone for Sensorial, Imaginative, and Constructive Play with Sand
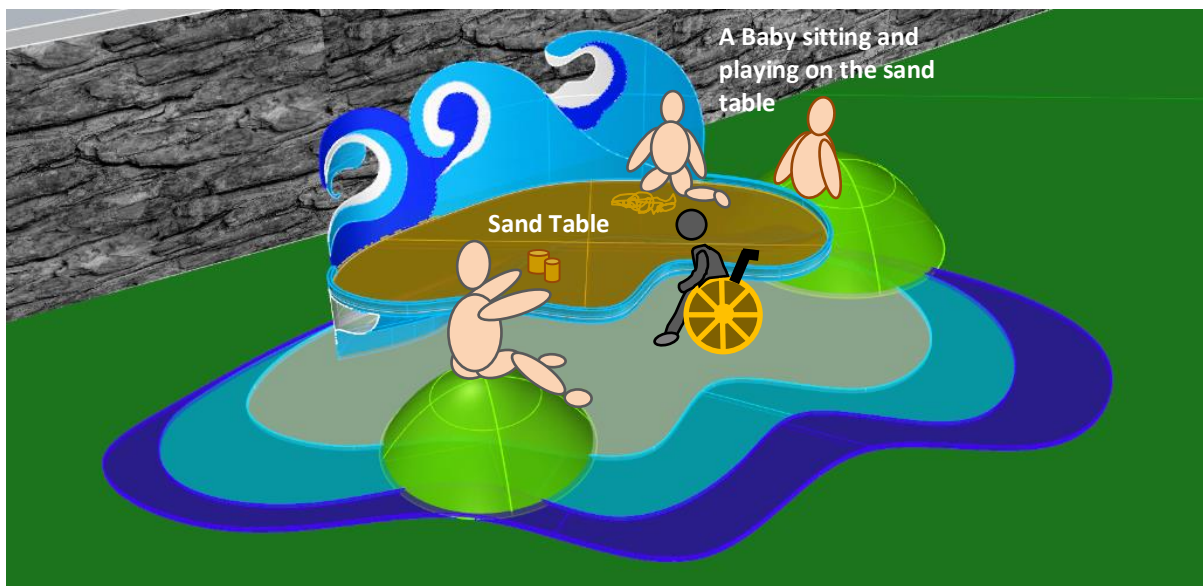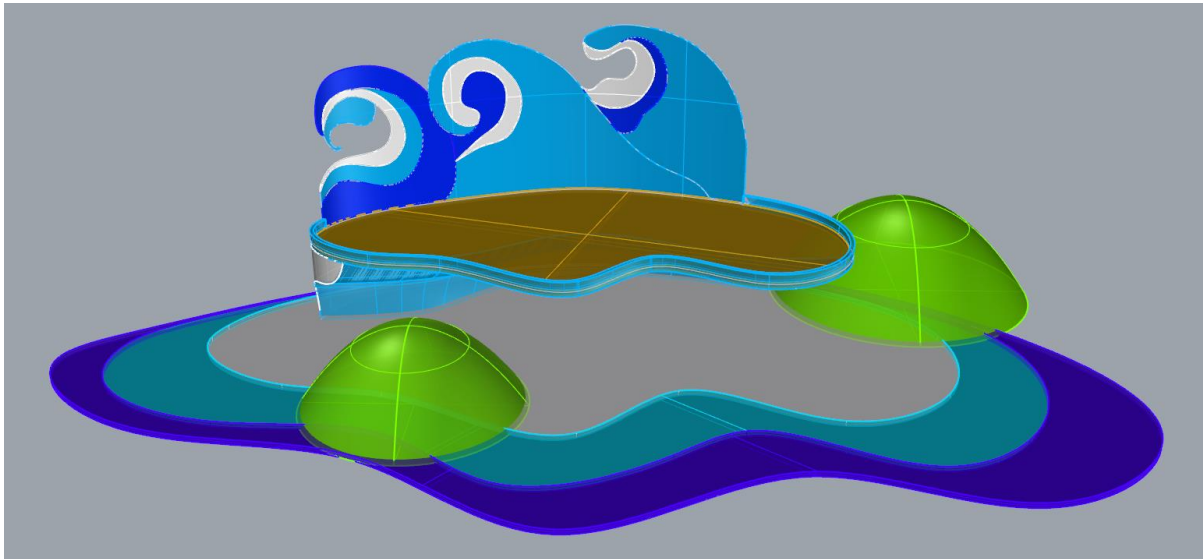
Figure 13-6: *Play Structure/Zone No. 2 called "Sense of Sea" and its Users (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*

Designer: *Author.*

Near the seating area is a play zone called "Sense of Sea." In this zone – on the left of the playground – there is an interesting sand table usable for children with different abilities (e.g. small children and wheelchair users) (see Figures 13-4 & 13-6). Other photos of this space have been presented in Appendix 8 on the attached CD.

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Adults can place their small children (children under the age of 5) on the sand table to play on the sand. In this case, an adult (e.g. one of the parents) must be present in this play area, when the small child is playing on the sand. However, the wave-shaped plate on the back of the sand table provides some safety for children and avoids their falling.

Older children can sit (on the green hills around the table) or stand while playing with sand. The accessible design of this item of equipment supports sensorial games (playing with sand and building various things with that), creative play, manipulative play, constructive play, make-believe play, playing in peace and quiet with sand, and social play, e.g. the possibility of building things with other children like a sandcastle or house (see Figure 13-6; see Appendix 8 on the attached CD).

The curved forms of waves, the element of sand, the colors of blue and white, and the hill-shaped elements in the design of this play equipment and play zone evoke children's imaginations, inspire the feeling of being in nature and at the seaside, and support make-believe play and imaginary water-based experiences relevant to the theme of sea, beach, and nature. Hence, this area is called "Sense of Sea".

3. Playground Setting/Zone No. 3 – "Hill of Flying Balls" a Zone for Physical, Social, and Imaginative (Make-Believe) Play

Figure 13-7: *Play Structure/Zone No. 3 (model 1) called "Hill of Flying Balls" and the Users (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*
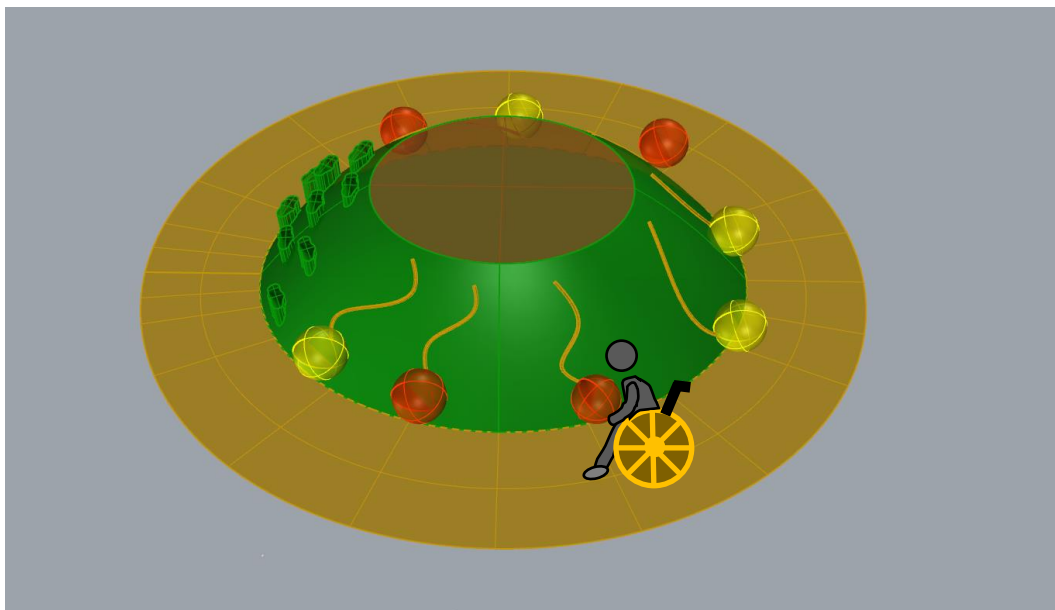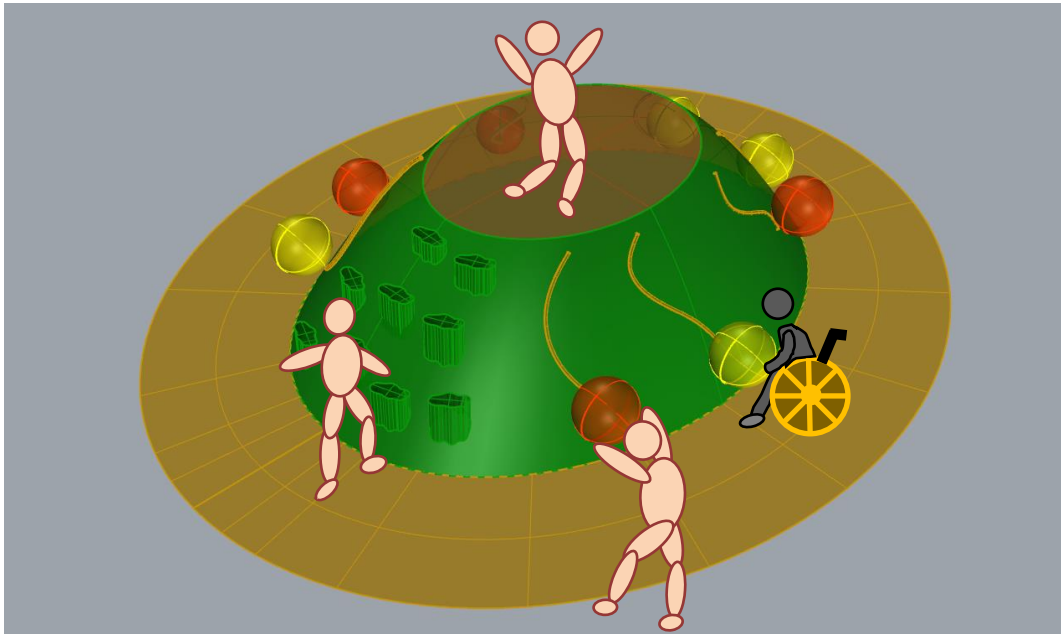
Designer: *Author.*

Figure 13-8: *Play Structure/Zone No. 3 (model 2) called "Hill of Flying Balls" and the Users (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*

Designer: *Author.*

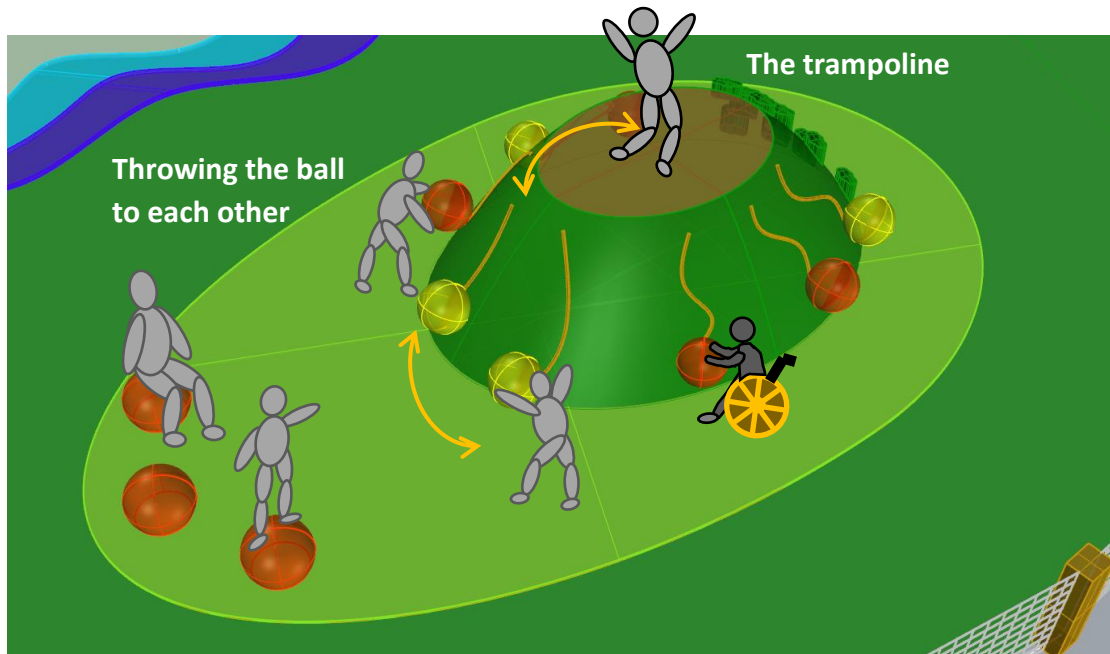"Hill of Flying Balls" is the name of another play zone toward the left of the playground which is presented in 2 models. The first names of this play equipment were "Hill of Candy" or "Palette

of Colors". But after hearing the opinions of some potential users, its name was changed to "Hill of Flying Balls" (Figures 13-3, 13-7, & 13-8).

The appearance of this play setting is somehow abstract which lets different children get involved in their own imaginary world and make-believe play while using the equipment. However, its main structure includes a green hill-like element, colored candy-like/flying balls fastened to the hill, small bush-shaped stairs to climb up/down the hill, and a trampoline on top of the hill (Figures 13-7 & 13-8) (also see Appendix 8 on the attached CD).

In the first model (Figure 13-7) 3 red balls are fixed on the ground next to the hill, making the whole play zone visually like a palette, especially from the top view. In the second model, the hill is on a brown circle, but there are no fixed balls on the ground. Both models can be seen like a hill of candy, from which candies have fallen. However, as stated, for most potential users, this playing equipment/zone is like a hill of balls. Thus, it was named "Hill of Flying Ball". The hill is made of soft material so that children can fall on it without hurting themselves.

The colorful balls – yellow and red – are fastened to the green hill with wide stretchable, elastic bands. Children can climb the green hill by using the bush-shaped surfaces installed on the hill like stairs. On top of the green hill, there is a trampoline. Children can climb the hill and jump on it. While jumping, these children can catch the balls that other children – down the hill – have thrown to them. Children down the hill can play with the balls alone or with others or with the children up on the trampoline. The elastic characteristic of the band/rope offers various interesting play opportunities for children with different abilities. Wheelchair users can play down the hill, on a flat surface, either with the ball alone or with other children (e.g. throwing the ball to children up or down the hill) (Figures 13-7; see Appendix 8 on the attached CD).

As stated in the first model (Figure 13-7), there are also three red balls fixed on the ground. They have been placed some distance from the hill. These balls can be used as seats by children or parents whose children are playing there, or as balancing elements by children (Figures 13-7) (see Appendix 8 on the attached CD).

This play area supports physical, social, and imaginative, make-believe play. It also fosters various positive feelings and senses:

- Sense of humor (funny experiences) – for example, throwing the ball toward or at each other, or to (or at) children jumping on the trampoline on the hill, making them fall on the hill, which is a safe activity because everything is made of soft materials.

- Courage, sense of power, sense of control, sense of victory – encouraged by activities such as climbing the hill, trying to catch the ball and control that, trying to keep balance (e.g. keeping balance while jumping on the trampoline, climbing the hill, or catching the ball).

- Sense of trying and achievement – for example, when two children play with a ball, they try to catch the ball and throw it in the right direction; this activity supports the sense of trying and achievement.

- Risk-taking experiences and sense of competition and courage – for example, when children are trying to keep their balance while jumping on the top of the hill and avoid falling down the hill, they experience risk-taking activities and the sense of competition and courage. Also balancing on the fixed ball on the ground needs some type of courage especially for small children.

4. **Play Zone/Setting No. 4— "Tree of Adventure", a Play Setting for Adventurous Experiences and Different Types of Plays**
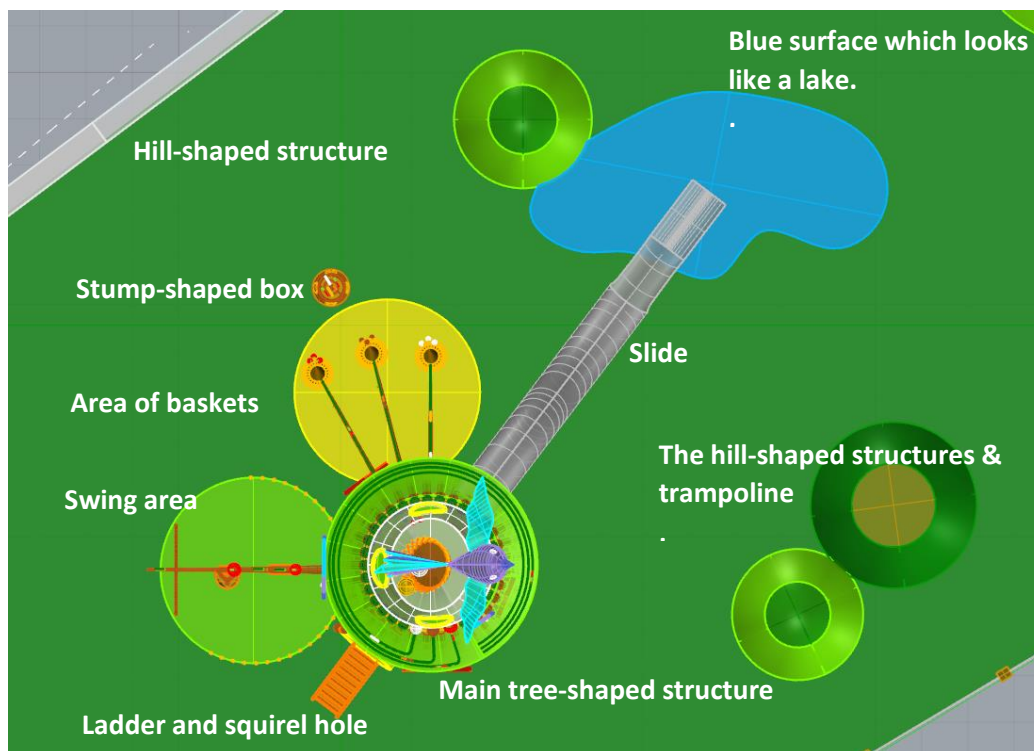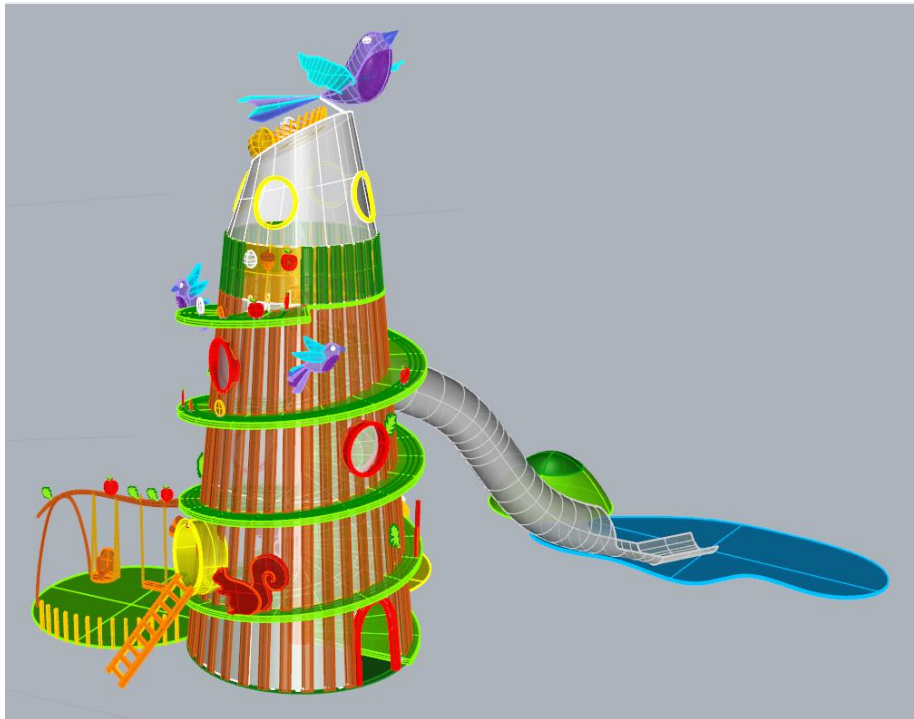
Figure 13-9: *Play Zone/Setting No. 4 called "Tree of Adventure" (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*

Designer: *Author.*

Spiral green strip, which looks like a climbing plant around the tree; there are 3 rails on it.

Blue surface which looks like a lake.

Area of baskets

Swing area
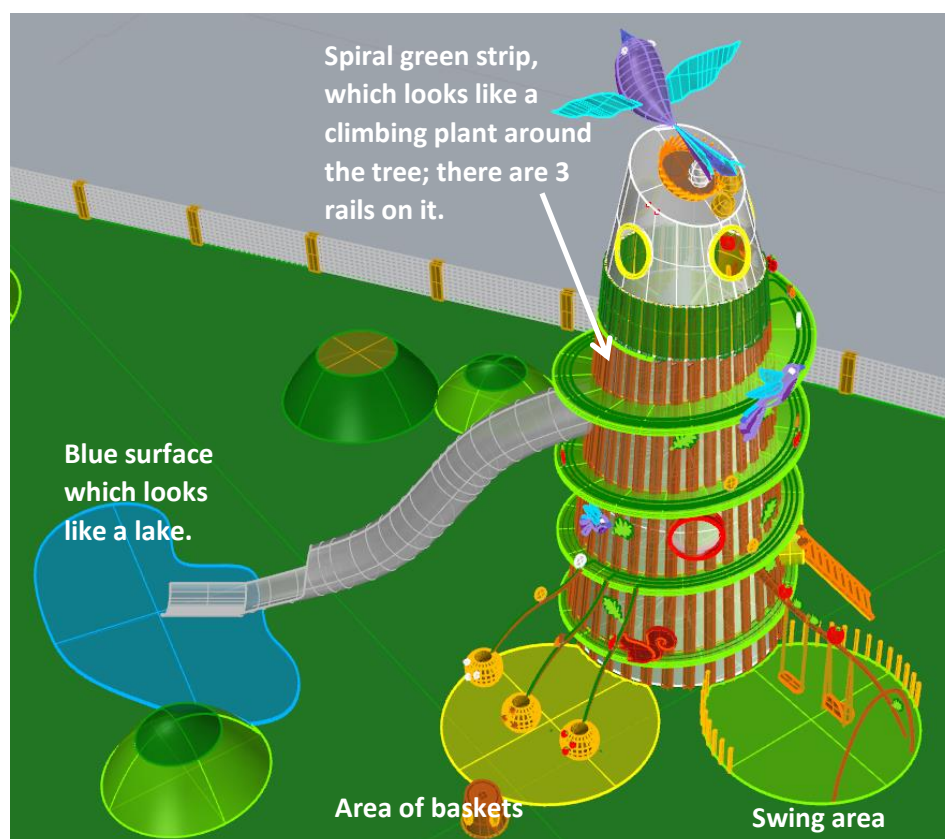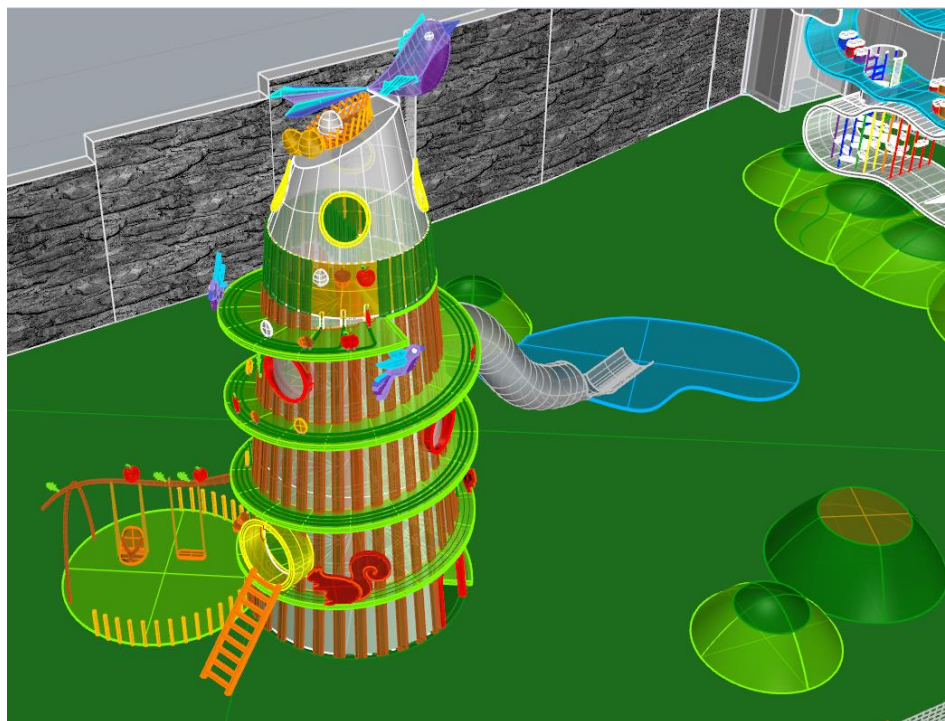
Figure 13-10: *Perspective Views of Play Setting/Zone No. 4 called "Tree of Adventure" (also see the photos of this play structure/zone in Appendix 8 on the Attached CD).*

Designer: *Author.*

"Tree of Adventure" is the name of a large combined play structure that has different parts and offers various play experiences (Figures 13-9 & 13-10). This play setting is located almost in the center of the future playground (also see the photos of this structure in Appendix 8 on the attached CD).

Though at first glance the design of this large cylindrical/conical playground structure and its surroundings may seem purely abstract, the elements are based on the concept of a tree and relevant experiences in the natural environment (e.g. interacting with the lake, hills, and animals like birds and squirrels).

The main colors, used in the design, are brown (e.g. the color of the main tree-shaped structure, its branches, and stump) and green (e.g. the color of spiral band around the tree-structure, the color of the leaf shapes installed outside the main structure and on its branches as decoration, the color of the spiral ramp inside the structure). Other colors that have been used in the main structure and its surrounding are yellow (e.g. the color of the border of the circular windows and squirrel hole on the tree-shaped structure), orange (e.g. the color of ladder, the color of the swings, the color of the three spherical orange baskets hanging from the branches of the tree, and the color of the acorn shapes), red (e.g. the color of apple shapes, and the borders of the circular windows), blue and purple (the colors of the bird shapes/sculptures), gold and white (the colors of the bird's eggs) (Figures 13-9, 13-10, & 13-11). The functions of the shapes used in various play concepts will be described.

The tree-structure has two entrances: the main entrance or the circular hole that looks like a squirrel hole in the tree (which is accessible by climbing the orange ladder) (Figure 13-12).

The 3 rails which have been placed on the spiral band to carry the shapes.

Figure 13-11: *The upper part of the "Tree of Adventure" (also see the photos of this play structure/zone in Appendix 8 on the Attached CD).*
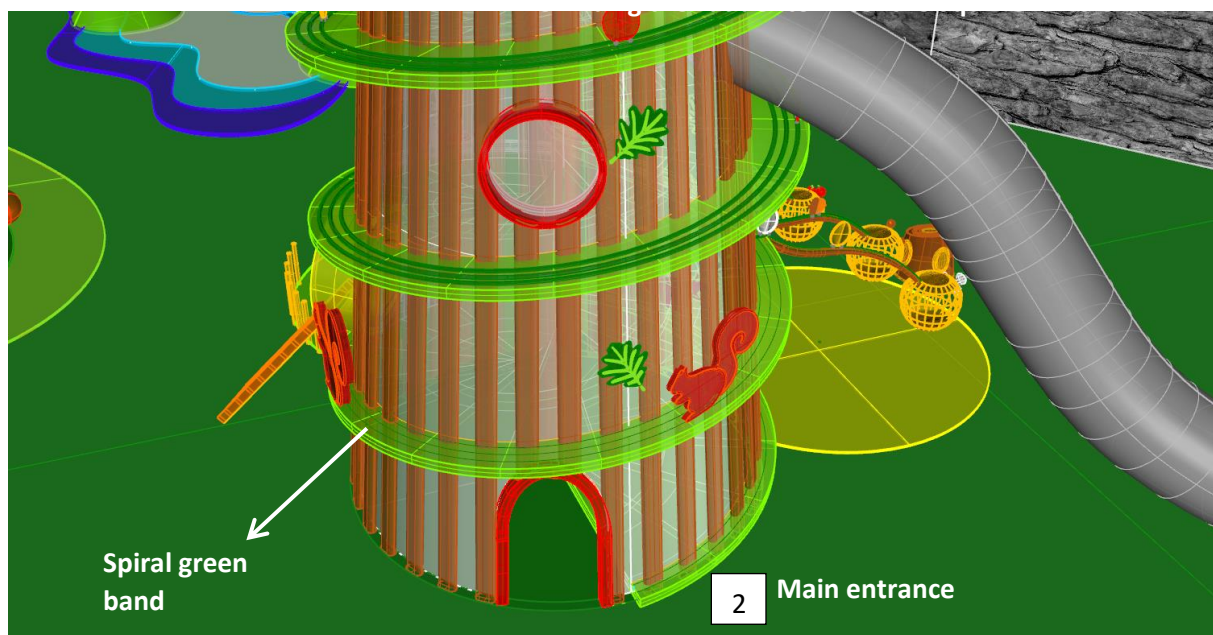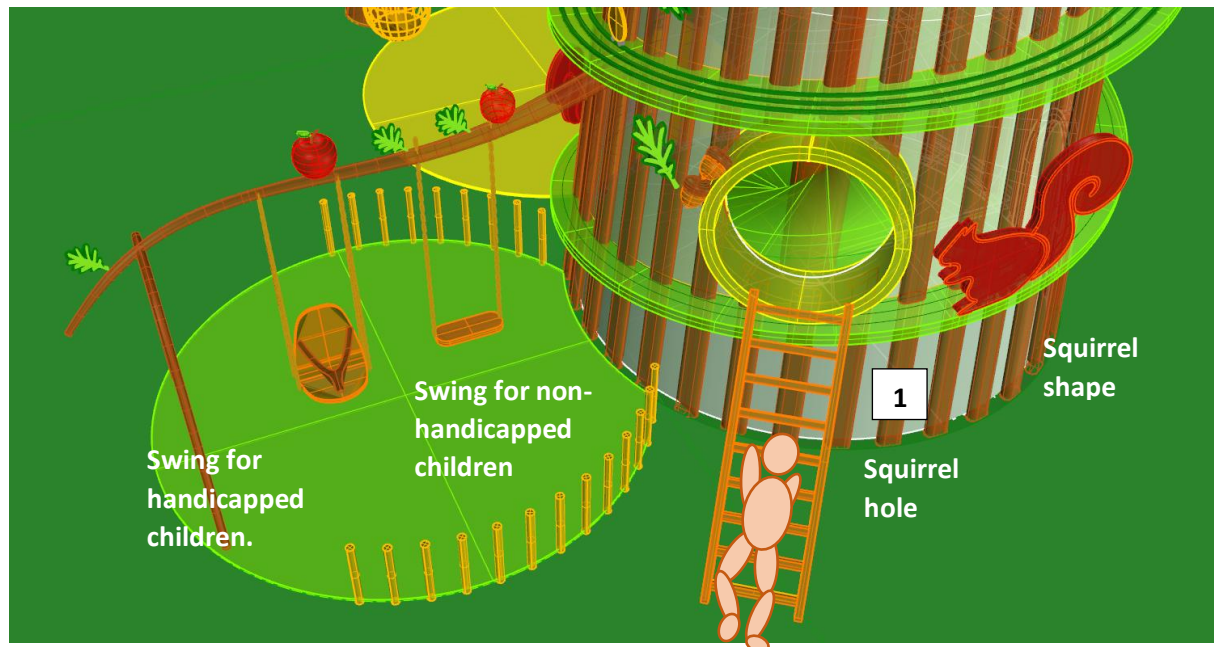
Designer: *Author.*

Figure 13-12: *The entrances of the "Tree of Adventure": 1) squirrel hole and 2) main entrance.*

Designer: *Author.*
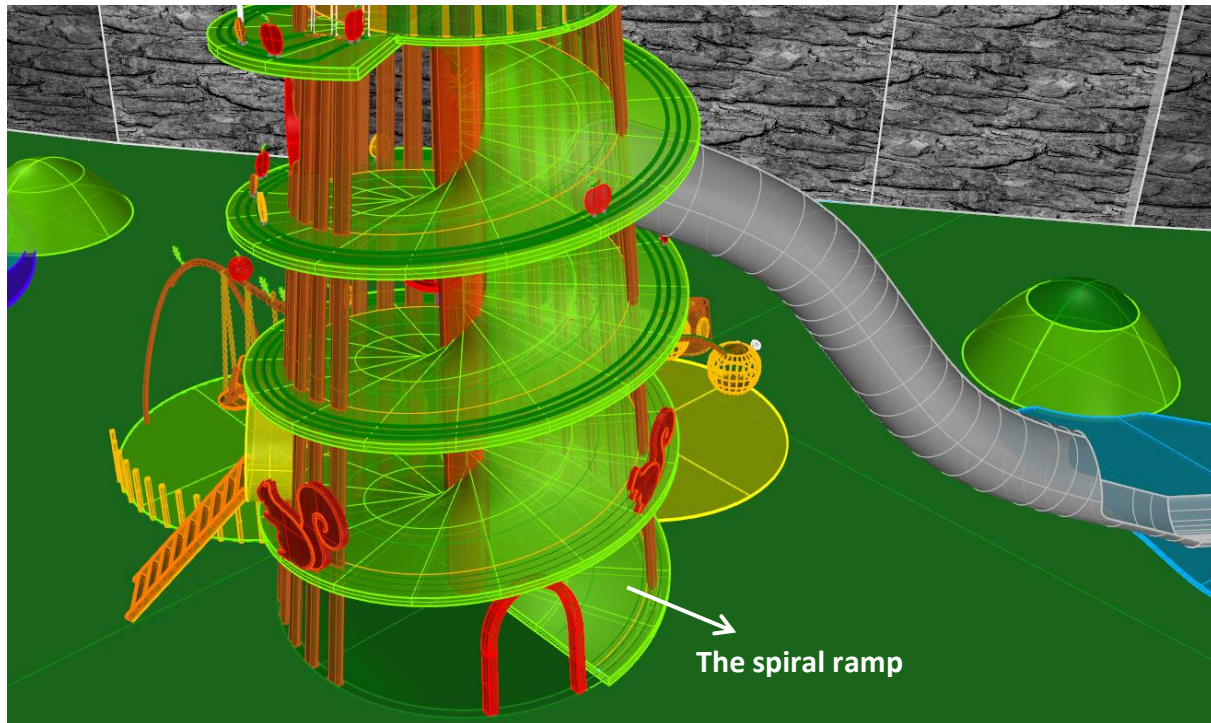
The spiral ramp

Figure 13-13: *The internal structure of the "Tree of Adventure": Inside there is a spiral green ramp that extends beyond the outer surface of the tree (see Appendix 8 on the attached CD).*

Designer: *Author.*

There is a long green spiral ramp inside the tree for climbing (Figure 13-13). The surface of this spiral green ramp extends beyond the outer surface of the tree. It is seen just like a spiral green strip around the main body of the tree which is a large conical brown playground setting. This spiral green strip, which looks like a climbing plant around the tree, makes the setting more beautiful and more natural, like a tree in the natural environment (Figures 13-10 & 13-13).

In addition to creating a beautiful natural appearance (like a climbing plant), the green spiral band – which has 3 rails — has a functional use in one of the play concepts this setting offers: the "Acorn, Egg, Apple" Game– an Innovative Play in the Tree of Adventure.

- **Aim of "Acorn, Egg, Apple" game**

The aim of this game, called "Acorn, Egg, Apple", is transferring shapes of eggs, apples, and acorns that are toys/elements of this play into their own baskets. These (flat) shapes which have wheels are first in the stump-shaped box. They have wheels for moving spirally on the rails and

fall into their baskets. Each basket has been decorated with a sculpture of these shapes which indicates which object each basket belongs to (Figure 13-14).
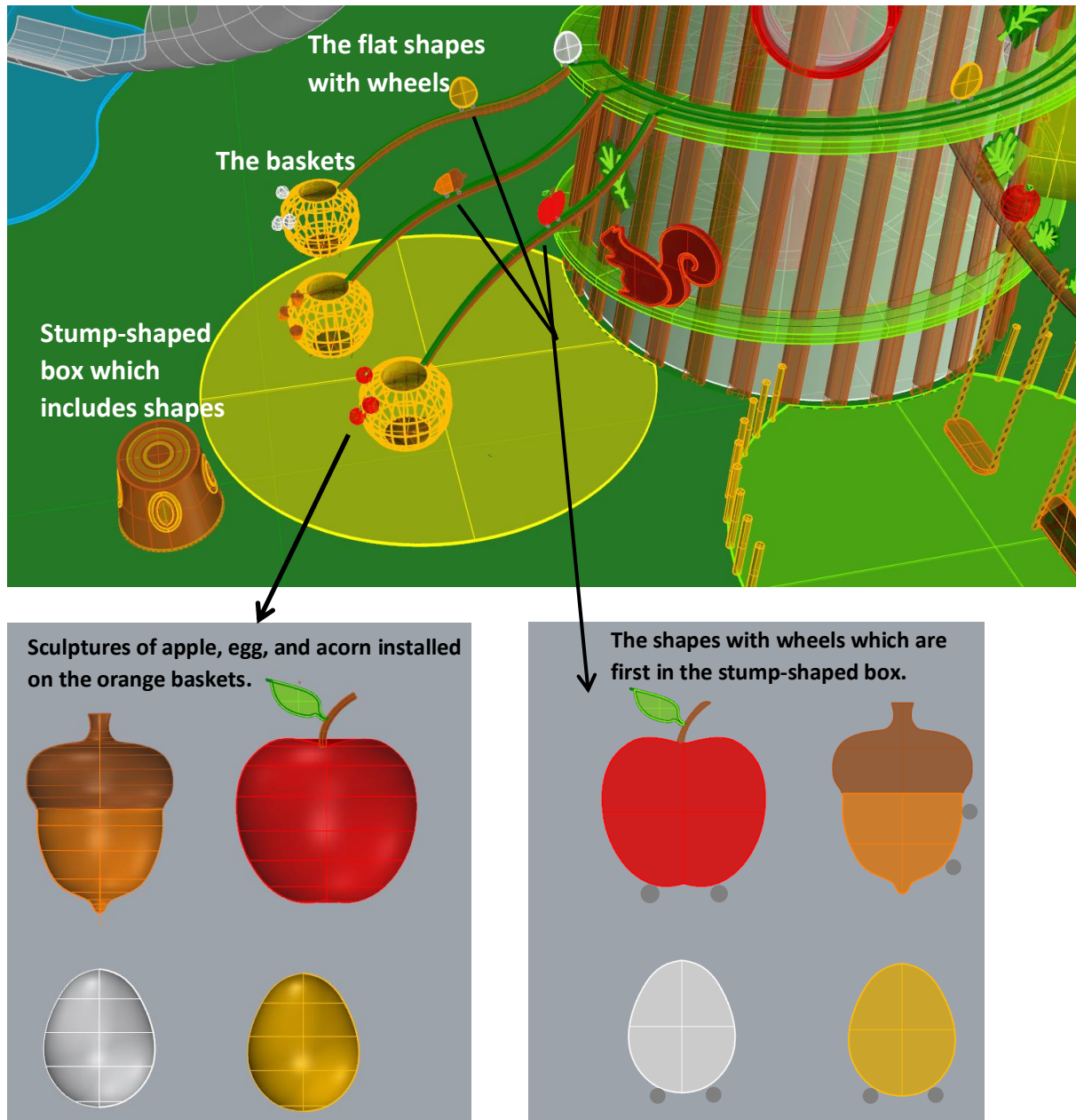
Figure 13-14: *The orange baskets and toys/elements of "Acorn, Egg, Apple" game offered by "Tree of Adventure" (see the photos in the Appendix 8 on the attached CD).*

Designer: *Author.*

- **Describing "Acorn, Egg, Apple" Game**

In this game, children have to engage in various activities beneficial for their development. The general scenario of this game is described as follows:

- Opening the stump-shaped box (in a rotating manner) (Figure 13-15).
- Taking the flat shapes – which have wheels and are in the form of a bird's egg (gold or white), acorn, and apple – from the stump (Figure 13-15).
- Entering the tree with the shapes either through the squirrel hole or through the main entrance (Figure 13-16).
- Climbing the spiral ramp inside the tree (Figure 13-17) and reaching the three grooves inside the orange wall at the top of the tree (Figure 13-17 & 13-18).
- At the orange wall, children insert their shapes in the correct groove so that each shape can slide with its wheels on its own rail. Each groove/rail is for a specific shape: one groove/rail is for bird's eggs, another is for acorns, and the last one is for apples (Figure 13-18).
- The shapes move on the spiral rails around the tree till they reach the orange baskets and fall in their own basket. The spiral rails extend on the branches of the tree and lead the shapes to the orange baskets at the end of the branches (Figure 13-19).

At the top of each groove, there is a sculpture of an egg, apple, and acorn that helps children figure out which object should be inserted there (Figure 13-18). The sculptures are visible from inside and outside the orange wall (i.e. part of these sculptures are inside and part of them are outside the orange wall/tree structure). From inside the tree, these sculptures work as signs that help children inside the tree to insert their shape(s) into the *correct* groove; from outside, they make the tree structure beautiful and visually represent the main elements of "Acorn, Egg, Apple" game (Figures 13-18).

Furthermore, the moving shapes give a special beauty to the tree and this play zone. The dynamic appearance of the tree with its moving shapes on rails is visually attractive and has associations of branches and leaves undulating in the breeze.

Each basket is also decorated with small sculptures indicating its group of objects: bird's eggs, acorns, or apples (Figure 13-19).
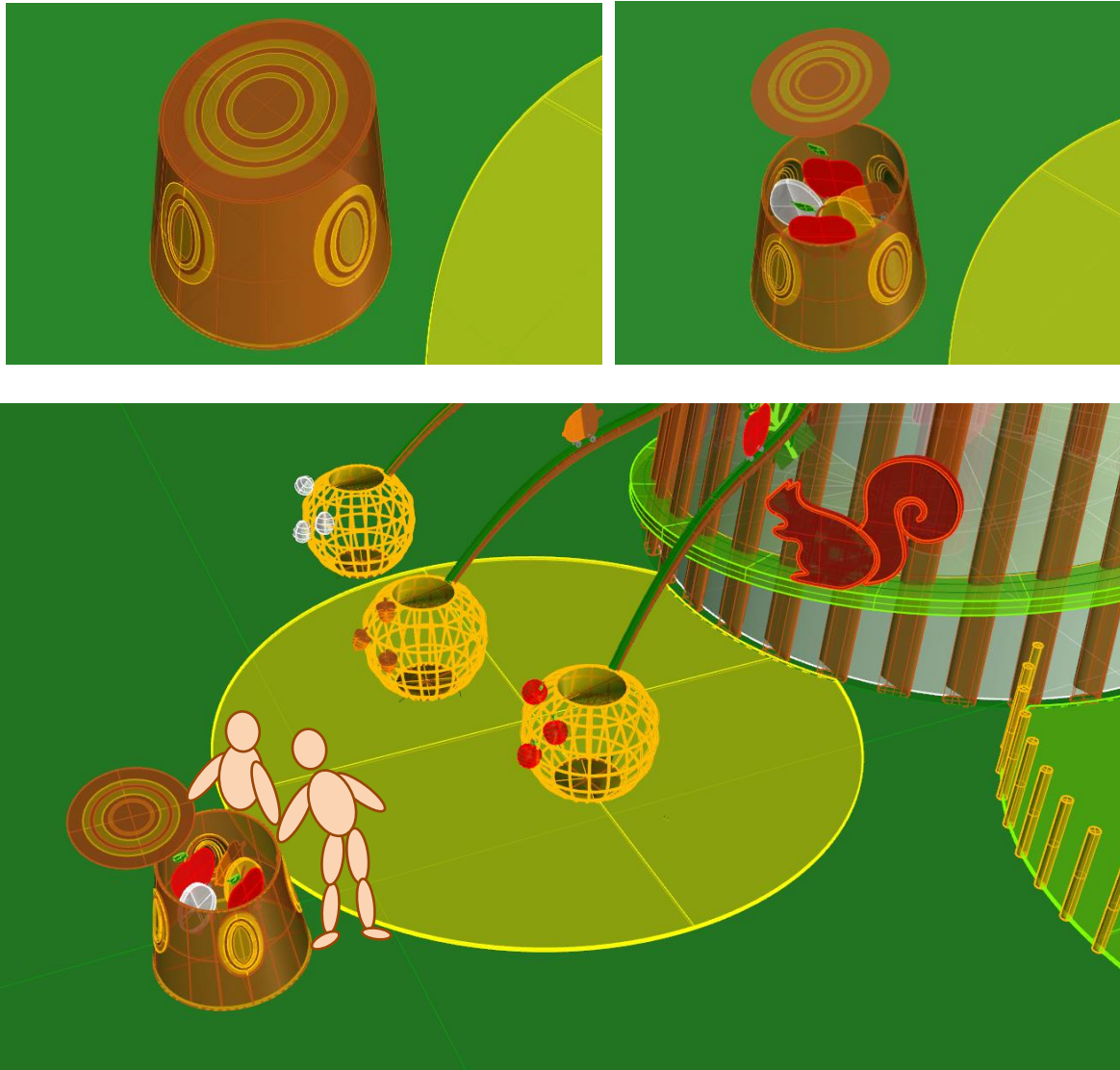
Figure 13-15: *First stage of "Acorn, Egg, Apple" game: children open the stump-shaped box and take their favorite shape(s) from that (e.g. gold bird's egg, white bird's egg, red apple, and/or brown-orange acorn).*

Designer: *Author.*
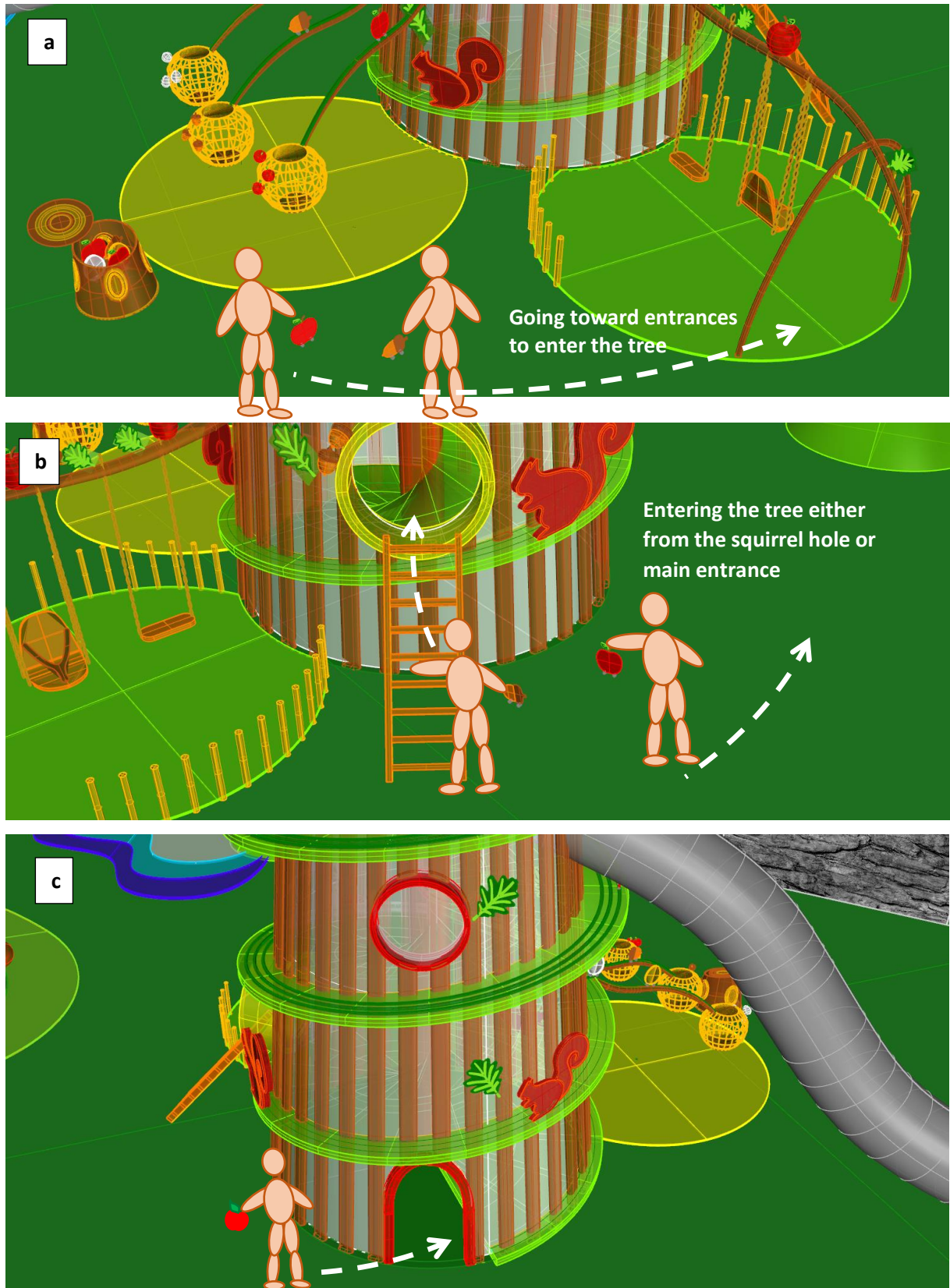
Figure 13-16: *Second stage of "Acorn, Egg, Apple" game: children carry their shape(s) and enter the entrances (either from the squirrel hole or main entrance).*

Designer: *Author.*
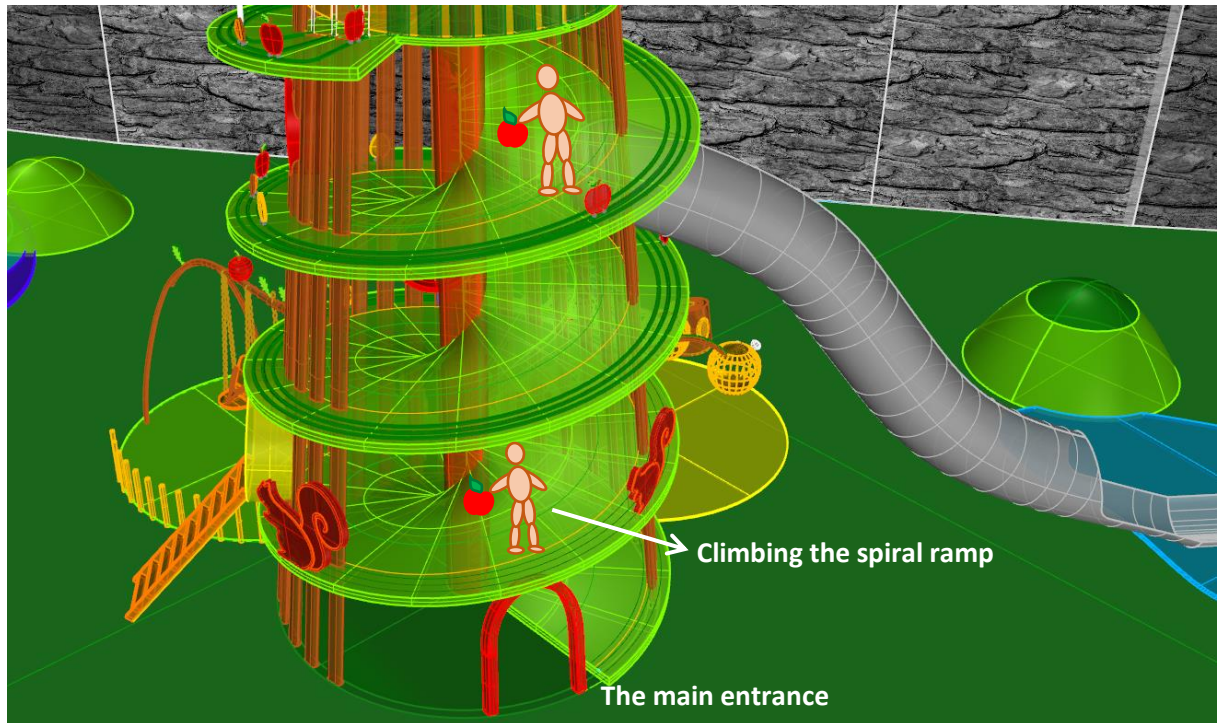
Figure 13-17: *Third stage of "Acorn, Egg, Apple" game: the children enter the tree-shaped structure and climb the spiral ramp till they reach the grooves –in the orange wall— which are at the top of the tree (see Figure 13-18).*

Designer: *Author.*

The windows on the top of the structure with

A sitting child is inserting the shapes from inside

The orange baskets

The sculptures which have been installed on the top of the grooves.

The 3 grooves to insert the shapes from inside

The spiral band.

The 3 rails.

The shapes with wheels.
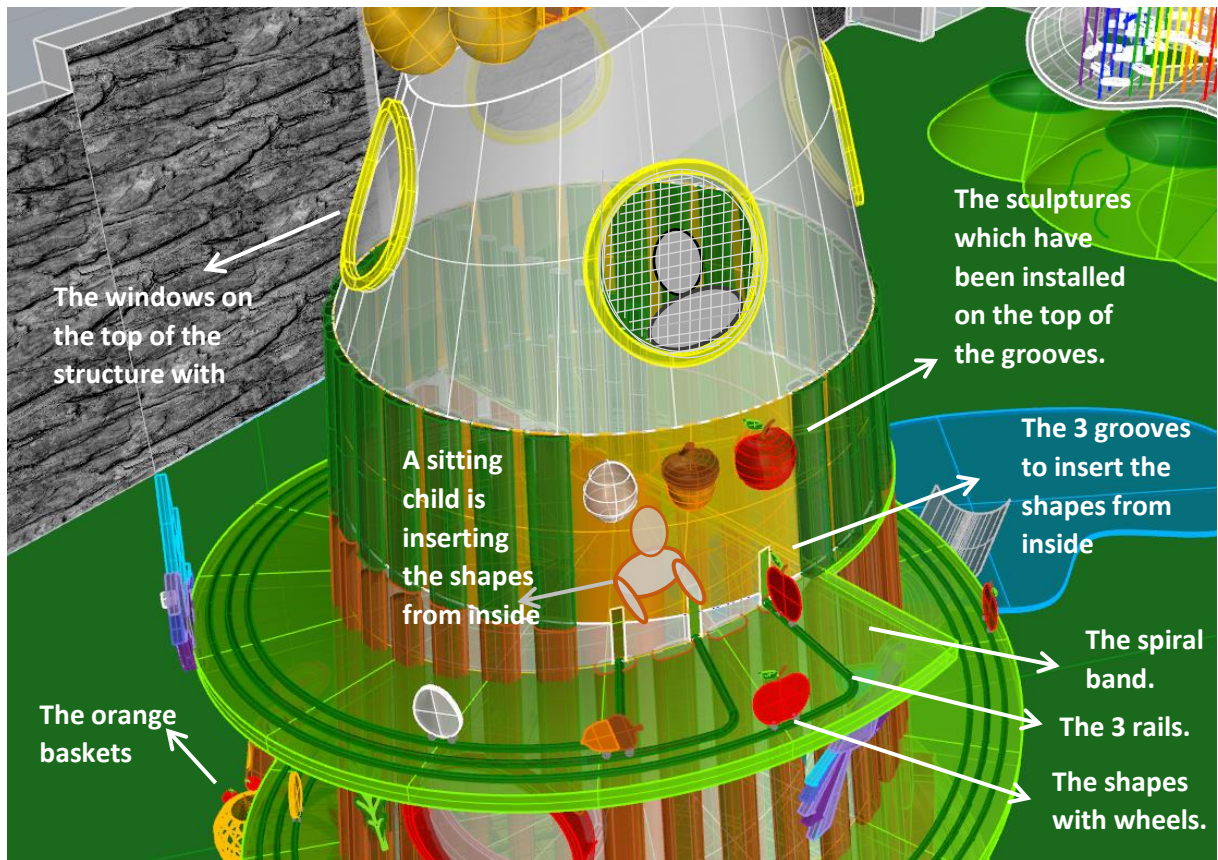
Figure 13-18: *Third stage of "Acorn, Egg, Apple" game: after climbing the spiral ramp inside the tree and reaching the grooves on the orange wall, children insert their shapes in their grooves/rails to slide down spirally on the green band and finally fall into the orange baskets.*

Designer: *Author.*

The moving shapes on the rails.

The 3 rails start from the grooves.

The green rails extend on the branches and end to the baskets.

The rails on the branches lead the shapes to the baskets.

Basket for Eggs

The moving acorn on the rail

Basket for Acorns

Basket for Apples
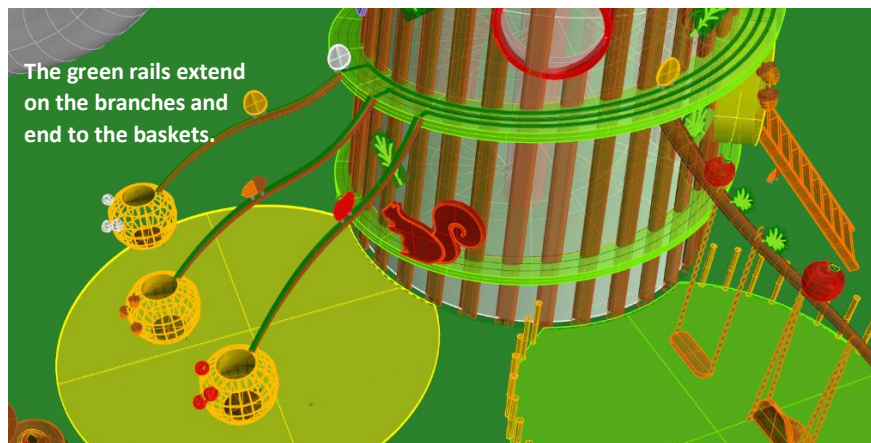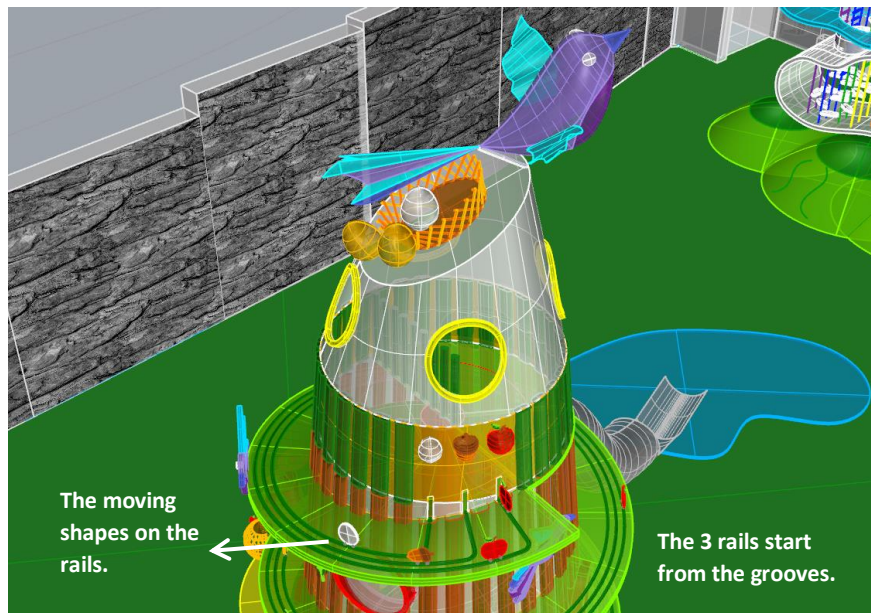
Figure 13-19: *The moving shapes slide down on the rails spirally around the tree and finally fall in the baskets hung at the end of branches. The rails extend on the branches and lead the shapes to their baskets.* **Designer:** *Author.*

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- **Visual elements and bird's eye view**

After placing the objects in the grooves, the child can stay for a while in the glass space above the tree and enjoy the view (a bird's eye view onto the playground and Nordbahntrasse). The ceiling of this glass space is diagonal. On top of it and outside there is a sculpture of a large bird and its nest and eggs. It gives a special beauty to both spaces, outside and inside the tree and can support children's imagination and develop their make-believe play in interaction with the "Tree of Adventure". Placing this blue-purple _bird_ on the top of the tree is in harmony with the main design idea of this space which is that of having a _bird's eye view_ (Figure 13-20).

Due to the transparency of the materials used in this space, children can look at the bird from the inside. Around this glass space are four windows with yellow borders, covered with protective grilles/fences for safety (Figure 13-20).

After spending time in the glass area, children can play on the slide to come down the tree.

Inside the picture labels:

1

There are four circular windows around this conical area covered with fence/net for safety.

These windows have yellow borders.

2

Inside the orang area
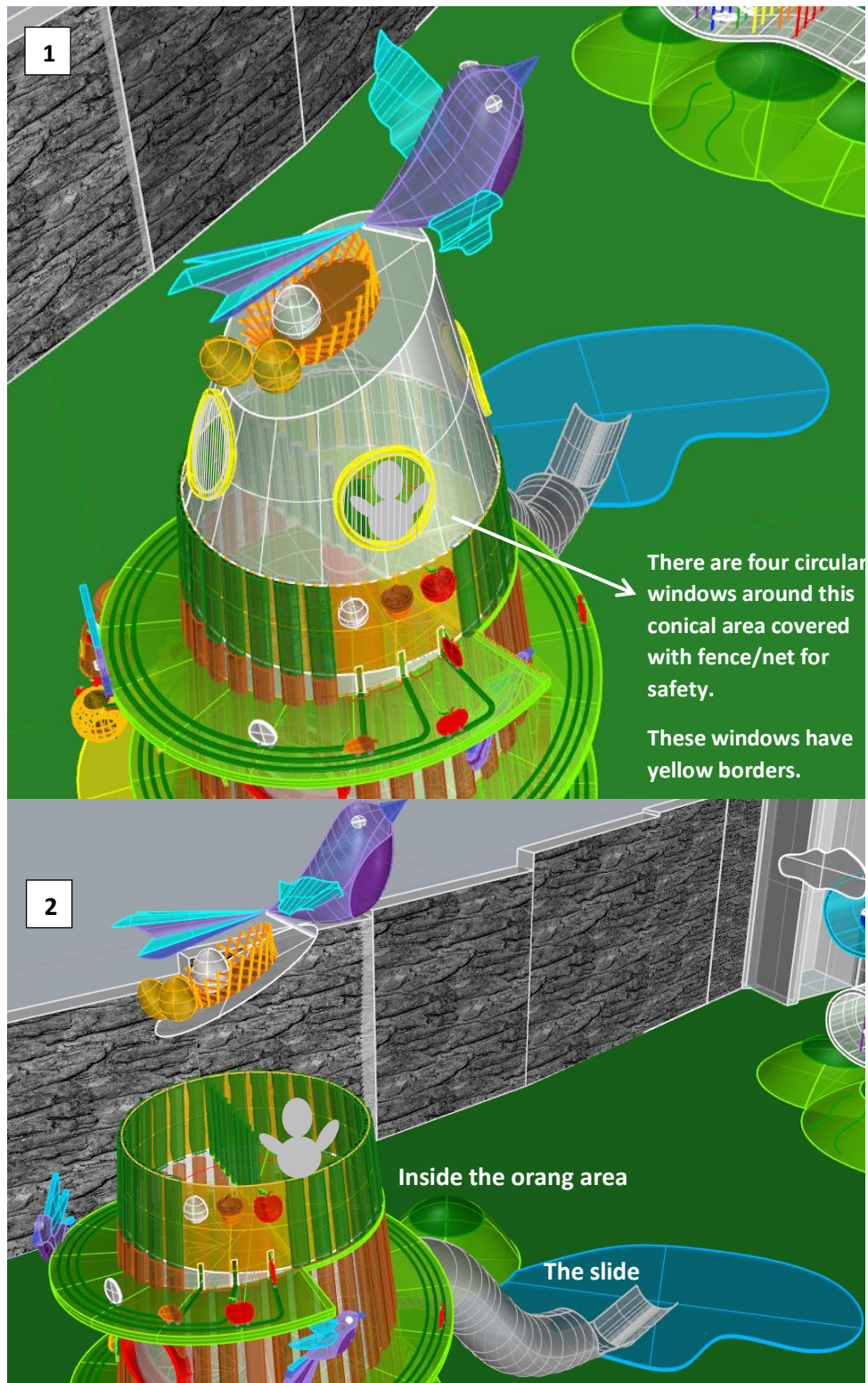
The slide

Figure 13-20: *No. 1: The glass space at the top of the tree-shaped structure (transparent orange area), the windows, the grooves, and the slide. No. 2: The inside view of the transparent area, where the children can stand and enjoy the view and watch the sculpture of a large bird and its nest and eggs.*

Designer: *Author.*

- **Playing "Acorn, Egg, Apple" game, individually or socially**

This game can be played individually or socially.

In individual play, children do not depend on each other. The child (or children) can take their favorite shapes (e.g. an apple shape, an egg shape, and/or an acorn shape) from the stump-shaped box, enter the tree, climb up the inside ramp and finally insert their chosen shapes in the correct grooves/rails to fall into the baskets. While climbing the inside ramp, children can look out of circular windows with red borders – that are on the way — and enjoy the view and interaction with the parents who are outside the tree on the playground (Figure 13-21).
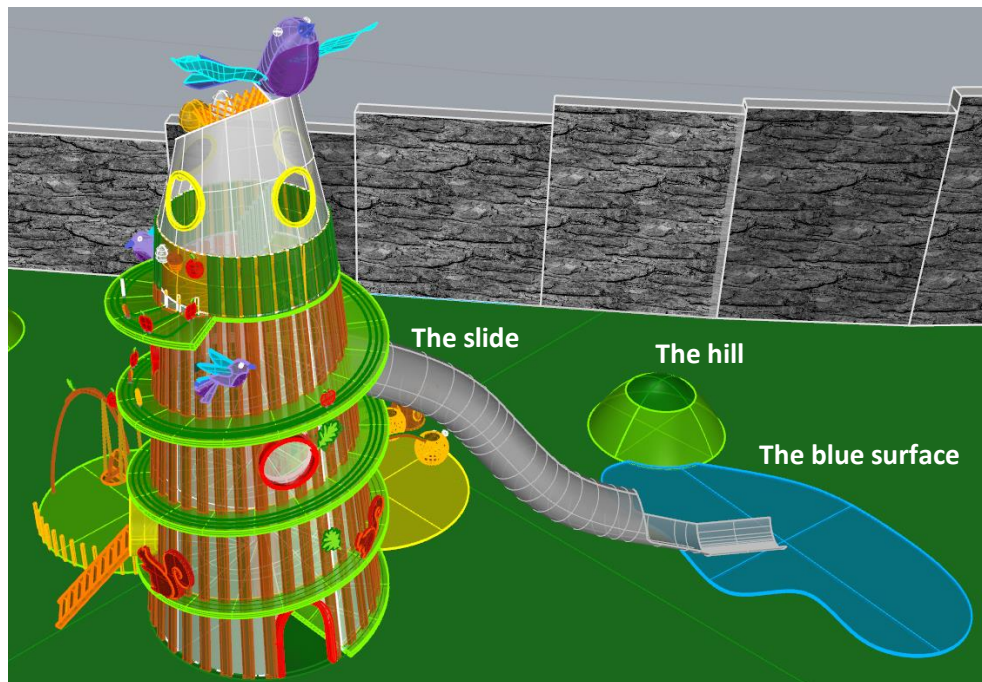
Figure 13-21: *A view of tree-shaped structure and the slide.*

Designer: *Author.*

This game can also be played socially as a competitive game or game-with-rules between three groups (group of apples, group of eggs, and group of acorns). The members of each group are determined in the beginning by the players themselves or an adult (e.g. their parents). One group transports bird's eggs, another transports apples, and the last one transports acorns to their own basket. In the beginning the orange baskets are empty. The groups compete to fill their baskets with their objects sooner than other groups. They climb inside the tree and insert

their objects into the groove leading to the correct basket. In this game, children must be both fast and accurate to enter the tree (either from squirrel hole or main entrance), climb the spiral ramp, reach the grooves at the top, place their objects in the correct groove/rail for transporting to the basket, and slide down the tree to go to their baskets to count their shapes or take other shapes from the stump.

An equal number of each shape (egg, apple, and acorn) can be considered for using in the social play, for example, thirty bird's eggs, thirty apples and thirty acorns. On each shape of any type, its number can be written from 1 to 30 (Figure 13-22). In this way (i.e. numbering the shapes of each type), whether in group (social) play or non-group (individual) play, children can make sure that their shapes have entered the correct basket.
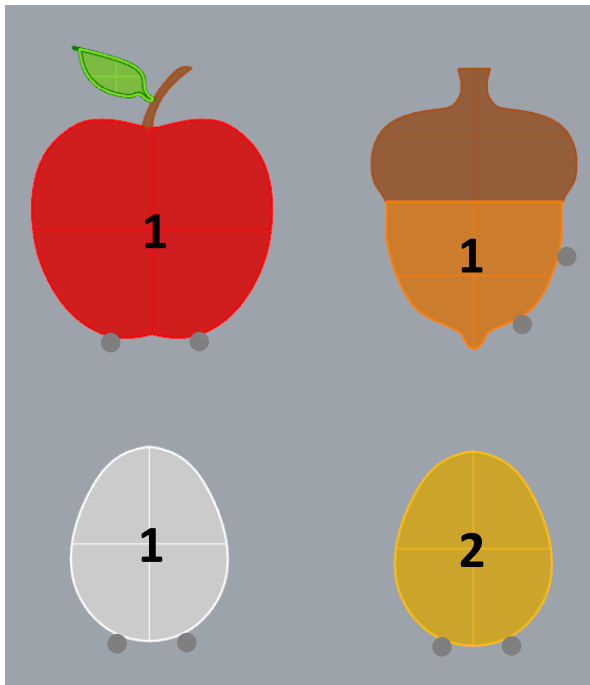
Figure 13-22: *Examples of the shapes with their numbers for "Acorn, Egg, Apple" Game.*

Designer: *Author.*

- **The Transparent Area at Top and the Slide Area**

After inserting the objects into the desired groove/rail, children can either go down the tree by using the slide or spiral ramp; they also can stay for a while in the glass area at the top (Figures 13-20 & 13-21).

The long metal slide ends in a large blue surface that looks like a pond/lake among green hills. There are several green hills around this tree. On one of these green hills there is a trampoline. This design can make children get involved in a dramatic (imaginary) play (Figure 13-23).

As stated, in the transparent-orange area at the top, children can relax and enjoy the view. All around and the roof of this conical area can be made of transparent and orange glass, Plexiglas, or acrylic sheeting[8] (Figure 13-20). The four circular windows around this area have been covered with a net or grille for safety (Figure 13-20).
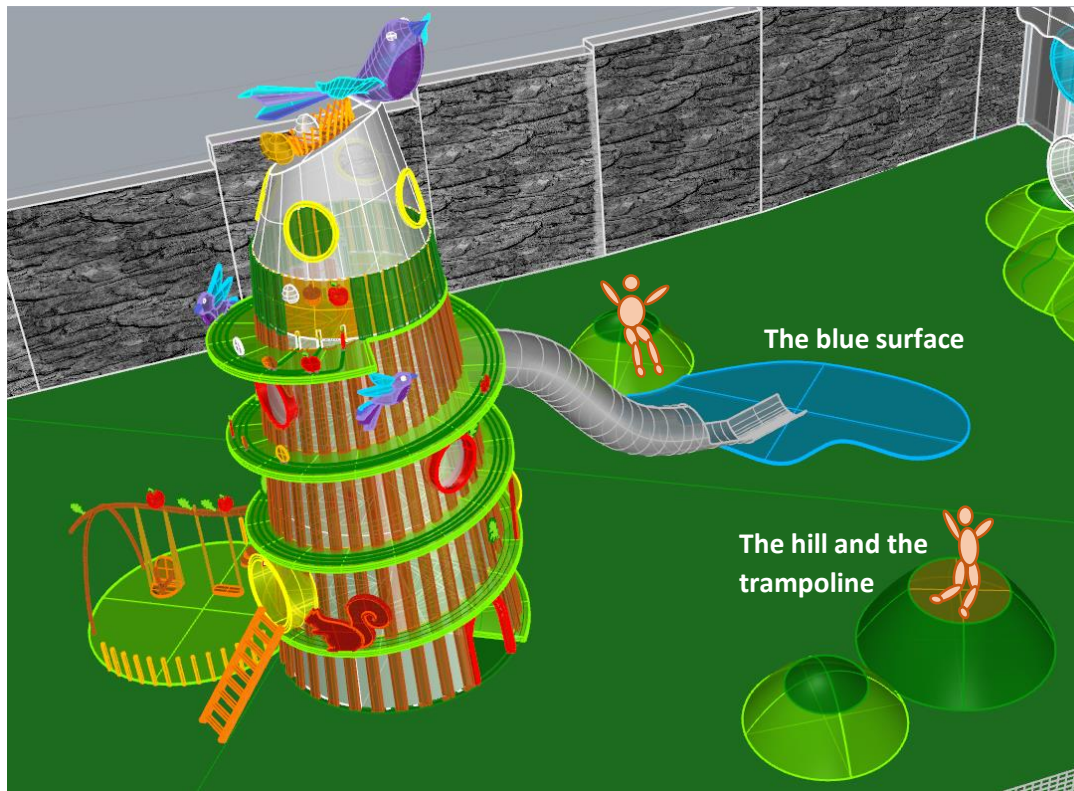
Figure 13-23: *The view of tree-shaped structure, the slide, hill-shaped elements, and blue surface.*

Designer: *Author.*

- **Swing Area**

Around this tree-shaped structure there is also a space with two swings, one for non-handicapped and the other for handicapped children. The swings are fastened to a branch of a tree decorated with sculptures of apples and leaves (Figure 13-24).

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[8] See the examples on: https://www.jinbaoplastic.com/product/product_55_1.html, accessed: 23.06.2021.
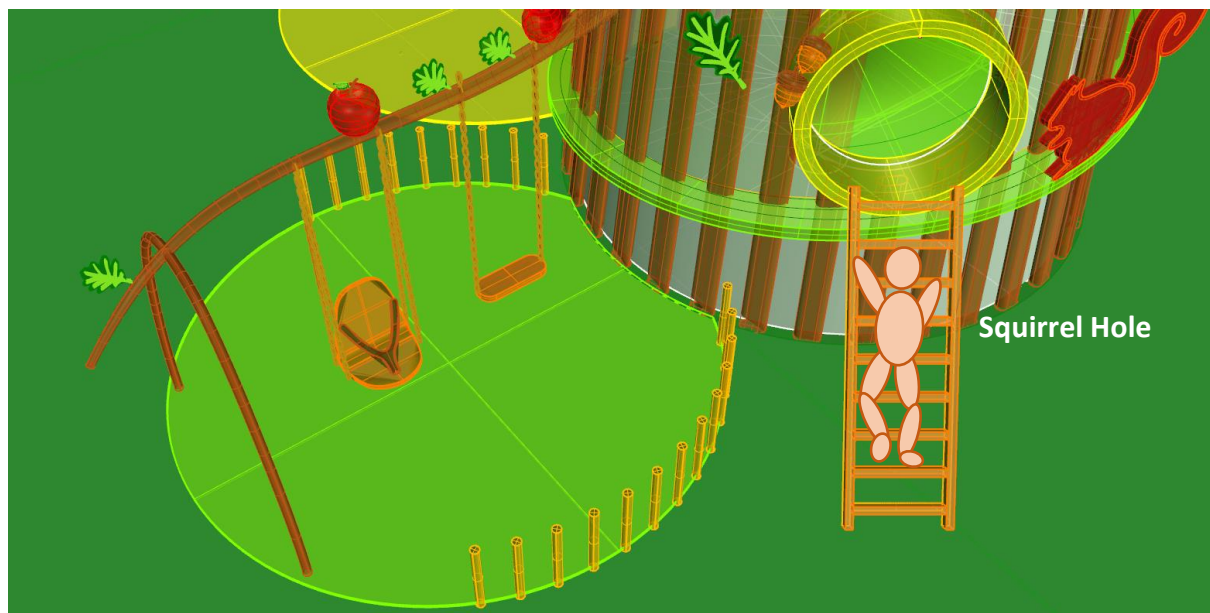
Figure 13-24: *The swing area with 2 swings fastened to a branch of tree; this branch is decorated with sculptures of apples and leaves.*

Designer: *Author.*

- **Visual elements in the Tree of Adventure**

As shown in previous photos, around this tree-shaped structure there are various circular windows, fixed shapes/sculptures (e.g. birds, squirrels, apples and leaves) and moving shapes

with wheels (shapes sliding on the spiral rails) which make the tree structure and this play zone beautiful (Figures 13-25 & 13-26).

In this play area the elements adopted from the nature such as lake, hills, tree and its branches and leaves, animals (e.g. squirrel and bird), squirrel hole, bird's egg, bird's nest, apple, and acorn are presented. This design can empower children's imagination and get them involved in dramatic play sequences relevant to the natural environment (Figure 13-21, 13-25, & 13-26). Some of these elements (e.g. sculptures of squirrel, sculptures of birds, and the nest on the top of the tree) are used *just* as decorations to support children's imaginations; they are not used directly in games. However, other elements are used *directly* by children in their plays (e.g. the stump; the shapes of eggs, apples and acorns that children carry, the swings hanging from the branches, and the squirrels hole as an entrance) (Figures 13-15, 13-23, & 13-24).
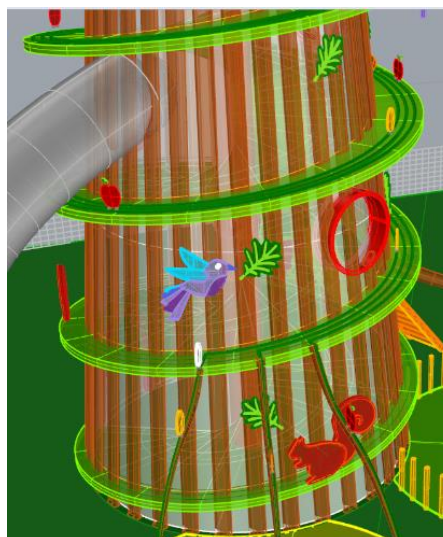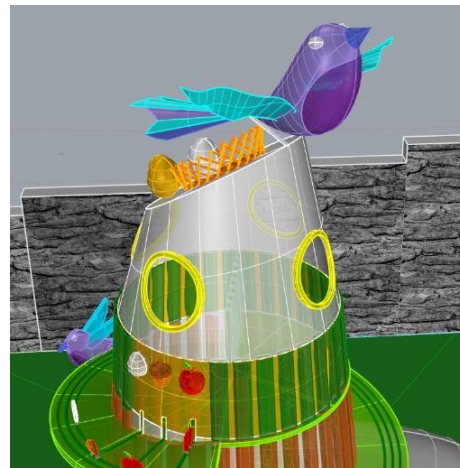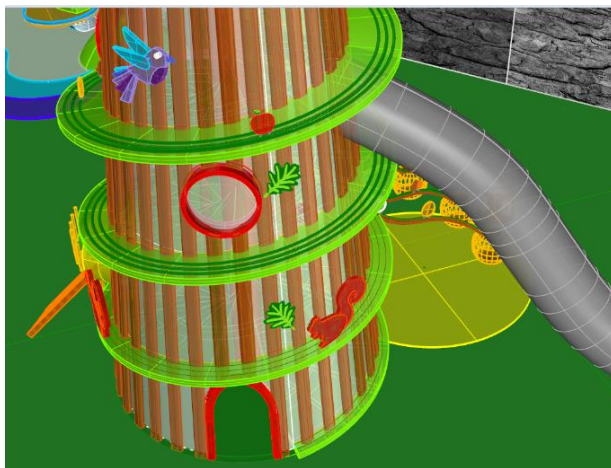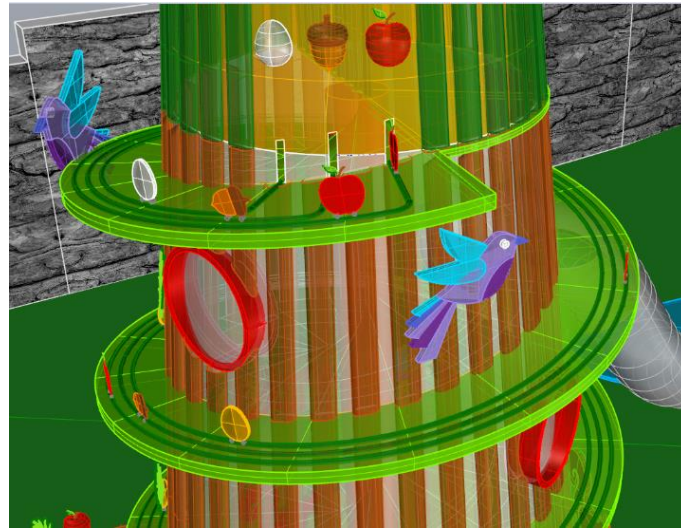
Figure 13-25: *The moving or fixed shapes/sculptures around the "Tree of Adventure".*

Designer: *Author.*

Two small flat clouds in white and blue installed in front of "Clouds of Joy" as Decoration (Figure 13-27).
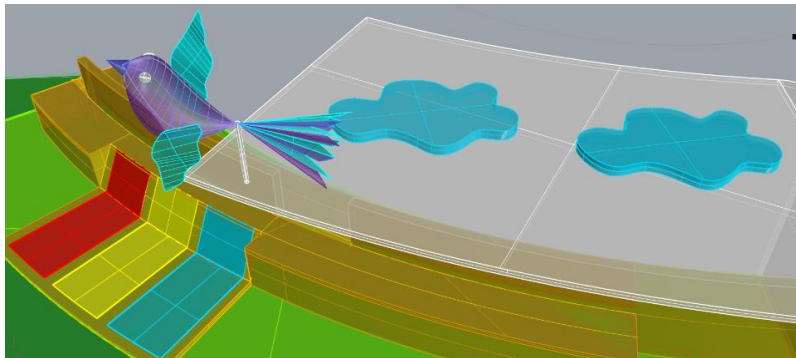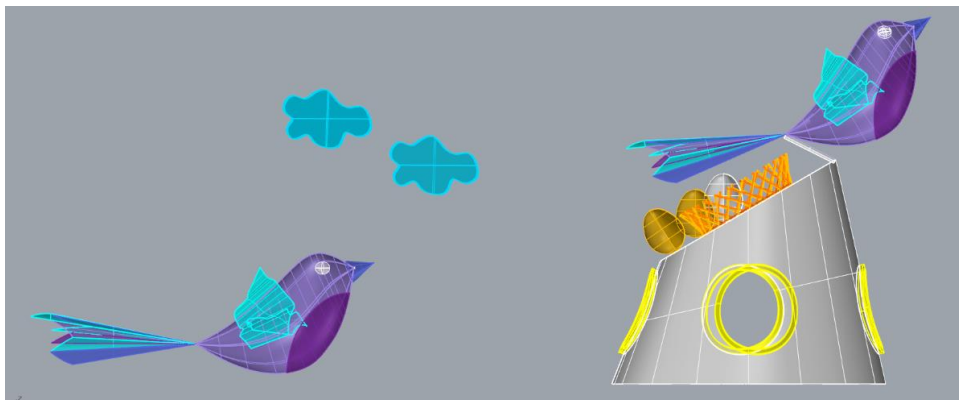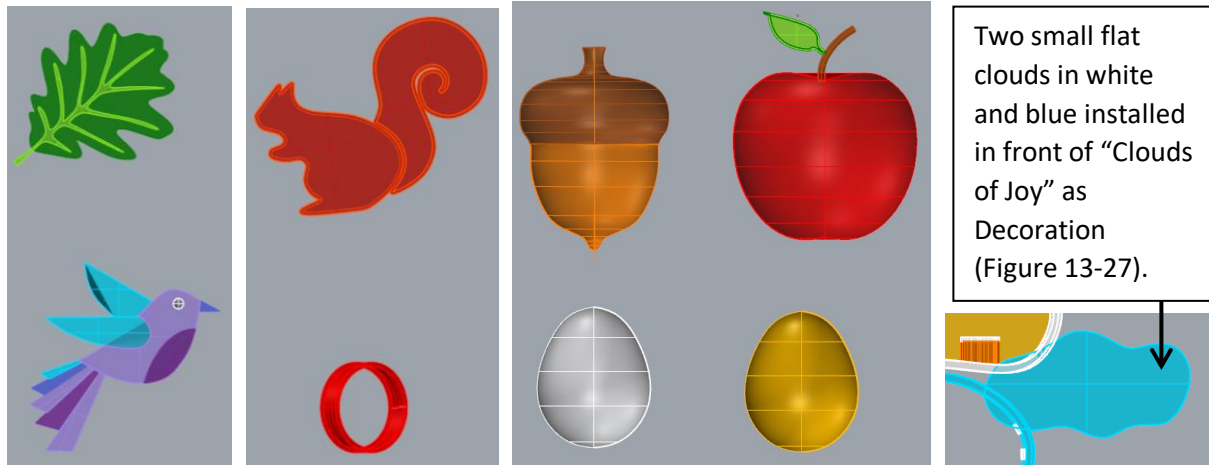
The shapes of clouds and bird installed on the roof of "Rest under Sky".
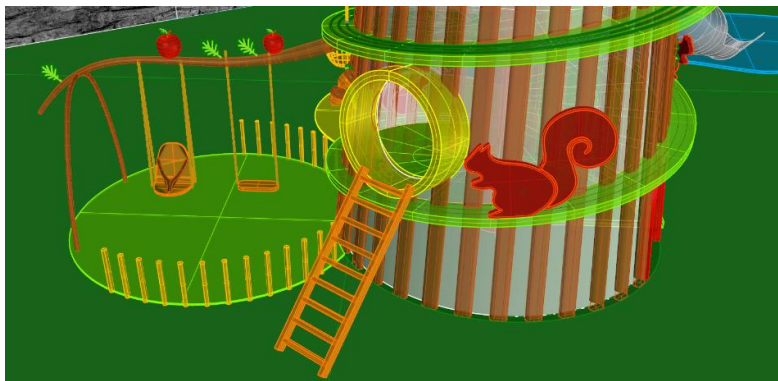
Figure 13-26: *Shapes and Sculptures used in the "Tree of Adventure" and "Rest under Sky".*

Designer: *Author.*

5. Play Zone/Setting No. 5 – "Clouds of Joy", a Play Setting for Adventurous Experiences and Different Types of Play
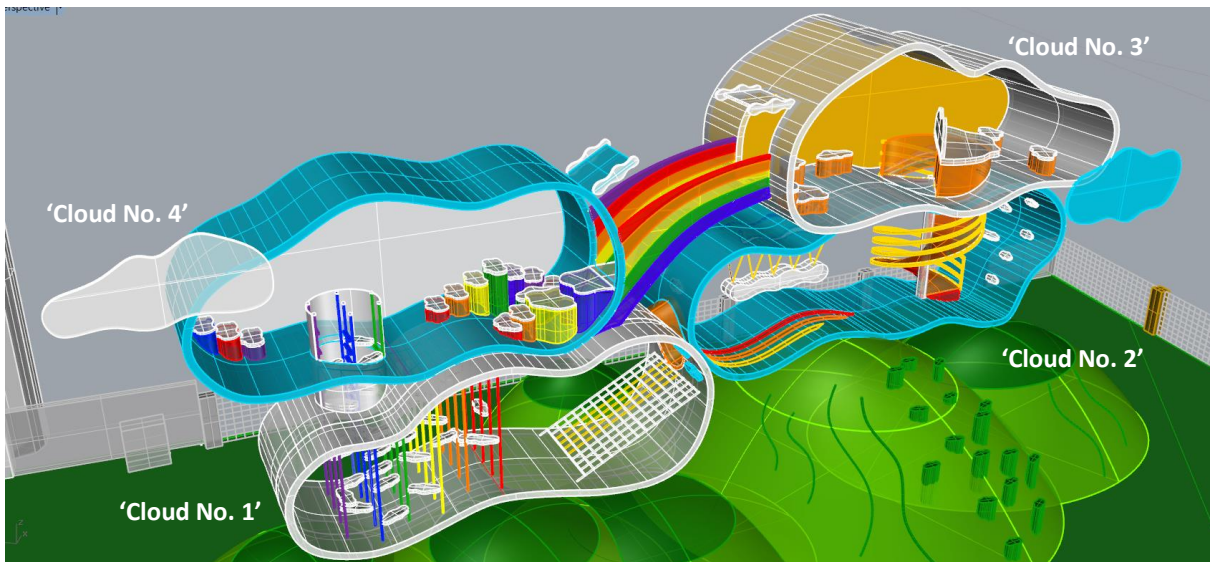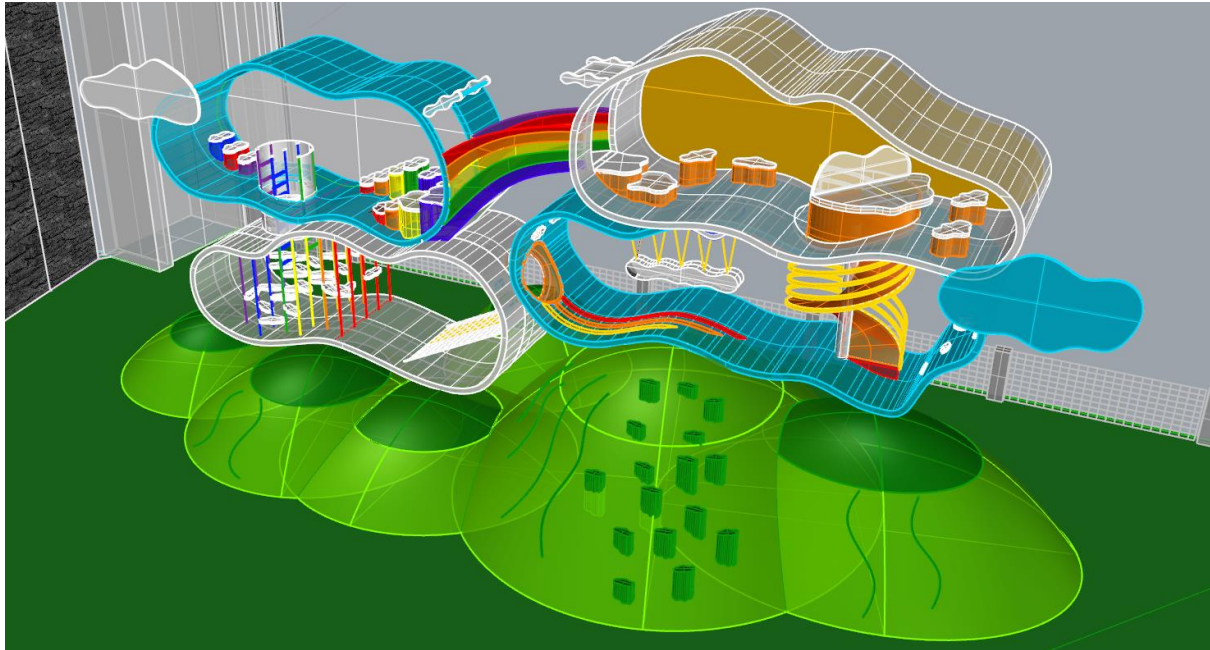
Figure 13-27: *Perspective views (from front) of play zone/setting No. 5 called "Clouds of Joy" (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*
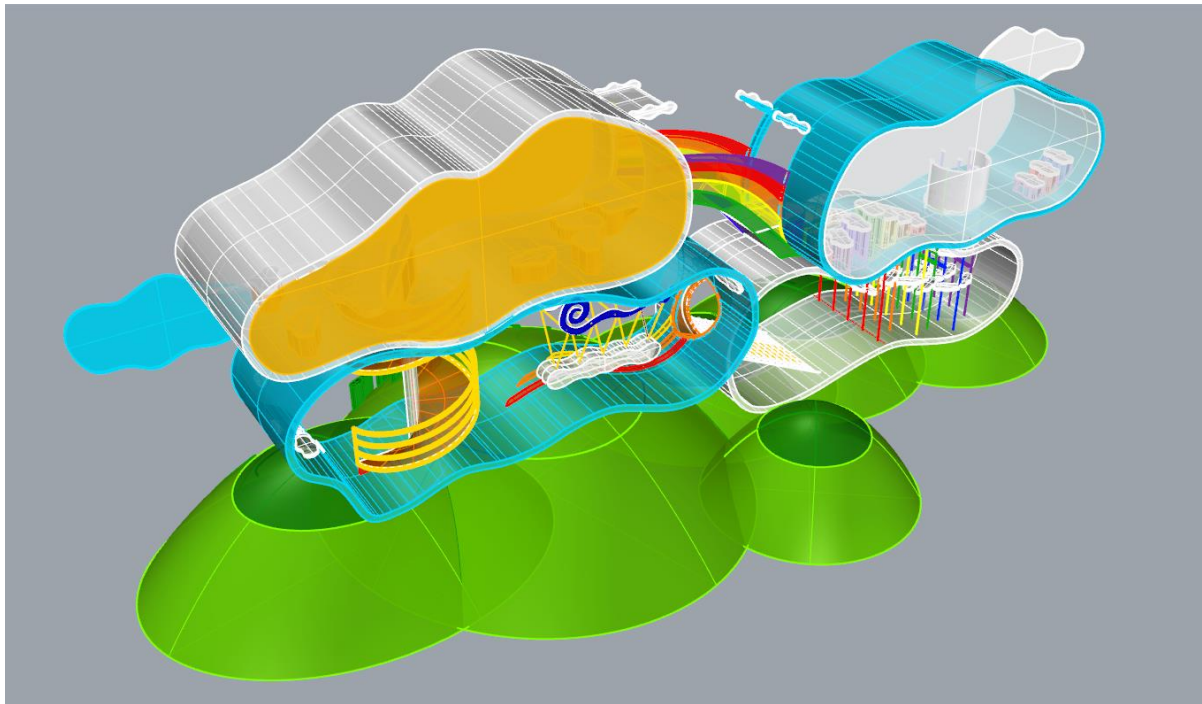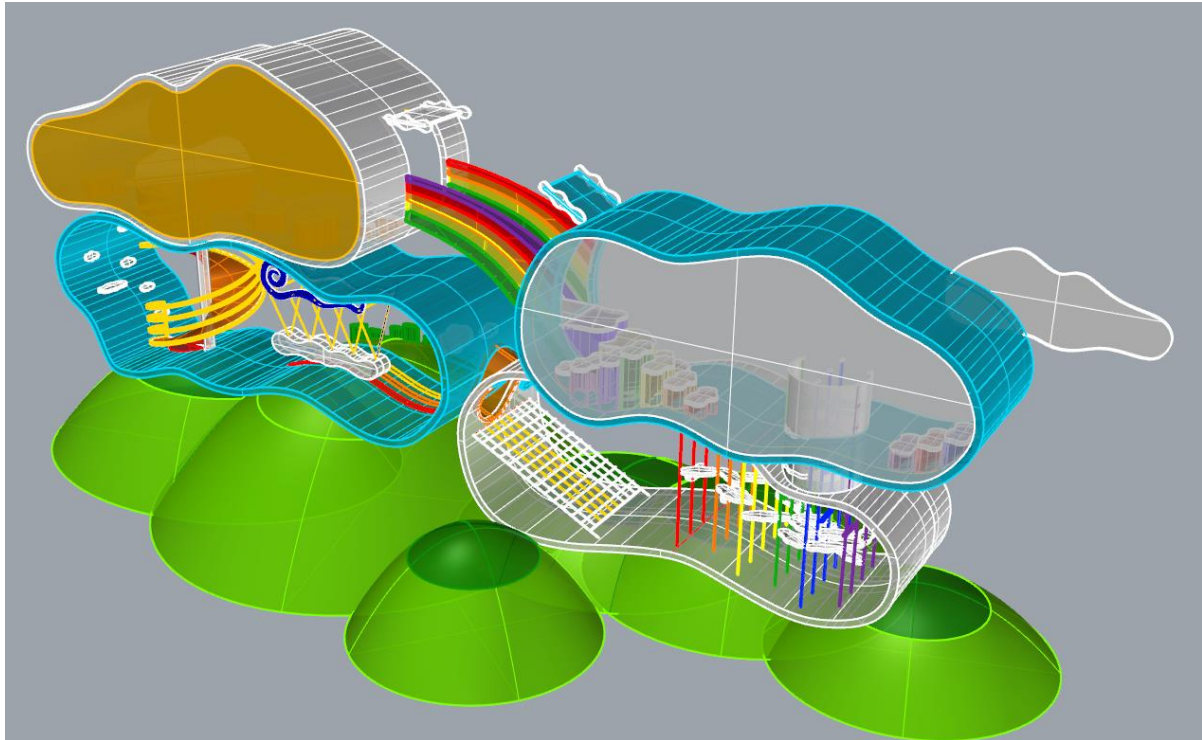
Designer: *Author.*

Figure 13-28: *Perspective views (from back) of play zone/setting No. 5 called "Clouds of Joy" (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*
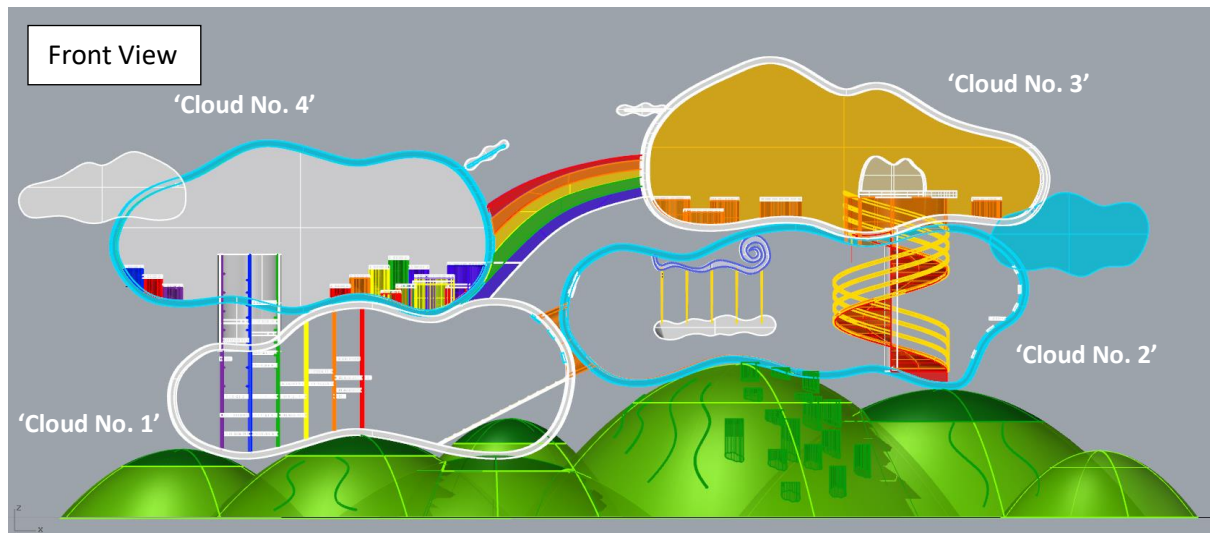
Designer: *Author.*

Figure 13-29: *Front view of play zone/setting No. 5 called "Clouds of Joy" (also see the photos of this play structure/zone in Appendix 8 on the attached CD).*
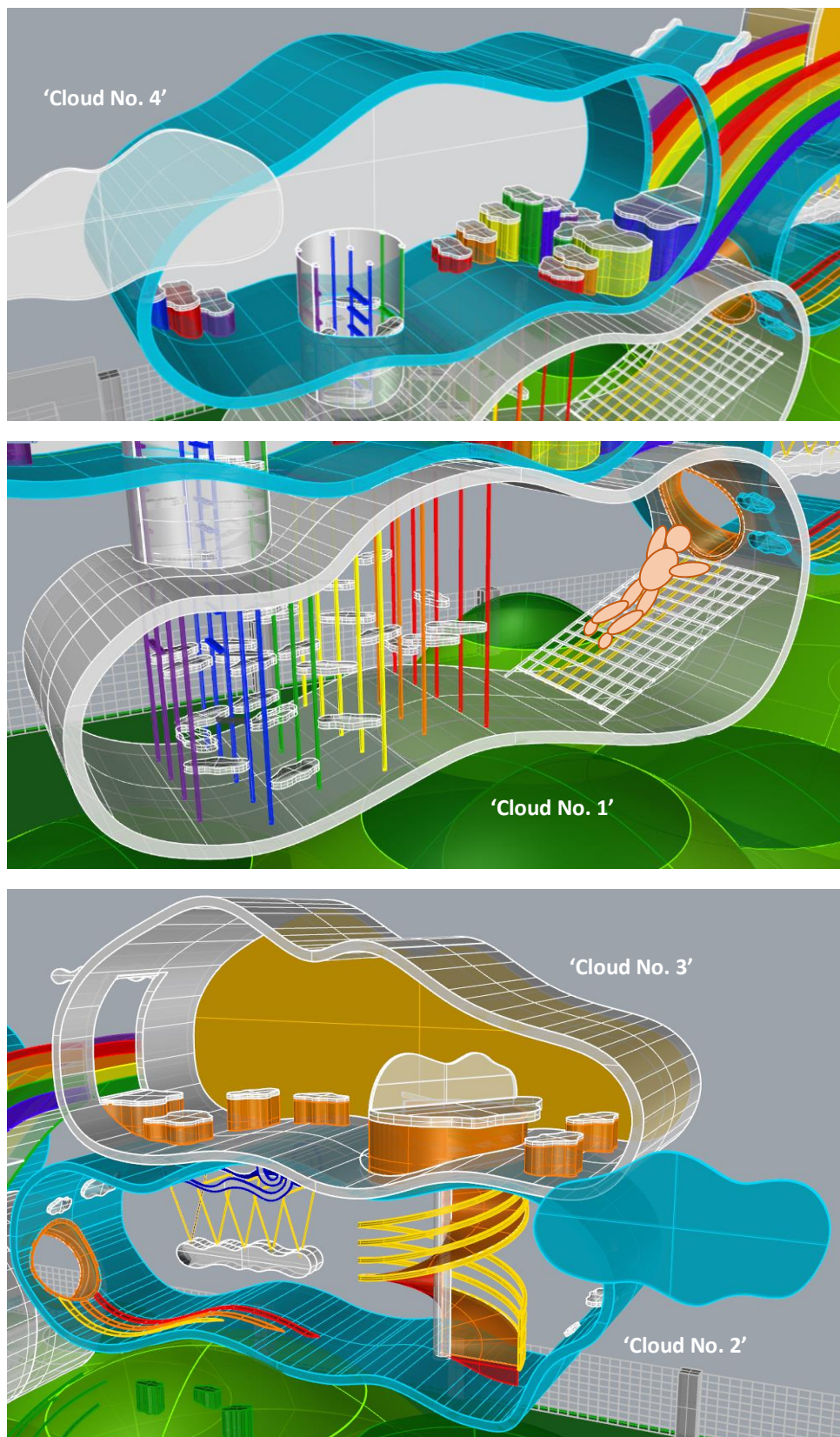
Designer: *Author.*

Figure 13-30: *The views of Clouds No. 1, No. 2, No. 3, & No. 4 (also see other photos of this play structure in Appendix 8 on the attached CD).*

Designer: *Author.*

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On the right of the playground is a large playground setting called 'Clouds of Joy'. The main structure of 'Clouds of Joy' consists of 4 large cloud-shaped playing spaces each equipped with various elements (Figures 13-27, 13-28, 13-29, 13-30, & 13-31) (also see the photos of this play setting in Appendix 8 on the attached CD). To describe how children play in this area and use the setting, each cloud is given a number:

-   'Cloud No. 1' is the white cloud below.
-   'Cloud No. 2' is the blue cloud below.
-   'Cloud No. 3' is the white cloud above.
-   'Cloud No. 4' is the blue cloud above.

-   This set of clouds is located on some green hill-shaped elements and children have to climb the hills to access the clouds. These four clouds, placed next each other (two, at the bottom and two, at the top) are connected with different items of equipment (Figures 13-27, 13-30, & 13-31). By climbing the green hills and entering one of the lower clouds (either Cloud No. 1 or Cloud No. 2), upper clouds can be accessed, for example, in the following ways (Figures 13-31, 13-32, & 13-33) (see also Appendix 8 on the attached CD):

-   Children can go from Cloud No. 1 to Cloud No. 2 by using the climbing net and passing through the orange hole; and they can go from Cloud No. 1 to Cloud No. 4, by using vertical rainbow-colored bars/poles (Figures 13-31, 13-34, & 13-35).
-   The two upper clouds (Cloud No. 3 & Cloud No. 4) are connected by a rainbow-shaped bridge. By crossing this bridge, children can go from one of the upper clouds to the other one (Figure 13-32).
-   Cloud No. 2 is connected to Cloud No. 3 by an orange, red, and yellow spiral ramp (Figures 13-31 & 13-32) (see also Appendix 8 on the attached CD).
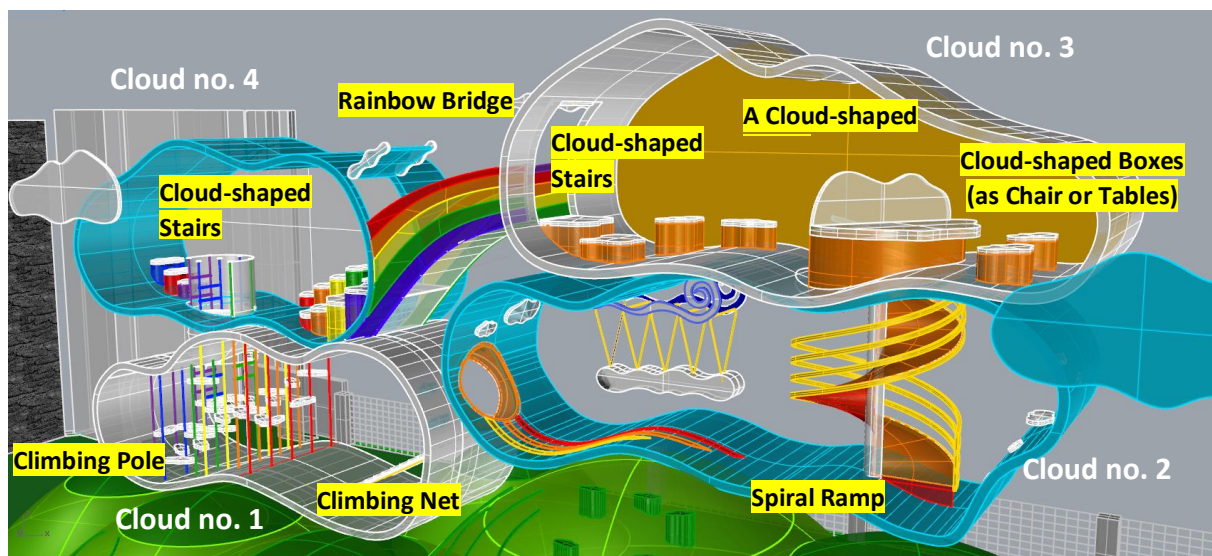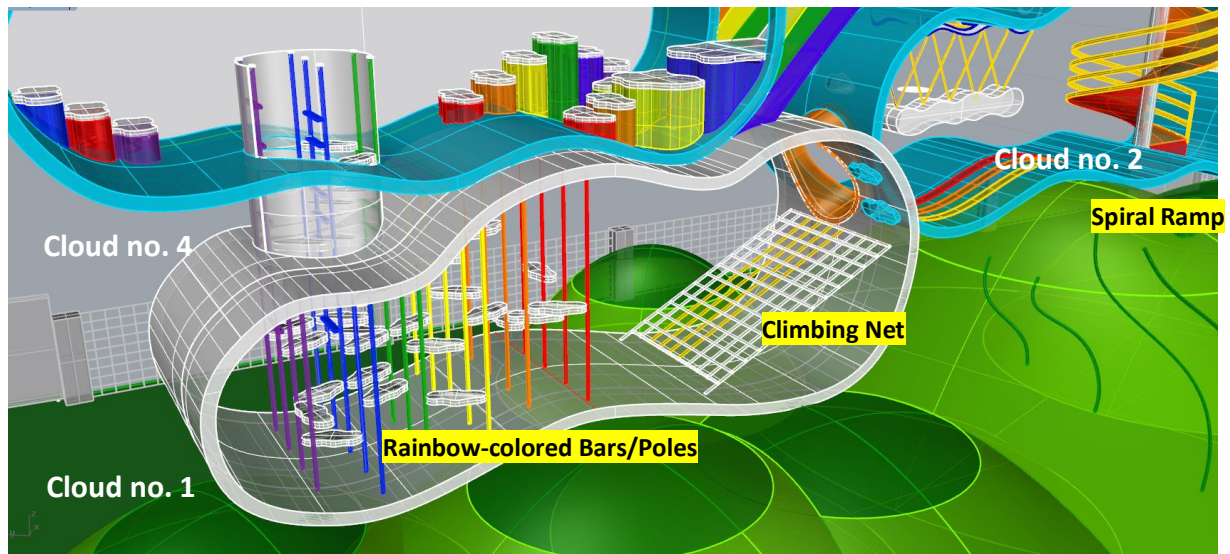
Figure 13-31: *The play equipment and settings that connect the cloud-shaped playing spaces (Clouds No. 1 – No. 4) to each other (see also Appendix 8 on the attached CD)*
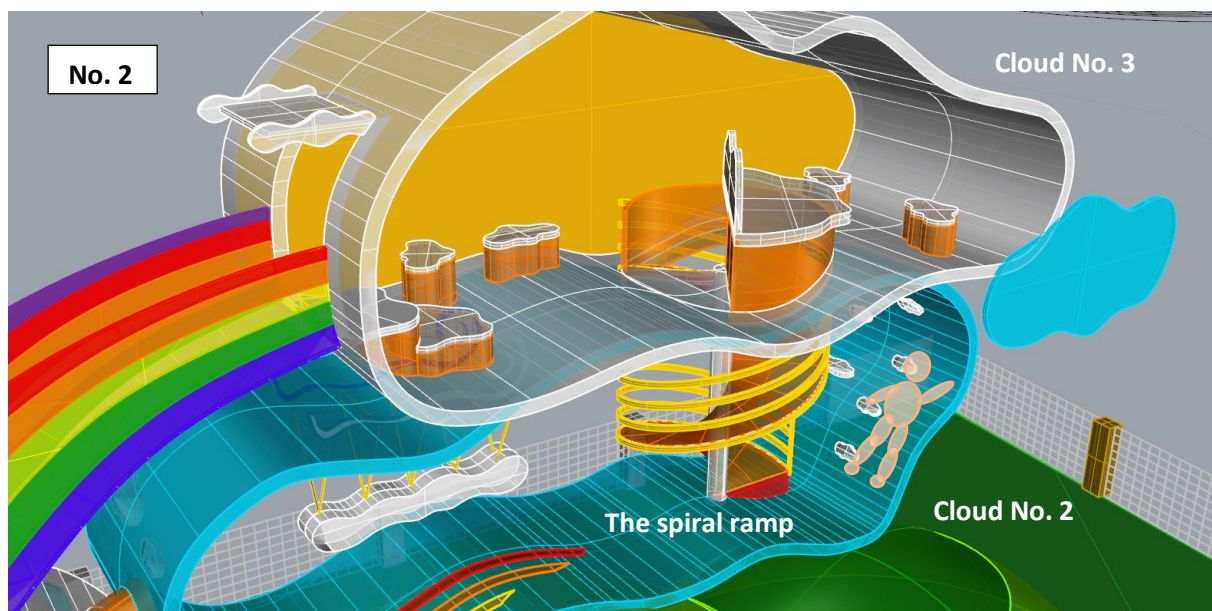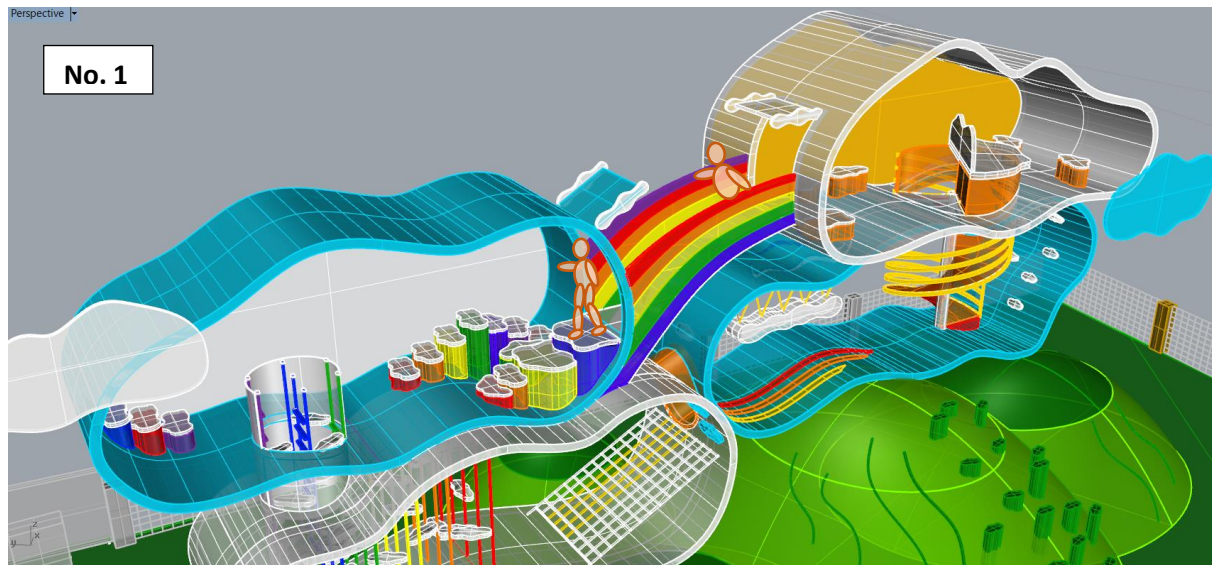
Designer: *Author.*

Figure 13-32: *No.1: The play equipment and settings that connect the cloud-shaped playing spaces (Clouds No. 1 – No. 4) to each other.*

No. 2: The spiral ramp that connects Cloud No. 2 to Cloud No. 3 (see Appendix 8 on the attached CD).

Designer: *Author.*

- **The general scenario of using and playing in 'Clouds of Joy':**

First, children climb the green hills to access either 'Cloud No. 1' or 'Cloud No. 2'. The shorter hills are for entering 'Cloud No. 1' and the higher hills are for entering 'Cloud No. 2'. For

climbing the hills – especially the higher ones – children can use the installed ropes or bush-shaped surfaces (as stairs) (Figure 13-33).
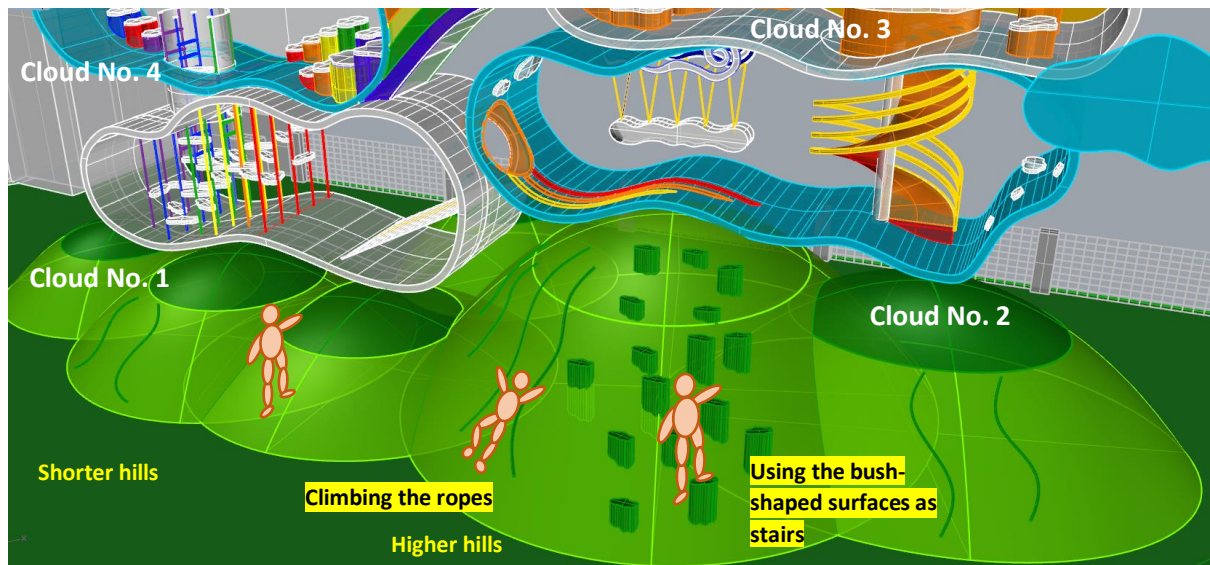
Figure 13-33: *The accessibility to Cloud No. 1 and Cloud No. 2 by climbing hills, and using installed rope or bush-shaped surfaces (as stairs) on the green hills (see Appendix 8 on the attached CD).*

Designer: *Author.*

After entering Cloud No. 1, children can either go to Cloud No. 2 or Cloud No. 4. Inside Cloud No. 1, there are several rainbow-colored vertical bars/poles. Between these vertical poles are plenty of cloud-shaped surfaces. These surfaces have been installed in different directions and at different heights. To play and move between these colored poles, children must place their feet on the cloud-shaped surfaces (Figures 13-34, 13-35, & 13-36).

Some of these rainbow-colored poles extend into Cloud No. 4. Thus, to move from Cloud No. 1 to Cloud No. 4, children must climb these poles by putting their feet on the cloud-shaped surfaces and rungs installed on the poles at different heights. Using this equipment can inspire the imaginary experience of moving on clouds and climbing the rainbow. It can help children get involved in a make-believe play with a theme relevant to clouds, rainbow, and sky (Figures 13-34, 13-35, & 13-36).
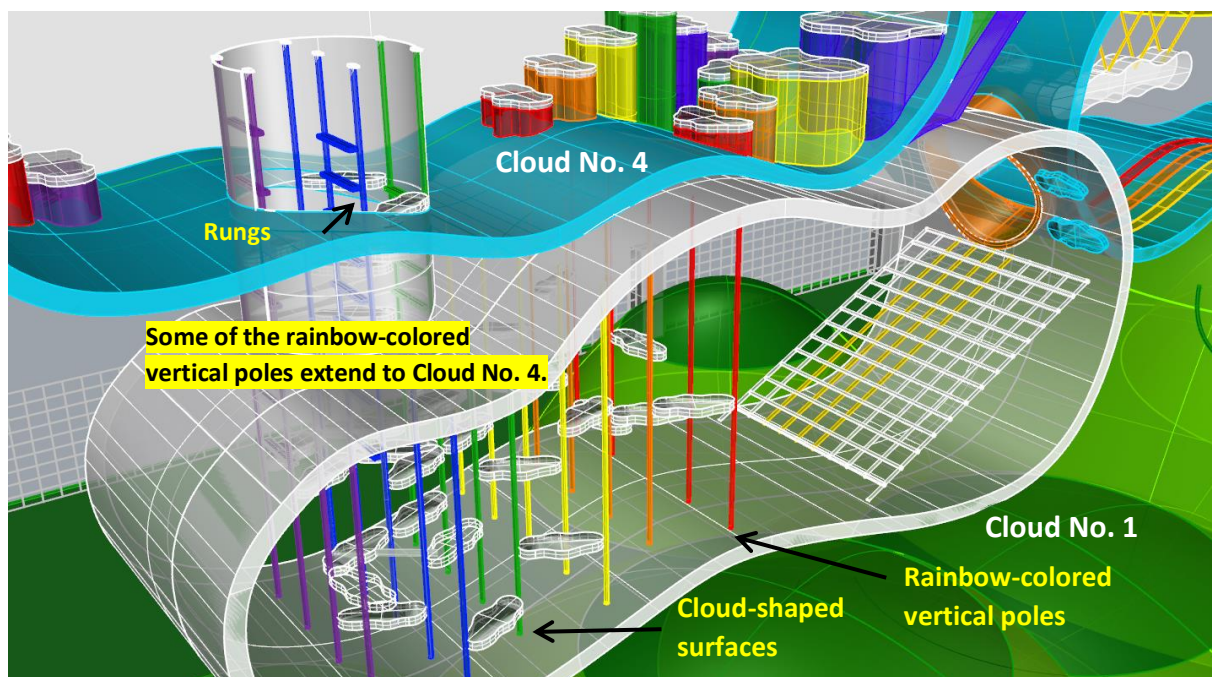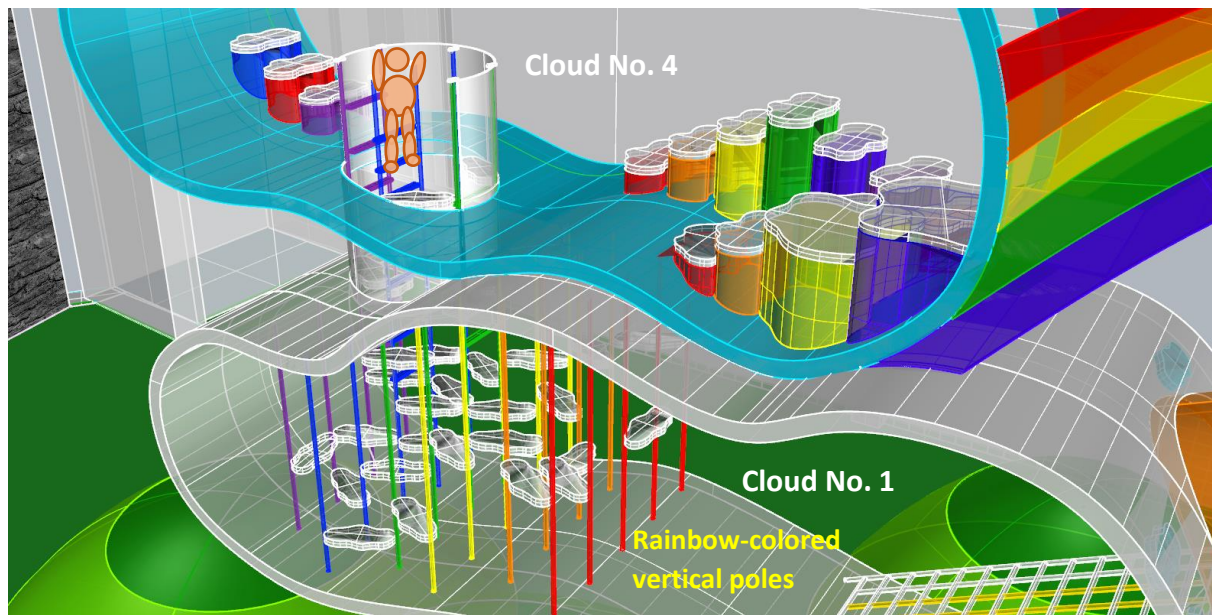
Figure 13-34: *The connection between Cloud No. 1 and Cloud No. 4 by rainbow-colored vertical poles (see Appendix 8 on the attached CD).*
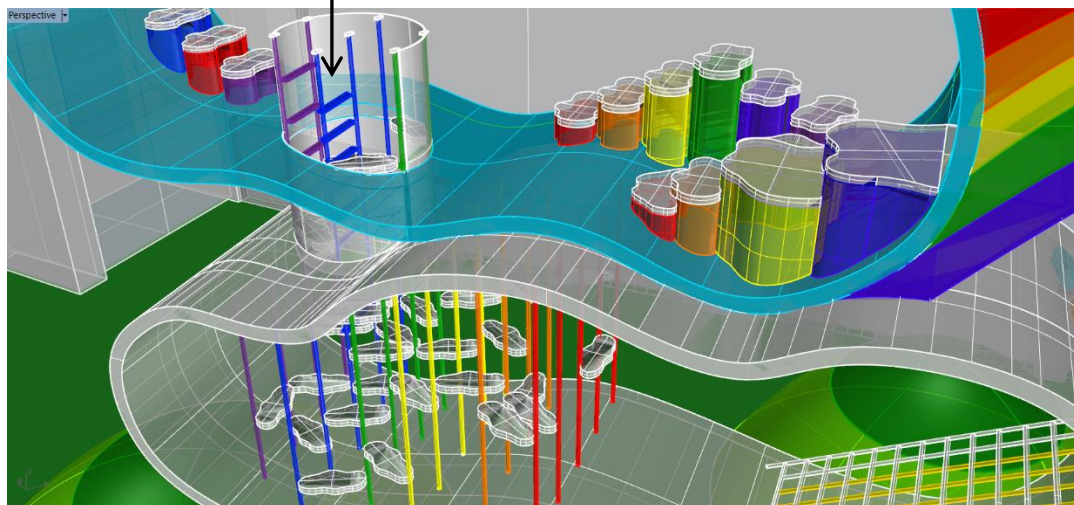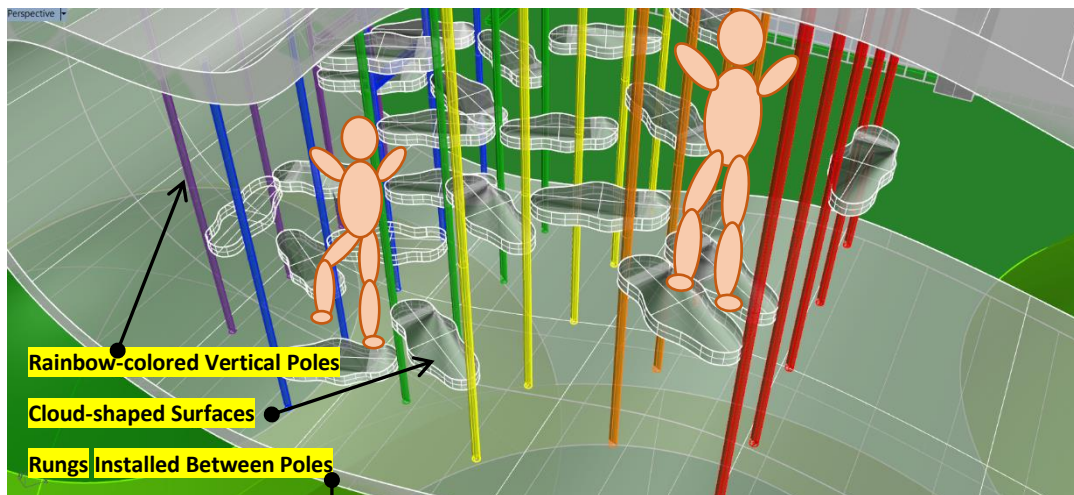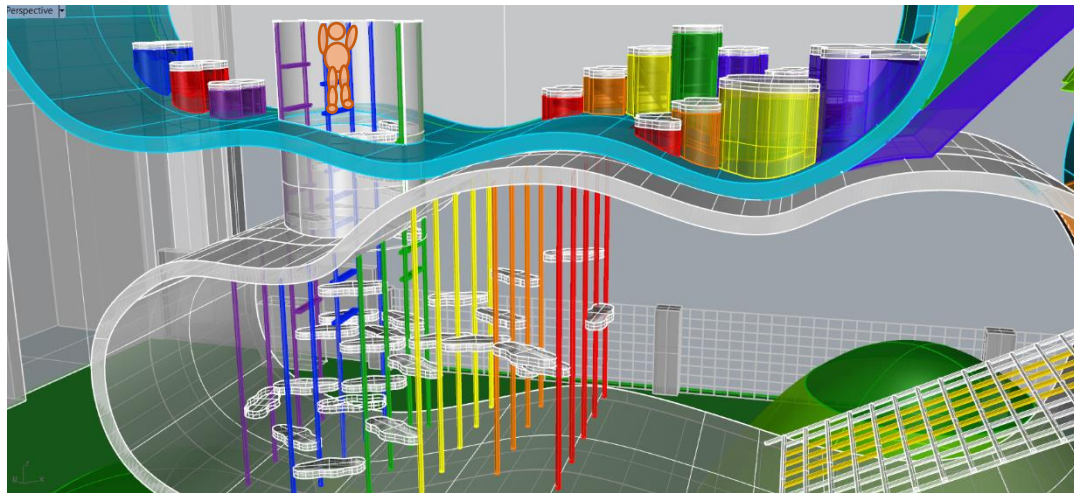
Designer: *Author.*

Figure 13-35: *Views of rainbow-colored vertical poles and cloud-shaped surfaces (see Appendix 8 on the attached CD).*
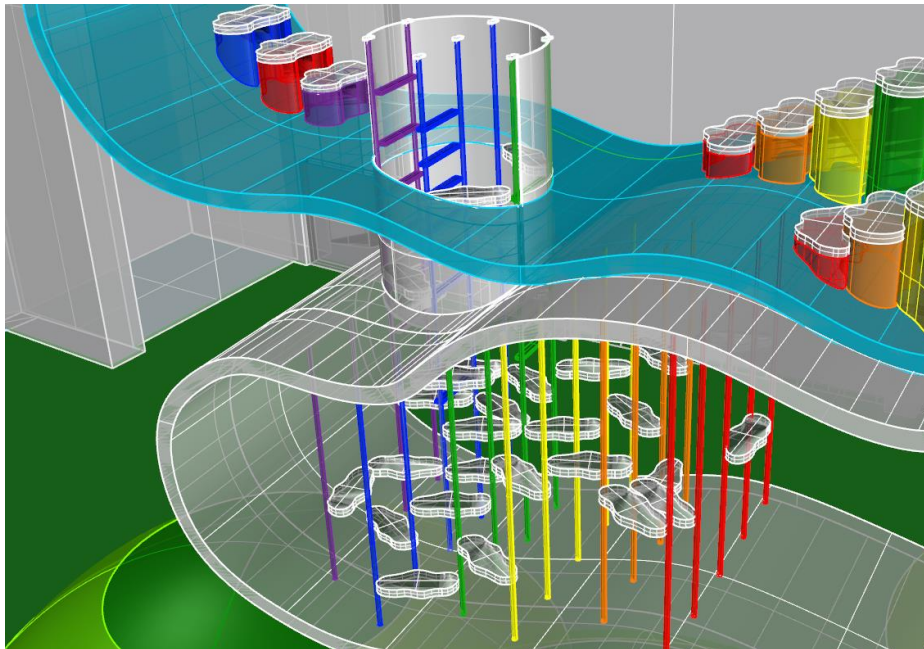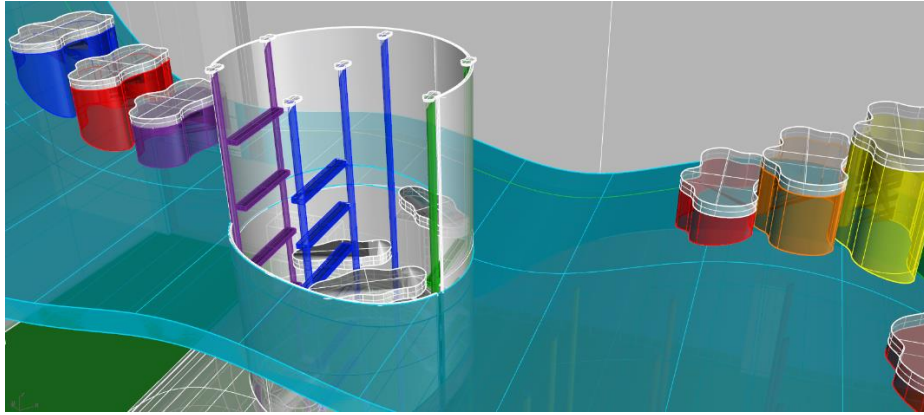
Designer: *Author.*

Figure 13-36: *Views of rainbow-colored vertical poles and cloud-shaped surfaces (see Appendix 8 on the attached CD).*

Designer: *Author.*

By using the climbing net in Cloud No. 1 and passing through the orange hole, children can enter 'Cloud No. 2'. The design of the circular orange hole is inspired by the idea of the sun. The yellow stripes on the climbing net are reminiscent of sunrays (Figure 13-37). These stripes (sunrays) extend to Cloud No. 2 in the form of red, orange and yellow stripes with different lengths on the curved floor (Figure 13-37).

Around this orange hole from both sides (inside both Cloud No. 1 and Cloud No. 2), several small white/blue clouds have been installed (Figure 13-37). These clouds make the design of the

orange hole visually meaningful, since it looks like the sun between the blue or white clouds (Figure 13-37).

The orange hole for going to Cloud No. 2: the circular orange hole that looks like the sun among the clouds.

Cloud No. 2

Climbing net and its 4 yellow strings that look like the sunrays.

Cloud No. 1

The orange hole (as the sun) among the white clouds.

Wind-shaped element

Cloud-shaped swing

The orange hole (as the sun) and three stripes on the floor in red, orange, and yellow (as sunrays).

Figure 13-37: *Equipment linking Cloud No. 1 to Cloud No. 2 including climbing net and orange hole (see Appendix 8 on the attached CD).*

Designer: *Author.*

As stated, children can also directly enter 'Cloud No. 2' by climbing the high green hills (Figure 13-33). Inside Cloud No. 2, there is a long cloud-shaped swing that has been designed based on the concept of the 'crocodile swing' (Figure 13-37). About four children – aged 4-8 – can use this cloud-shaped swing at the same time. Above this cloud-shaped swing, there is a shape that represents the wind. In this way, when children swing, it is as if the wind moves the cloud (Figure 13-37).

Inside Cloud No. 2 a brightly colored yellow, orange, and red spiral ramp or staircase leads to Cloud No. 3. The design of this spiral staircase is also inspired by the sun. The upper surface of the ramp is orange, its lower surface is red and its handrail is yellow like beams which lead toward the sun (i.e. the orange space of Cloud No. 3) (Figures 13-38 & 13-39). The handrail includes 4 yellow spiral rods which look like sunrays. These warm colors visually prepare the users to enter Cloud No. 3 which is in orange and white similar to the colors of sun, sunlight and clouds (Figure 13-39).
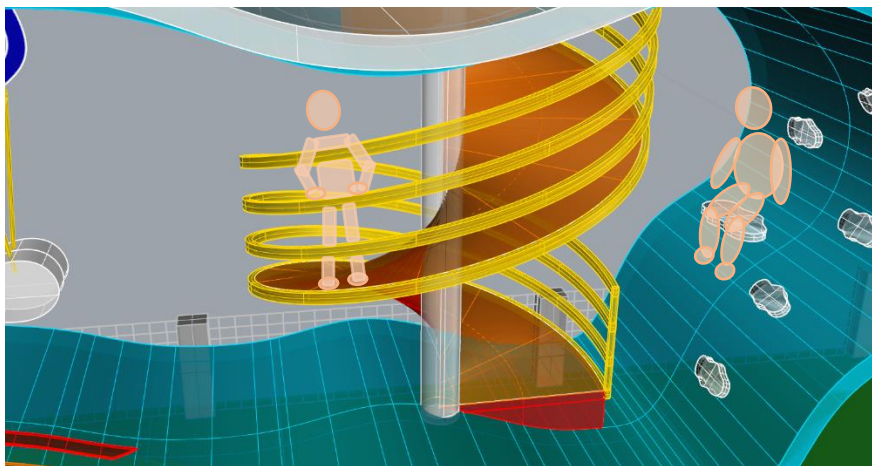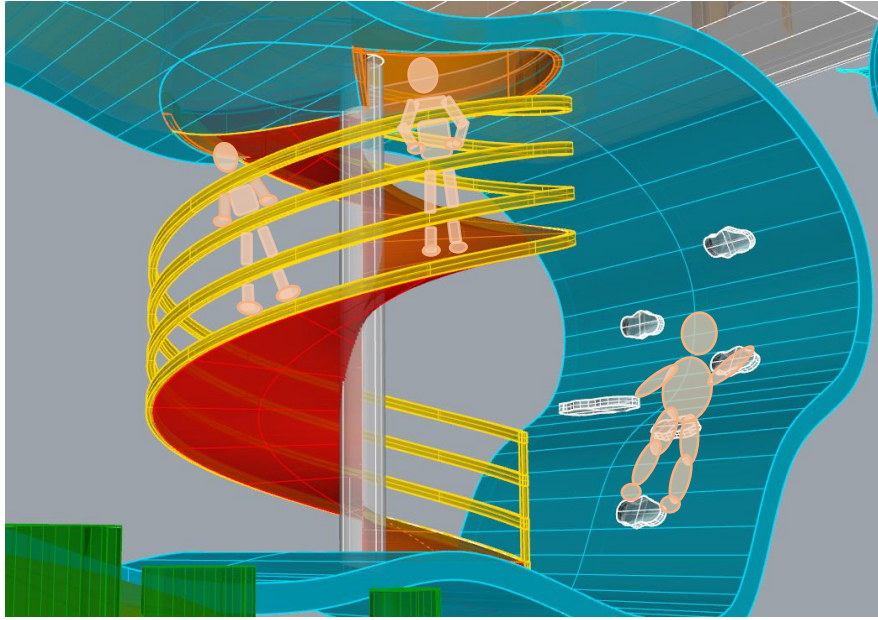
Figure 13-38: *The views of spiral ramp and installed cloud-shaped surfaces on the wall of Cloud No. 2. The upper surface of the ramp is orange, its lower surface is red and its handrails are yellow like beams toward the sun (i.e. the orange space of cloud No. 3) (see Appendix 8 on the attached CD).*

Designer: *Author.*

Near the spiral staircase/ramp are several shapes installed on the wall in the form of white clouds (Figure 13-38). In addition to creating a beautiful appearance on the blue surface of the wall, these white cloud-shaped surfaces, can be used as climbing holds. Children can use them while climbing and playing on this wall (Figure 13-38).

As stated, by climbing the orange spiral staircase or ramp, children can go from Cloud No. 2 to Cloud No. 3. In the interior design of Cloud No. 3, the colors of white and orange, and cloud-

shaped objects have been used (Figure 13-39). Objects fixed to the floor include a large cloud-shaped bench and several small cloud-shaped elements with orange base/pedestal. These elements can be used as boxes for toys, chairs, tables, and as elements for make-believe play. For example, some of these cloud-shaped elements/stairs may be musical with different sounds, such as the sound of different climates (e.g. the wind and rain), or the sound of river and different birds in the spring (Figure 13-39).

Some of these cloud-shaped elements that are used as boxes have a lid to open. Inside these boxes, there are small toys (e.g. puzzles, dolls, LEGO bricks) that children and even parents can play with, in this play area. After finishing the play, they put the toys back in the boxes (Figure 13-39).

Cloud No. 3, offers a space to the users (i.e. children aged 4-8 and even the older children or adults that may accompany them) for playing in peace and quiet, sitting, regaining strength, relaxing, talking and enjoying having a bird's eye view (Figure 13-39).
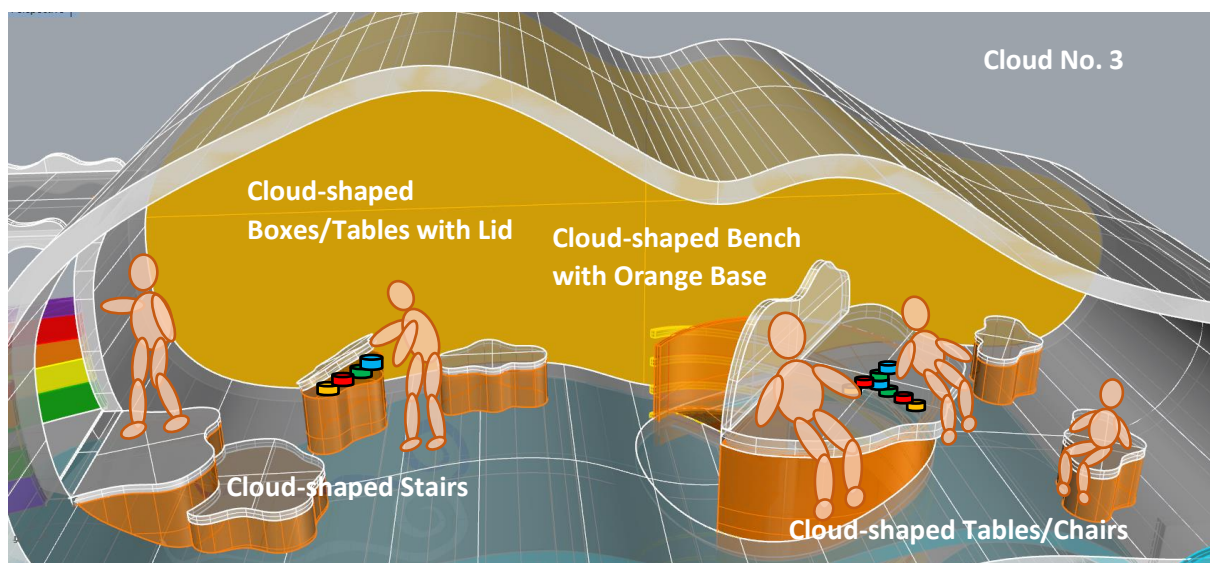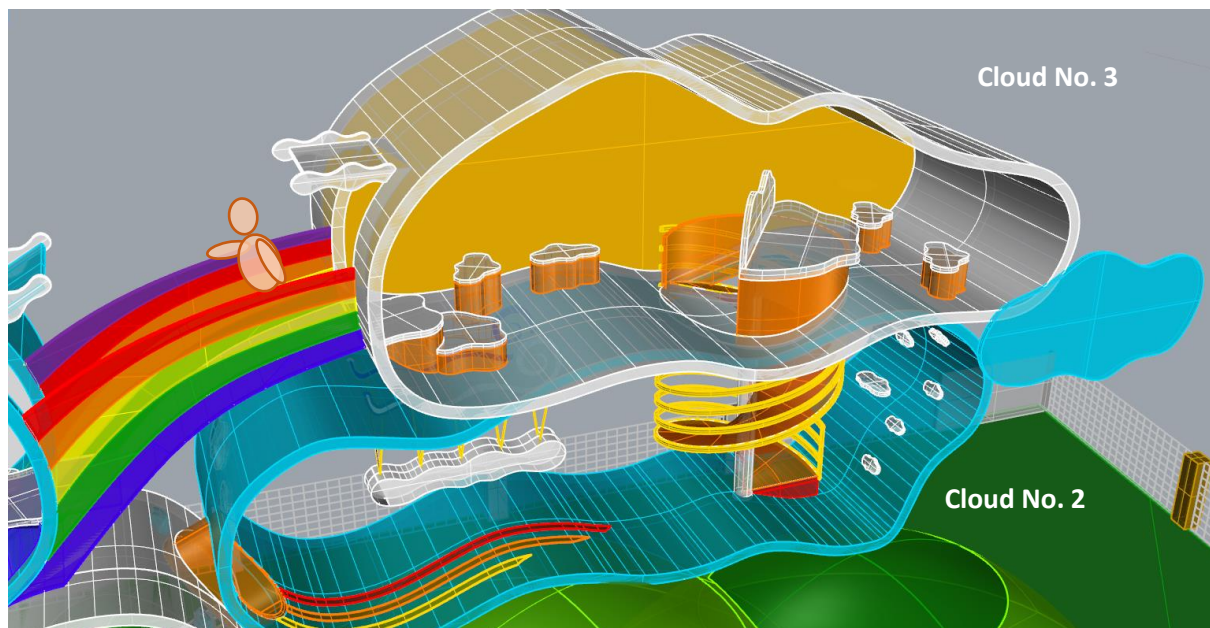
Figure 13-39: *Perspective and inside view of Cloud No. 3 and its potential users (see Appendix 8 on the attached CD).*

Designer: *Author.*

The back face of this play space ('Cloud No. 3') is closed. It is covered by orange glass, Plexiglas, or acrylic sheeting[9] and the front face is covered with a stainless steel safety net. The orange reflection on the back face especially in sunny weather makes the space of Cloud No. 3 look like a big white cloud in front of strong sunlight (Figures 13-39 & 13-40).

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[9] See the examples on: https://www.jinbaoplastic.com/product/product_55_1.html, accessed: 23.06.2021.

Using a safety net on the front of this playing room instead of completely closing it, allows air to enter and exit the room and allows children to have better interaction with the outside environment (e.g. having the bird's eye view, experiencing the weather, and watching their parents and other people from above) (Figure 13-40).
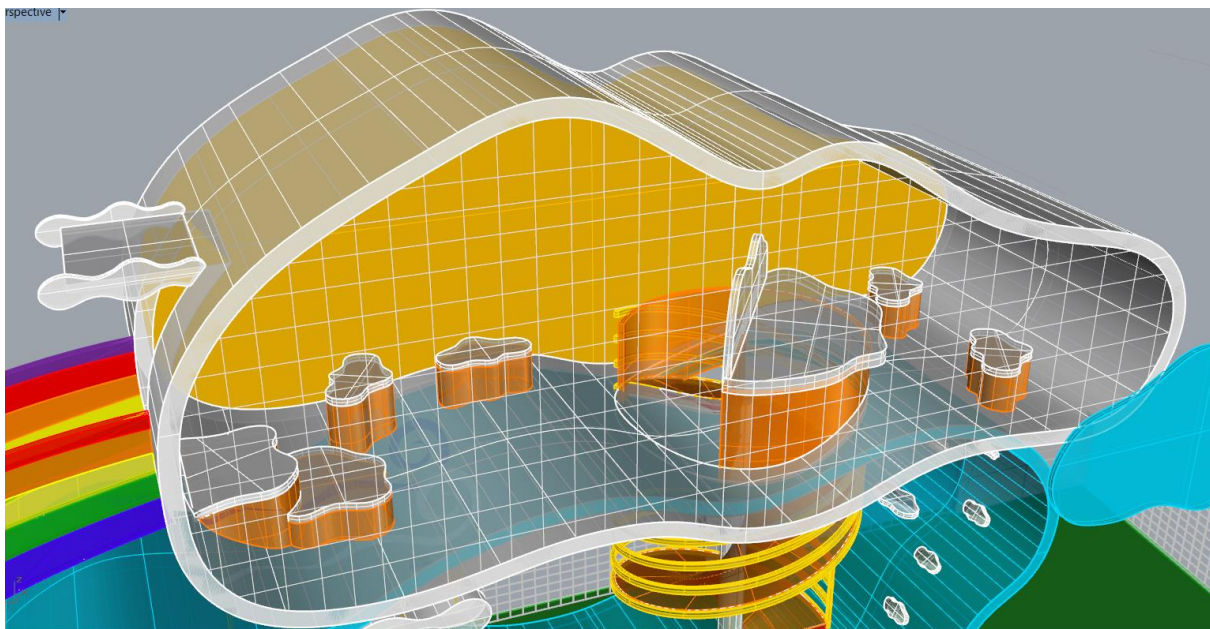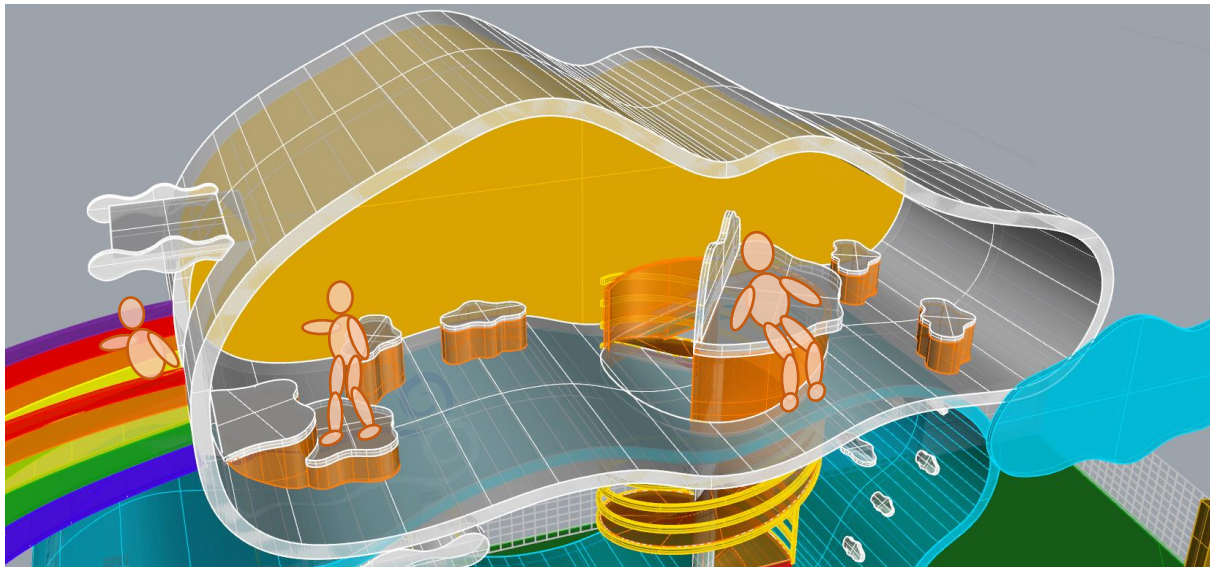
Figure 13-40: *Showing the back face (covered with orange acrylic sheeting) and front face (covered with stainless steel safety net) in Cloud No. 3 (see Appendix 8 on the attached CD).*

Designer: *Author.*

To go from Cloud No. 3 to Cloud No. 4, children climb the stairs and cross the rainbow-colored bridge. In Cloud No. 4 several cloud-shaped stairs/elements are installed on the floor at different heights. The bases of these cloud-shaped elements are in different colors similar to the rainbow colors. The interior design of 'Cloud No. 4' has been inspired by the concept of cloud and rainbow (Figure 13-41). Some of these stairs are musical. When children walk on them, they produce sounds like a musical instrument. Thus children can enjoy stepping on these stairs and interacting with them (Figure 13-41).
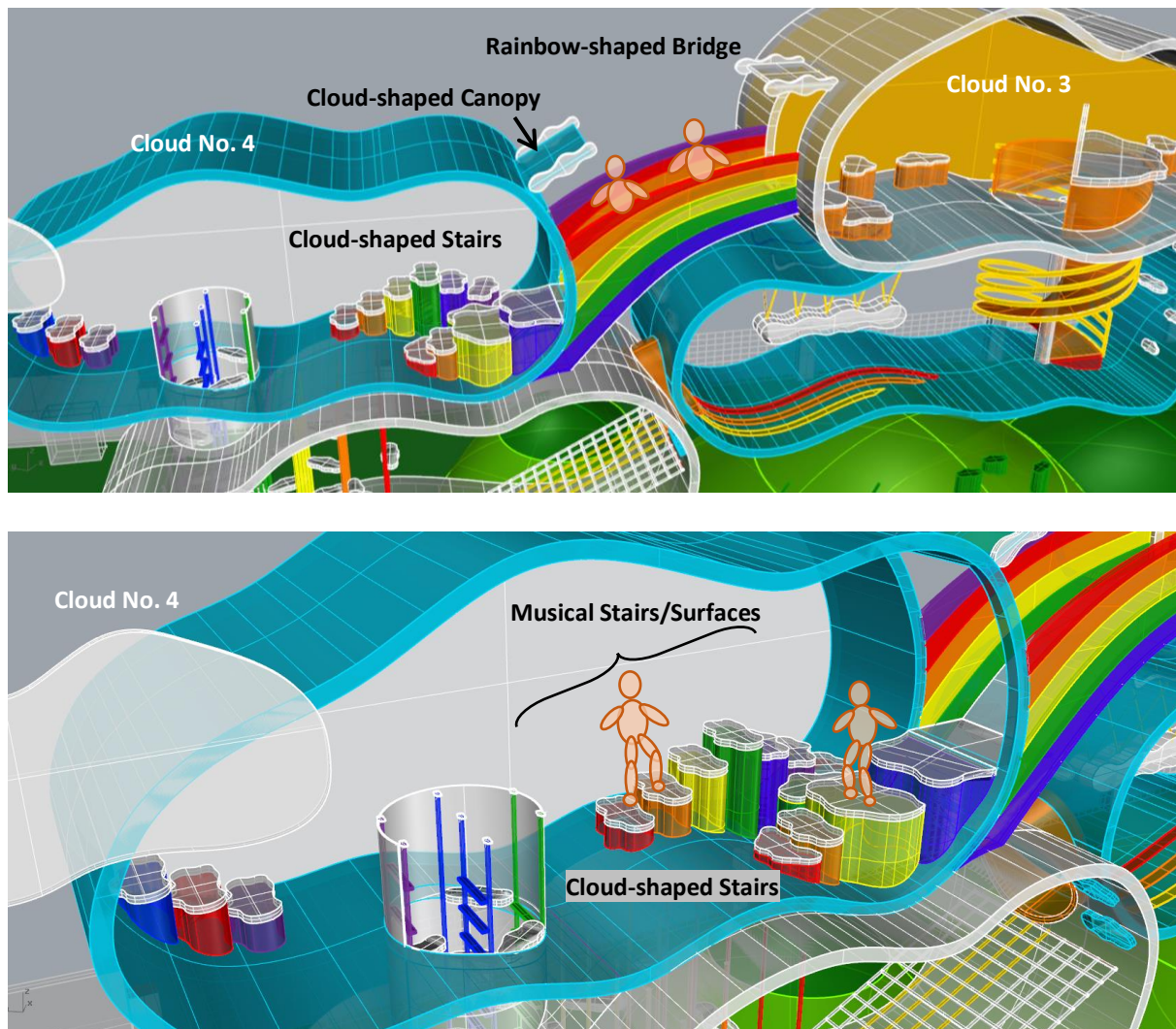
Figure 13-41: *The perspective and inside views of Cloud No. 4 and its equipment (see Appendix 8 on the attached CD).*

Designer: *Author.*

Like Cloud No. 3, the back face of 'Cloud No. 4' is closed and covered by the transparent acrylic sheeting and the front face is covered by the stainless steel safety net (Figure 13-42).

If this play setting ('Clouds of Joy') is installed in areas where the air temperature is high in summer, instead of acrylic sheeting, the back surfaces of 'Cloud No. 3' and 'Cloud No. 4' can be covered by the stainless steel safety net too (like their front surfaces). In this way, the wind can move and cool the indoor air of these play spaces.
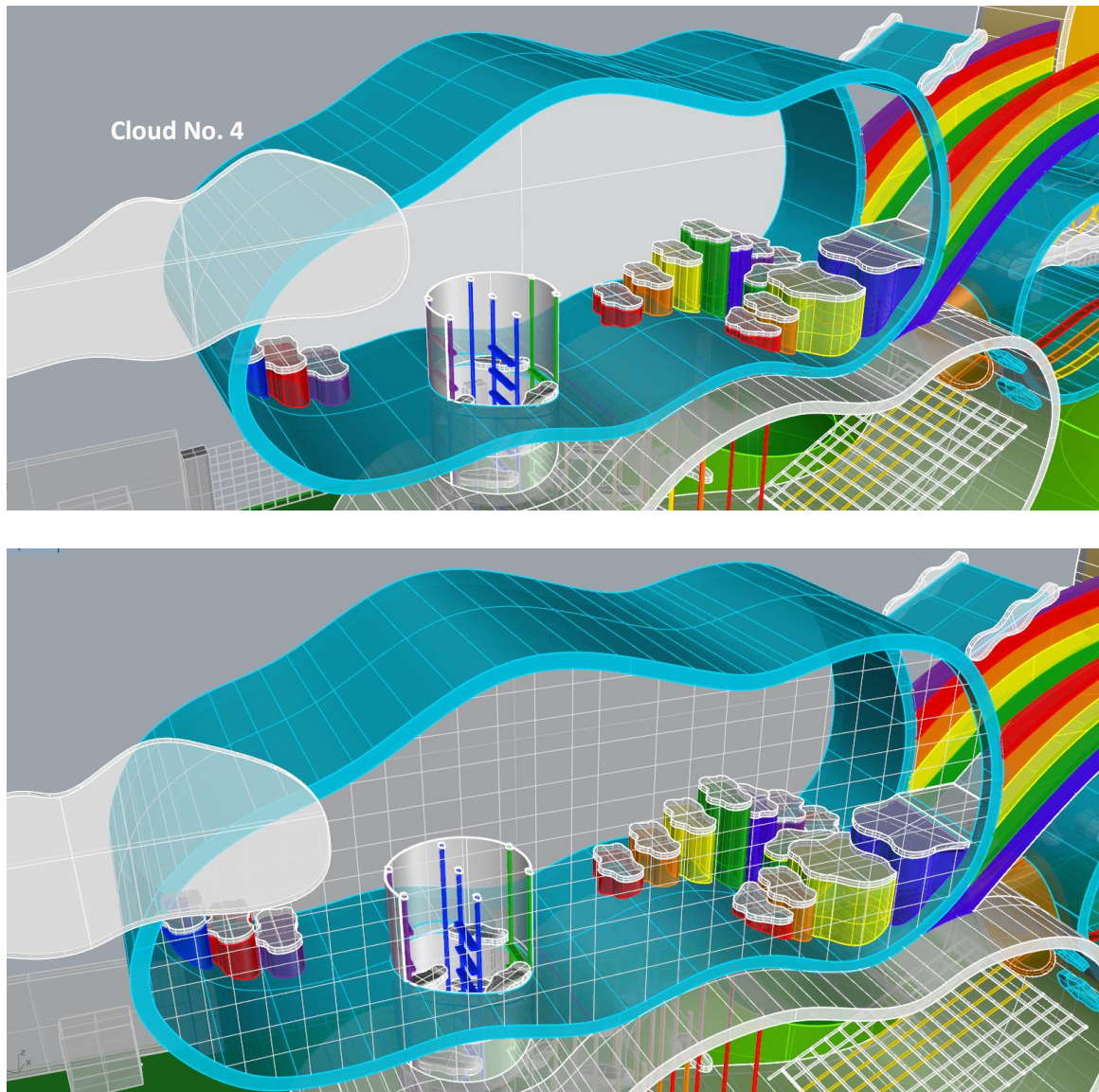
Figure 13-42: *Showing the back face (covered with transparent acrylic sheet) and front face (covered with stainless safety net) in Cloud No. 4 (see Appendix 8 on the attached CD).*

Designer: *Author.*

The front and back faces of Cloud No. 1 are completely open; however, in most cases children use the front face to access (enter) and exit this play space. In Cloud No. 2, the front face is open and its back face is closed – by the stainless steel safety net which can be colorful— due to safety issues/concerns such as:

- Cloud No. 2 is installed at a higher height in comparison with Cloud No. 1 and children may fall or jump from back face and hurt themselves, even though the hills are soft.

- Also because Cloud No. 2 has a swing inside, if the back face is open, people who enter from back face may hit it and hurt themselves. So the back surface is closed.

Since these two play areas (Cloud No. 1 & Cloud No. 2) are located on soft green hills, there is no risk of getting injured when children fall or slip on the hills while playing (Figure 13-43).
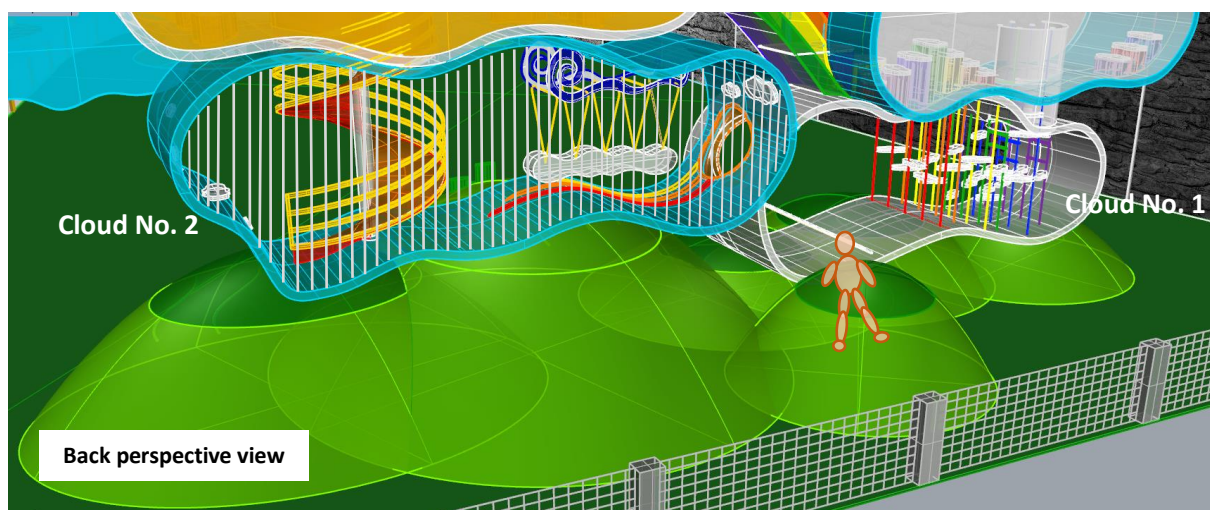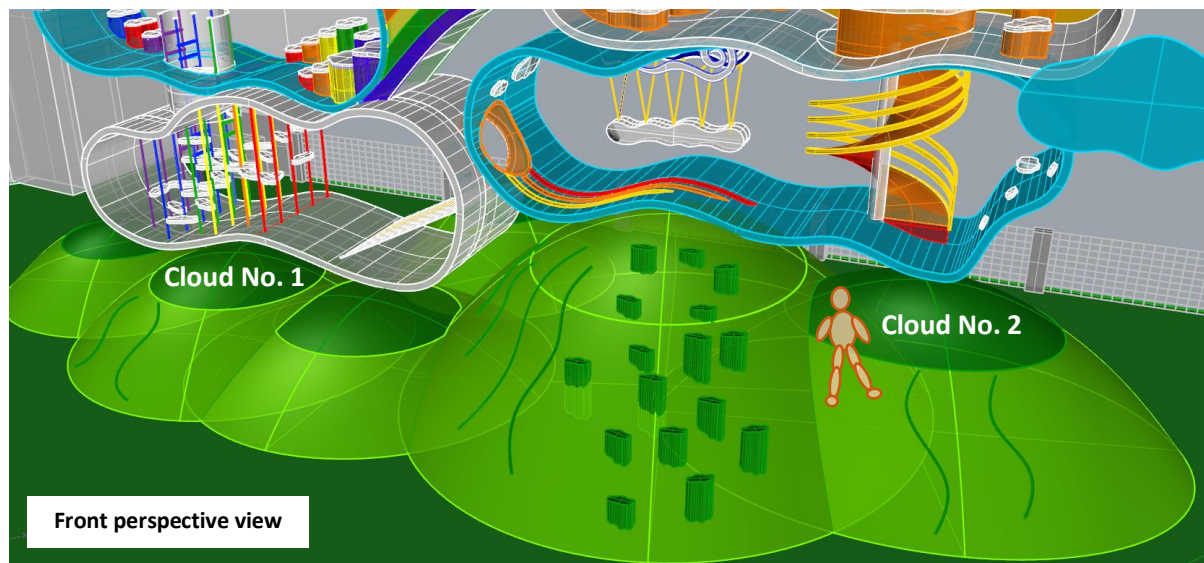
Figure 13-43: *Showing the back faces and front faces of Cloud No. 1 & Cloud No. 2. The front and back faces of Cloud No. 1 are open, while only the front face of Cloud No. 2 is open and its back face is closed due to safety issues (see also Appendix 8 on the attached CD).*

Designer: *Author.*

13.2.3.3. About the space of the playground

Like Parkour Park, there are fences around the playground. This playground has two entrances near each other at the front and one entrance near the back wall on the left. The entrances are such that it is possible for wheelchair users to enter as well (Figure 13-44).
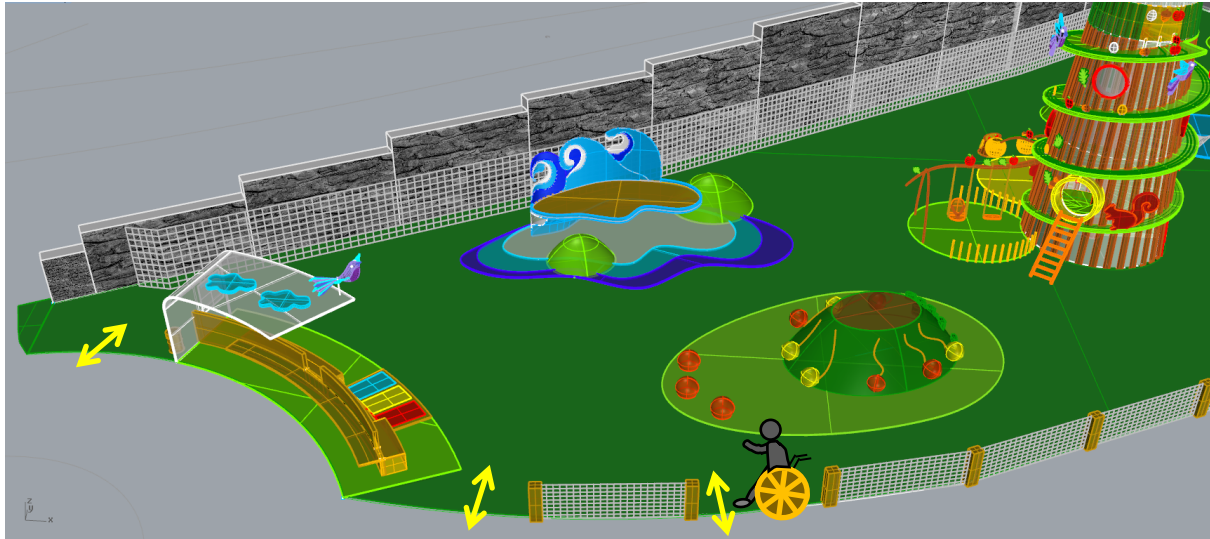
Figure 13-44: *The entrances of the future playground (see Appendix 8 on the attached CD).*

Designer: *Author.*

To prevent children from colliding with the back wall of the playground, which is made of stone, a fence can be placed in front of it (e.g. a short stainless steel safety net).

The stone texture of the back wall visually supports and harmonizes with the design of the playground, which is based on interacting with natural elements (Figure 13-44).

13.2.3.4. Types of play, activities and materials in the future playground

Table 13-1 presents different types of play (offered by each play zone or setting of the future playground), potential users[10], and suitable materials to be used.

However, the precise and final selection of the appropriate material for the construction of each piece of playground equipment is possible when the project is implemented as a concrete

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[10] The age group of potential users of each playground zone, was also expressed/defined by the participants in the evaluation phase in Chapter 14 (see Section 14.2.2: Answers to Question Number 4).

project with the cooperation of the responsible institutions. Because the exact determination of materials depends on various indicators such as investment cost for the project, the possibility of transportation of materials to the city and related location, the exact weather conditions, engineering and safety indexes of the structure and so on.

Table 13-1: *Name of playground zones or settings; types of activity or play; users' age group; and the used materials in each part of these playground settings.*

Name of the playground setting, zone, or facility	Types of experiences, activities or plays that it supports	Main potential users (predicted by the designer)	Main components & material
1. 'Peace under Sky'	- Sitting, resting and relaxing - Lying down and enjoying the sun - Sheltering in rainy weather - Chatting and having social interactions - Reading books or newspaper - Reading the information board (e.g. reading about the playground and its settings) - Observing children playing in the playground - Making a picnic on the green surface - Drinking or eating snacks	1) Adults: The ones who accompany children in the playground like parents, grandparents, babysitters, kindergarten teachers, etc. 2) Children: Children's Siblings— small children under 4 years or older children/teenagers over 8 years. End users – children aged 4-8.	**The material of bench and decoration shapes on the ceiling:** Sustainable timber like PEFC certified, Nordic SUPER WOOD ™, FSC certified okoume plywood and Robinia from sustainable forestry operations in Europe. **The material of the shelter:** Transparent Acrylic sheeting.

2. 'Sense of Sea'	- Sensorial games (playing with sand and creating things)	- Children especially small children under 6.	**The material of sand table:**
	- Creative, manipulative, and constructive play	- Handicapped children who are wheelchair users.	Sustainable timber like PEFC certified, Nordic SUPER WOOD ™, FSC certified okoume plywood and Robinia from sustainable forestry operations in Europe.
	- Playing in peace and quiet with sand		
	- Social Play: making things together (with other children) with sand like a sandcastle or house.		**The protective flooring:** Soft green rubber surfacing.
	- Dramatic Play (Make-believe play): interacting with the sand, green hill-shaped elements, and sea (interacting with sand table that looks like the sea and the waves which empowers and supports the feeling of being at the seaside or lake and relevant dramatic play.		
	- Physical play		
3. **'Hill of Flying Balls'** (previous names: 'Hill of Candy' or 'Palette of Colors')	**- Physical Play:** Climbing the green hill-shaped structure. Jumping on the trampoline. Using the fixed balls as balancing elements.	- Children aged 4-8. - Handicapped children who are wheelchair users.	**The material of green hill-shaped element:** Soft green rubber surfacing. **Material of balls:** Soft plastic. **Material and structure of the trampoline:** The parts of a usual

	- Social Play: Playing with balls or throwing balls to the child that is jumping on the trampoline. **- Dramatic Play:** The appearance of the green hill and colorful balls can support different types of dramatic play. **- Social/Cognitive Play:** Trying to throw the ball in the right direction (toward other child) and catch the ball thrown to him/her. Using the fixed ball as balancing element (trying to keep balance).		trampoline include: - springs - the frame - safety pads - jumping mat The jumping fabric which is an important part of the trampoline is usually a waterproof canvas, or woven polypropylene material. It accommodates the user's weight when jumping and landing.
4.'Tree of Adventure'	**- Physical play:** Climbing the ladder to enter the squirrel's hole. Climbing the spiral ramp inside the tree; and sliding. **- Functional Play:** Swinging. **- Physical Play; Game-with-rules**	- Children especially 6- to 8- year olds who have high physical ability to run, enter the tree-shaped structure and climb the long spiral ramp to approach the grooves on the top the tree.	**Material of the tree-shaped structure, the shapes, and sculptures:** Sustainable timber like PEFC certified, Nordic SUPER WOOD ™, FSC certified okoume plywood and Robinia from sustainable forestry operations in Europe. **Material of transparent area on the top of the tree:**

	(e.g. playing hide-and-seek around the tree and the hills). **- Enjoying the view:** Having a bird's eye view from top of the tree onto the Playground. **- Game-with-rules and Cognitive Play:** Learning about animals and natural elements (e.g. bird, squirrel, and acorns). Transporting the shapes (e.g. apples, acorns, eggs) in order to place them in the correct rail and lead them to the correct basket. This game can also be played socially as a competitive game or game-with-rules between three groups. **- Dramatic Play (Imaginative play):** Getting involved in dramatic play relevant to the nature and natural elements for example interacting with tree, lake, squirrel, squirrel's	Transparent Acrylic sheets **Material for covering yellow windows on the top:** Stainless steel safety net **Material for covering red windows around the tree:** Stainless safety net or transparent acrylic sheeting.

	hole, birds, bird's eggs, bird's nest, apples, and acorns.		
	- Educational and Cognitive Play: Learning about animals and natural elements (e.g. birds, squirrel, and acorns).		
5. 'Clouds of Joy'	**- Physical Play:** Climbing green hills to access Cloud No. 1 and Cloud No. 2; Climbing rainbow-colored poles in Cloud No. 1; Climbing net and passing through orange hole to move from Cloud No. 1 to Cloud No. 2. Climbing cloud-shaped elements installed on the wall of Cloud No. 2. Climbing spiral ramp in Cloud No. 2. **- Physical-Functional Play:** Swinging on cloud-shaped swing in Cloud No. 2. **- Playing in Peace and Quiet; Cognitive**	- Children aged 4-8 years old. - Stakeholders including parents or older siblings accompanying children in Cloud No. 3.	**Material of the main structure of Clouds No. 1 to Cloud No. 4 and cloud-shaped elements:** Sustainable timber like PEFC certified, Nordic SUPER WOOD ™, FSC certified okoume plywood and Robinia from sustainable forestry operations in Europe. **Material for covering the back faces of 'Cloud No. 3' and 'Cloud No. 4':** Orange and transparent acrylic sheet. **Material for covering the front faces of 'Cloud No. 3' and 'Cloud No. 4', and the back face of 'Cloud No. 2':** Stainless safety net. **Material of rainbow-colored poles:** Colorful galvanized or painted metal (see Section

	Play: Sitting, resting, and playing in Cloud No. 3 for example doing puzzle and playing with LEGO bricks which can be considered as cognitive play. **- Enjoying the view:** Having a bird's eye view from Cloud No. 3 and Cloud No. 4 to the playground area, Parkour Park, and Nordbahntrasse. Passing through the rainbow-shaped bridge and enjoying the view. **- Musical game:** Playing on the musical cloud-shaped stairs in Cloud No. 4 and using that as musical instruments (see Section 4.5.2.9. in Chapter 4).		5.5.14. in Chapter 5). **Material of the green hill-shaped element:** Soft green rubber surfacing. **Material of the climbing setting in Cloud No. 1 to access the orange hole:** Net or galvanized cables.
1. **Surface of playground**		All the users including adults, children, and wheelchair users	The playground surface is green rubber surfacing. Using this material instead of sand or wood mulch lets wheelchair users enter the playground and move on the ground more easily (see Figure 5-49 in

			Chapter 5).
2. **Fences around the playground**			The fences around the playground are made of stainless steel; these fences are installed on concrete or wooden columns.

Source: *Author.*

13.2.3.5. Examples of the paintings/drawings adopted in the design

In this section, some of the paintings/drawings and relevant experiences reflected in the design of the future playground are presented as examples (Figures 13-43 (a)-(f)). For more information about painting/drawing and the explored experiences see Appendixes 3 & 4 on the attached CD.

The drawings and experiences shown in Figures 13-45 (a)-(f), are just a few examples of a wide range of experiences that have been reflected in the design of the playground.

As stated, in generating designs for the future playground and its equipment and settings, the explored design parameters[11] — that have been summarized in Section 13.2.3.1. — were considered.

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[11] These design parameters were described in details in Chapters 11 and 12.

Lying on a groundsheet in the garden and looking at the sky in peace and quiet.

Relaxing in the natural environment

Making a picnic

Interacting with nature
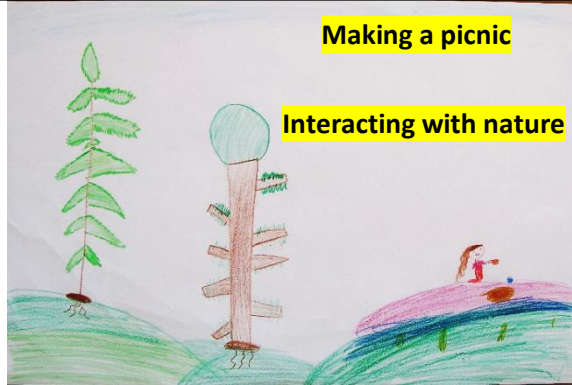
Drawing No. 154

Drawing No. 133

The child and his family lie on the hammocks fastened to the tree

Drawing No. 32
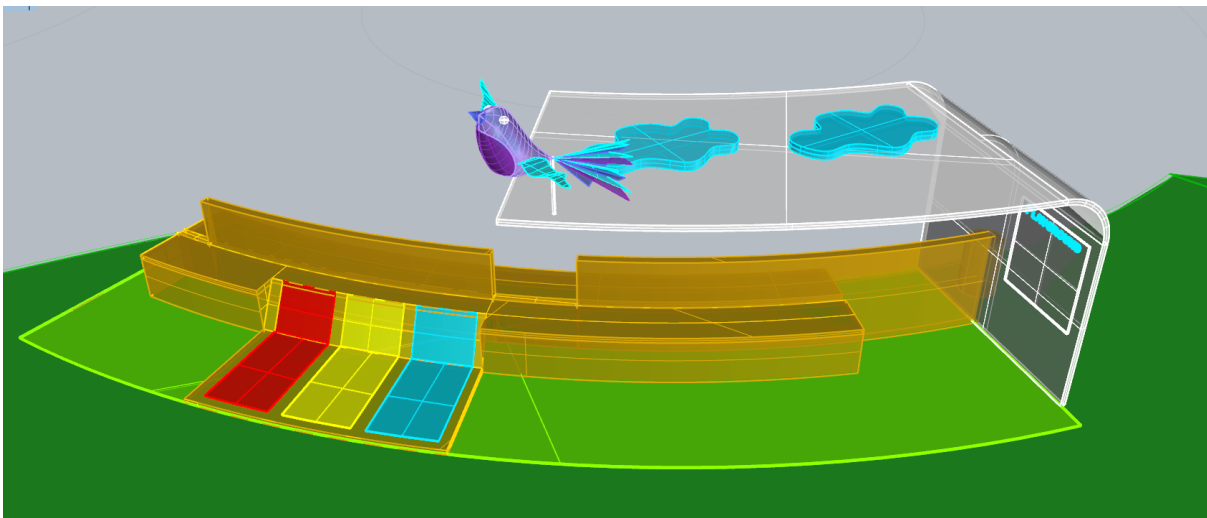
The possibility to lie, relax, and make a pick nick in the area of 'Peace under Sky' which looks like a garden.

Figure 13-45 (a): *Examples of drawings and relevant designs.*

Designer: *Author.*

Drawing No. 39 — Standing/sitting on the green hill

Drawings No. 155 — Playing with balloons

Drawing No. 145 — Jumping on the trampoline to approach birds

Drawing No. 87 — Playing on the trampoline in 'Kinderwelt'

Jumping on the trampoline

The green hill-shaped element
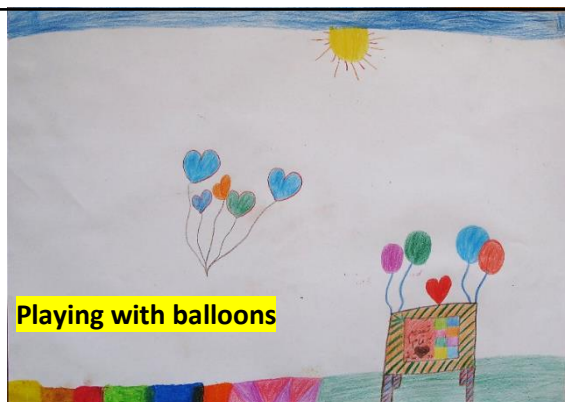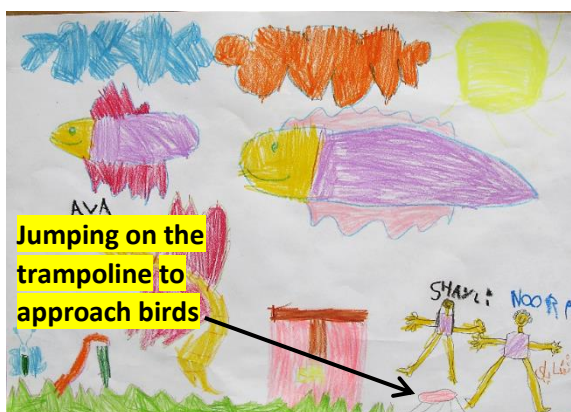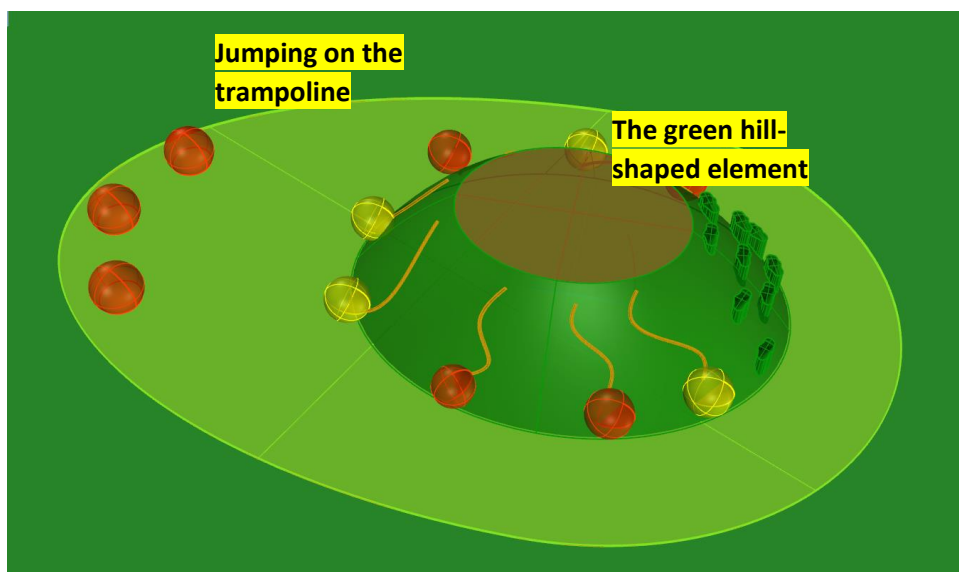
Figure 13-45 (b): *Examples of drawings and relevant designs.*
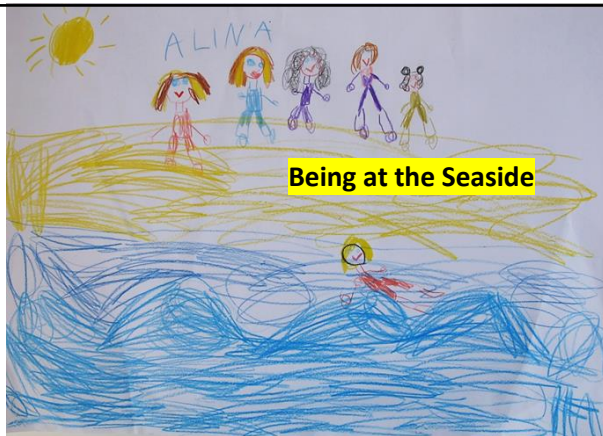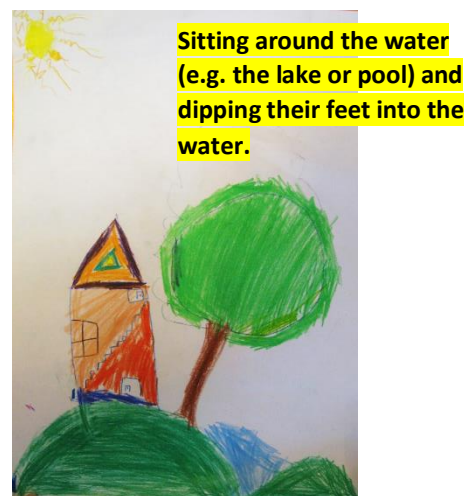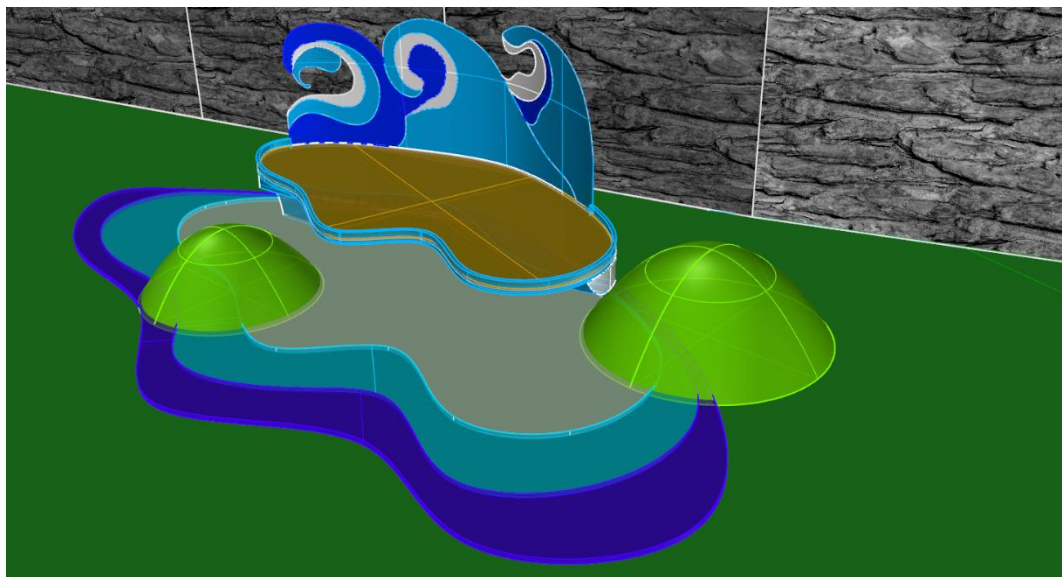
Designer: Author*.*

Figure 13-45 (c): *Examples of drawings and relevant designs.*
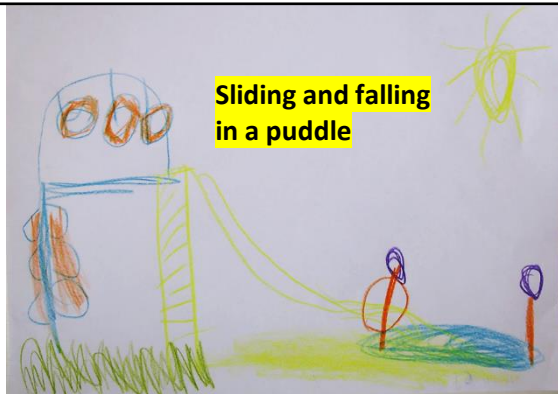
Designer: *Author.*

Drawing No. 26

Drawing No. 143

> Sliding and falling in a puddle

> The eggs of the birds fall down from the nest because of the wind.

Drawing No. 30

Drawing No. 135

> Sliding/Playing on the slide and falling into the pool

> Climbing the apple tree

> Sitting around the water (e.g. the lake or pool) and dipping their feet into the water.

> The moving eggs around the tree seem like the fallen eggs from the nest

> The blue surface which looks like a lake and supports dramatic play

> Climbing inside the tree from spiral ramp
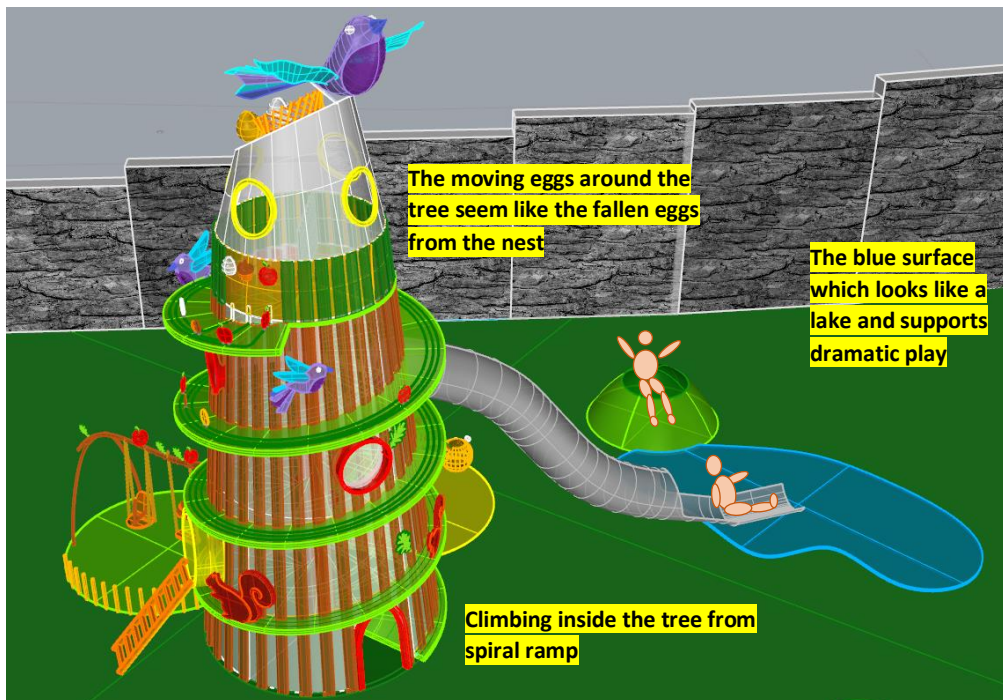
Figure 13-45 (d): *Examples of drawings and relevant designs.*

Designer: *Author.*

Climbing the Apple Tree

Picking Apple from the Apple Tree

The Squirrel Hole in the Tree

Drawing No. 53

The Squirrel & Squirrel Hole in the Tree

Drawing No. 61

Climbing the Tree

The Squirrel and Squirrel Hole in the Tree

The Tree with Moving Apples, Acorns, and Eggs
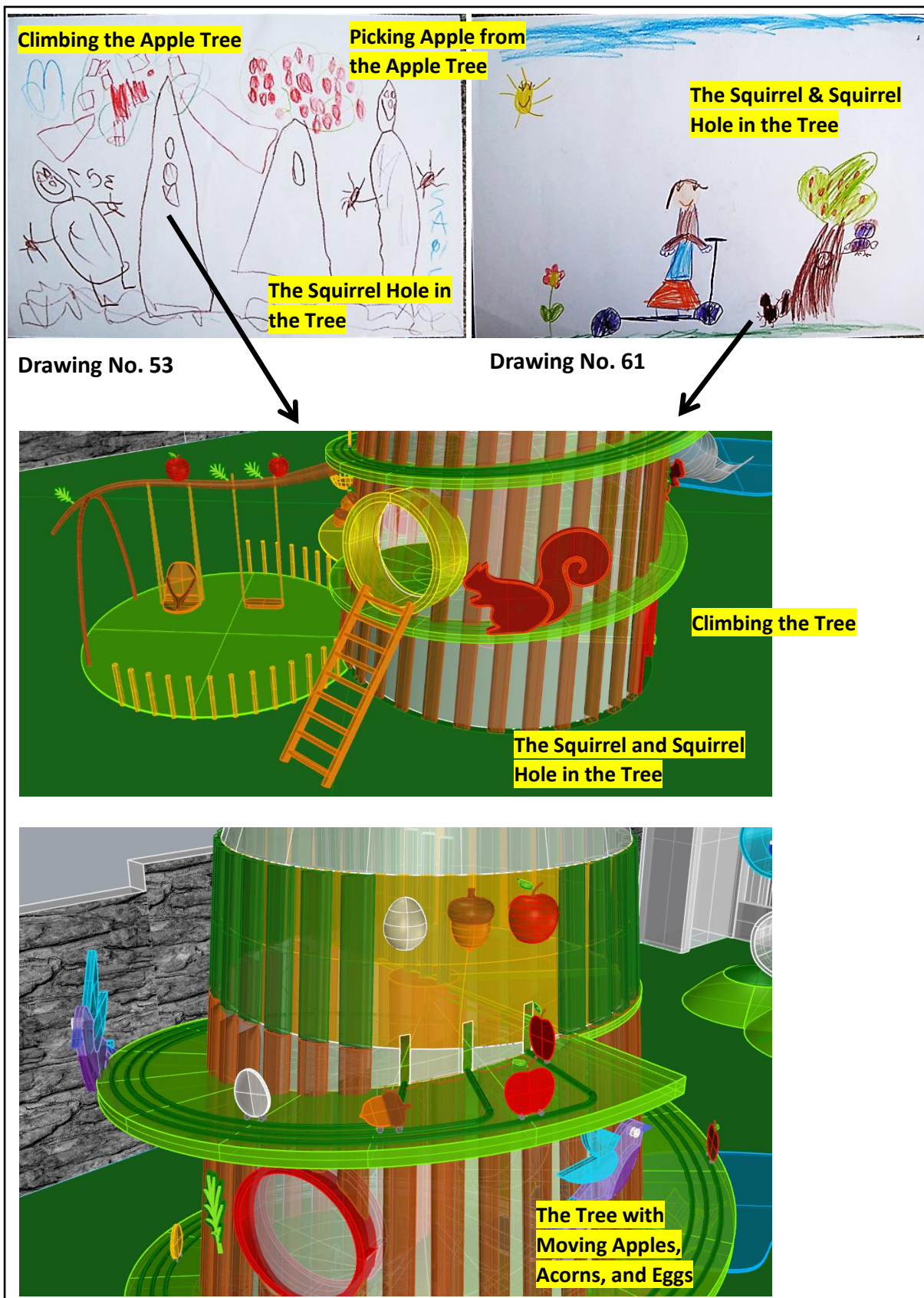
Figure 13-45 (e): *Examples of drawings and relevant designs.*

Designer: *Author.*

Drawing No. 148

Colorful Clouds

Drawing No. 78

Making music in an studio

Drawing No. 147

Playing with the rainbow

Drawing No. 43

The musical stairs/elements

Cloud-shaped structure and rainbow

Swinging Cloud

Climbing the Clouds
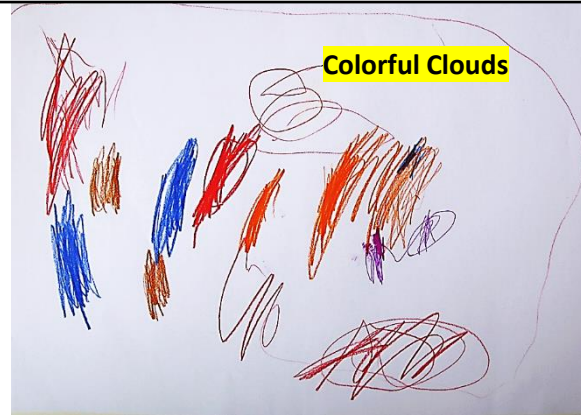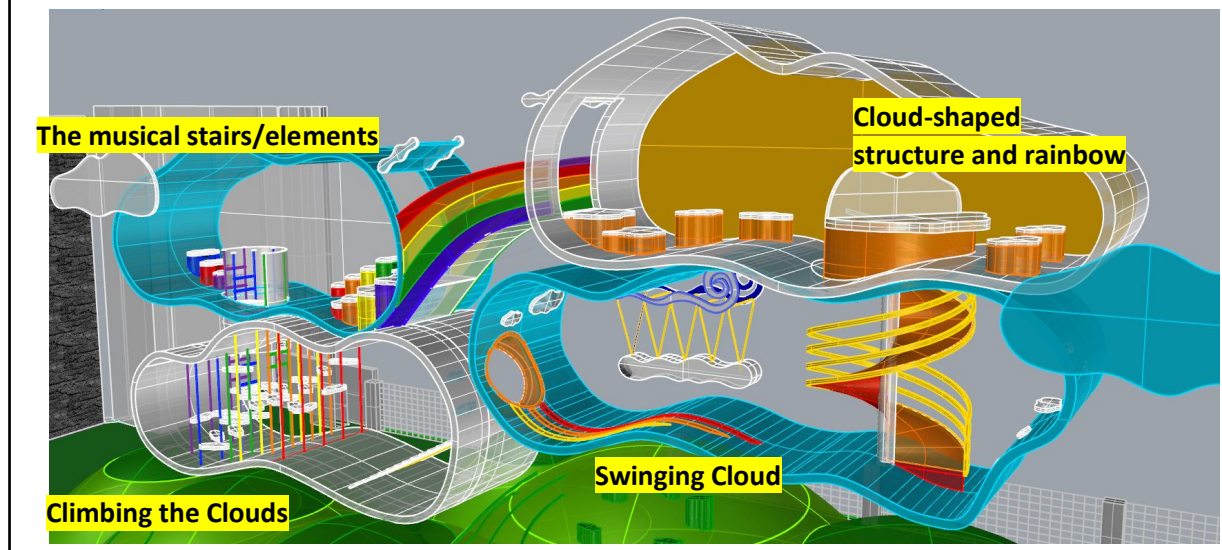
Figure 13-45 (f): *Examples of drawings and relevant designs.*

Designer: *Author.*

13.3. Summary

In this chapter, the primary and final designs and ideas for the future playground based on explored design parameters were presented (see Appendix 7 and Appendix 8 on the attached CD). The final design of the playground, its zones/settings, and the types of play and activities that each setting offers were described in detail. Also the materials used for each setting were presented (Table 13-1).

The design concept is for a complete playground with several main settings in different zones including:

1. **'Peace under Sky'** (name of seating area located on the left of the playground)
2. **'Hill of Flying Balls'**[12] (the green hill with colorful balls and trampoline)
3. **'Sense of Sea'** (blue sea-shaped sand table with green hills around)
4. **'Tree of Adventure'** (a large/high tree-shaped play setting with different parts located in the middle of playground)
5. **'Clouds of Joy'** (the large play setting including 4 cloud-shaped play spaces on the right)

1) "Peace under Sky"

This arched seating area has been designed for playground users especially parents to sit, rest, talk, relax, eat snack, make a picnic, observe children playing, or lying down to enjoy the sun. It is possible to sit on both sides of this arched bench. It has a space near the wall (on both sides) for wheelchair users. Users can also shelter in rainy, snowy or sunny weather in the roofed area. The roof has been designed with shapes of clouds and a bird. This playground area also has a trash bin and a playground information board on the wall with photos, and QR codes of services, and equipment (see the photos of this setting in this chapter; also see the photos of Appendix 8 on the attached CD).

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[12] Its previous names were 'Hill of Candy' or 'Palette of Colors'.

2) "Sense of Sea"

'Sense of Sea' is an interesting sand table, accessible for children with different abilities (e.g. even small children and wheelchair users). Its design has been inspired by waves and sandy beaches.

Parents can place their small children on the sand table to play with sand. In such case, an adult must be present nearby for safety reasons. However, the wave-shaped plate installed at the back of the table provides some safety for these children and avoids falling. Other children can sit on the green hills and play with sand. Wheelchair users can sit around the table (see the photos of this setting in this chapter; also see the photos of Appendix 8 on the attached CD).

3) "Hill of Flying Balls"

"Hill of Flying Balls" is the name of another play zone which is presented in 2 models. Its main structure looks like a hill with colorful balls (called 'flying balls') fastened to it with wide stretchable, elastic bands.

In the first model of 'Hill of Flying Balls', 3 red balls are fixed on the green ground next to the hill. These 3 balls can be used as seats by children or parents whose children are playing there, or as balancing elements by children. But in the second model, the hill is on a brown circle, and there are no fixed balls on the ground.

The elastic characteristic of the band/rope offers various interesting play opportunities for children with different abilities. Children can play with balls in different ways, alone or with others. By using bush-shaped stairs, children climb the hill to access the trampoline on top of hill. Wheelchair users can also play with balls, down the hill, on a flat surface, either with the ball alone or with other children (e.g. throwing the ball to children up or down the hill) (see the photos of this setting in this chapter; also see the photos of Appendix 8 on the attached CD).

4) "Tree of Adventure"

This high cylindrical/conical brown tree-shaped setting offers: swing area, slide and hills, a special game (called "Acorn, Egg, Apple"), and a transparent area above for view. There is a green spiral ramp inside for climbing the tree. From outside, the green strip looks like a spiral climbing plant. It has 3 rails for a special game: 1) children take the acorns/apples/eggs shapes – which have wheels – from the stump-shaped box, 2) enter the tree (from squirrel's hole or entrance) and climb the inside ramp, 3) reach the grooves and insert their shapes in the grooves/rails, 5) the shapes slide on rails spirally and fall into orange baskets (see the photos of this setting in this chapter; also see the photos of Appendix 8 on the attached CD).

5) "Clouds of Joy"

'Clouds of Joy' is a large playground setting installed on several green hills with ropes and bush-shaped surfaces/stairs. It includes 4 large cloud-shaped spaces with various play equipment inspired by rainbows, clouds, and the sun. The two upper Clouds (Cloud No. 3 & Cloud No. 4) are connected by a rainbow-shaped bridge. The two lower Clouds (Cloud No. 1 & Cloud No. 2) are connected by an orange hole (see the photos of this setting in this chapter; also see the photos of Appendix 8 on the attached CD).

- ## "Clouds No. 1"

Children climb green hills to enter Cloud No. 1. Children can go from Cloud No. 1 either to Cloud No. 2 (by using the climbing net and passing through the orange hole) or to Cloud No. 4 (by using vertical rainbow-colored bars/poles and stepping on the cloud-shaped surfaces between them). The design of the circular orange hole has been inspired by the idea of sun and design of the yellow stripes on the climbing net seems like sunrays. Around this orange hole, some small blue clouds have been installed which look like clouds around the sun.

- **"Clouds No. 2"**

From Cloud No. 1, by using the climbing net and passing through the orange hole, children can enter Cloud No. 2. They can also directly enter 'Cloud No. 2' by climbing the green hills. In Cloud No. 2, there is a long cloud-shaped swing with a wind-shaped element above it; when children swing, it is as if the wind moves the cloud. There is also a spiral ramp/staircase to access Cloud No. 3. The color (yellow, orange, and red) and design of this spiral staircase and 3 lanes near the orange hole have been inspired by the concept of the sun/sunrays.

- **"Clouds No. 3"**

In the design of Cloud No. 3, the colors white and orange, and cloud-shaped objects have been used including: a large cloud-shaped bench and several small white cloud-shaped elements with orange base/pedestal. The small cloud-shaped elements can be used as chairs, tables, musical stairs, play elements (e.g. evoking the feeling of walking on musical clouds) or as boxes to put toys (e.g. puzzles, and LEGO bricks). Here, children can also sit/relax and enjoy the view. In Cloud No. 3, the reflection of orange back wall/face – especially in sunny weather– makes this space look like a big white cloud in front of the sunlight.

- **"Clouds No. 4"**

To go from Cloud No. 3 to Cloud No. 4, children need to cross the rainbow-colored bridge. In Cloud No. 4, there are several cloud-shaped elements/stairs installed at different heights. The bases of these cloud-shaped elements are in different colors like rainbow colors. The design of 'Cloud No. 4' has been inspired by the concept of cloud and rainbow. Some of these stairs are musical. When children walk on these cloud-shaped rainbow-colored stairs, they produce sounds like a musical instrument. 'Cloud No. 4.' can also be accessed by vertical rainbow-colored bars/poles that connect to Cloud No. 1.

Furthermore, in this chapter as an example some of the drawings and stories that have been reflected in the design of the playground equipment were shown.

The final design of the future playground and its equipment are proposed as a child-friendly playground for children aged 4-8 presented for the available space next to the Parkour Park on the Nordbahntrasse in Wuppertal, Germany. However, the design principles can be applied in various potential spaces for developing a playground.

Chapter **14**

PHASE 3—Evaluation
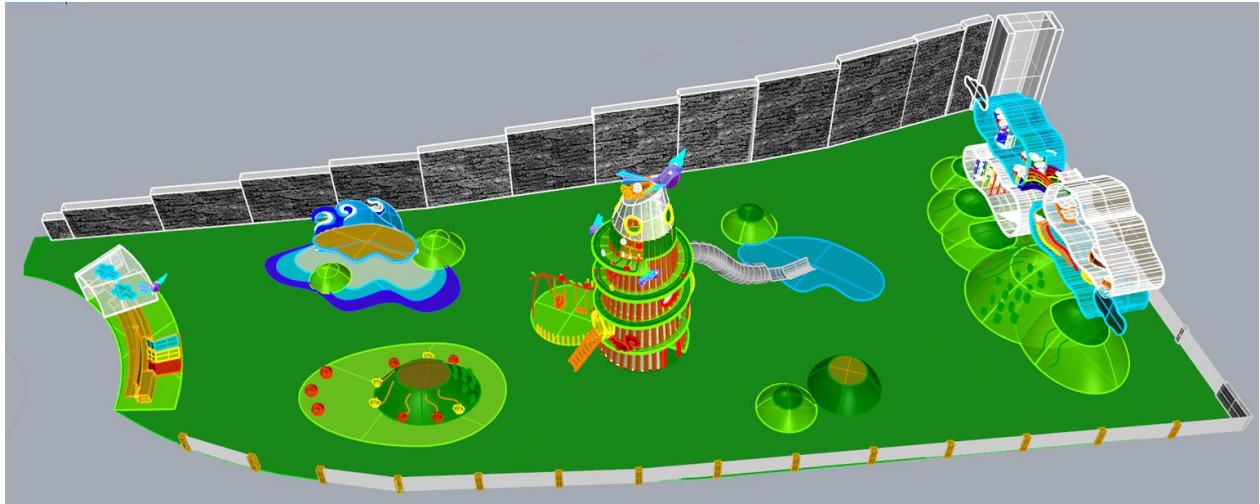
Evaluation Phase _ _ _ _ _ _ _ **Evaluating the final playground design and its play settings and zones**

14.1. Introduction

This chapter deals with the evaluation phase. Here, the quality of the final playground design and its play settings and zones is evaluated under different aspects relevant to the design parameters explored in previous chapters.

For this aim, 16 questions were designed. Some of these evaluation questions are relevant to each playground equipment and some are about the whole playground. To save time and according to the conditions of the Corona virus, it was held online via Zoom. In each evaluation session, one person participated so that participants' opinions did not affect each other. In each session, the images of the whole playground and each playground equipment from different angles as well as their video and 3D model files were shown to the participant (see Appendix 8 on the attached CD). Also, the necessary description about each play setting such as its designs, the function of each part, and the games and activities that it offer to its users, was explained to the participant. In total, 11 participants got involved and answered the 16 evaluation questions. The results show that the final design of the whole playground could really meet users' needs, wants, and values especially children aged 4-8 years old. Thus, it can be called a child-friendly outdoor playground. The results of evaluation will be analyzed in Chapter 15.

14.2. Evaluation Phase

In comparison with *adult* stakeholders who in some way interact with children or playgrounds (e.g. children's parents or grandparents, kindergarten teachers, and passers-by who just come to the playground), involving *children* in the evaluation phase might be complicated, unpredictable, and time-consuming because of their age, unpredictable behavior, and limited ability to understand and answer assessment questions practically and express themselves appropriately. The evaluation sessions were therefore restricted to adults who had interacted or interact either with the children concerned or with the playground as a facility. Also experts such as kindergarten teachers, primary school teachers or pedagogues participated in evaluation sessions.

For performing the evaluation, a questionnaire was designed that included different types of questions based on the design parameters[1] considering different qualities, features and fields. The questions included open-ended, yes/no, multiple choice (MCQ), and seven-point scale rating questions. The questionnaire was designed to assess the extent to which the design of the playground and its equipment met the needs and wants of users especially children. However, for the reasons mentioned above, only adults, not children, participated in the evaluation sessions.

In this list, most questions were about the individual playground settings/zones (called 'Peace under Sky', 'Sense of Sea', 'Hill of Flying Balls', 'Tree of Adventure', and 'Clouds of Joy') and some questions were about the playground area as such.

These questions — presented as a table in Appendix 9 on the attached CD — include:

1. **What types of experience and games does the play equipment or zone offer to its users?**

   The designer herself as author and researcher of the study answered this question, which is professional and relevant to describing each piece of playground equipment and the games that it offers.
   Different types of play were studied in Chapter 4 and Chapter 5. Considering the literature review on this subject, the main types of play and activities that each item of playground equipment or each zone offers were described and presented in Chapter 13, Table 13-1.

2. **How does using each item of equipment/zone make (your) children/you feel?**

3. **Considering the type of product[2], how appropriate do you think the *variety* of games/ experiences/services offered by each setting/zone is? Please rate 1-7** (You can describe your answer if you want)**.**

   3 (a) How appropriate do you think the *variety* of games and experiences offered by this playground are? Rate 1 to 7.

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[1] See 13.2.3. & 13.2.3.1. in Chapter 13.
[2] In comparison with other products in this category.

4. **For what age group is each play equipment suitable? Check/choose any age group you think is appropriate** (You can/choose check more than one age group).

3-year olds	4-year & 5-year olds	6-year & 7-year olds	8-year olds	Or?
☐	☐	☐	☐	☐

5. **Is this play equipment suitable for both genders (girls and boys)?**

   If not, for which gender is it more appropriate?

6. **Which aspects of child development does each play equipment/zone reinforce (i.e. contribute to development)?** (Check/choose any aspect you think is appropriate. You can check/choose more than one aspect).

Socio-emotional Development	Physical Development	Cognitive Development	Language Development
☐	☐	☐	☐

7. **In your opinion, how much does the user enjoy playing or interacting with each piece of playground equipment?** (i.e. in your opinion, how enjoyable are the experiences that this equipment or area offers to its users?) **Rate 1 to 7.**

8. **How accessible, or barrier-free is each of these 3 zones ('Peace under Sky', 'Sense of Sea', and 'Hill of Flying Balls') for users with different abilities? Rate from 1 to 7.**

   As stated in Chapter 13, the future playground in this study offers *some* areas and play settings that allow non-disabled and disabled children (especially children who are wheelchair users) to play together and interact better (see Section 13.2.3.1 in Chapter). As described and shown in Chapter 13, the main settings/zones for this aim include: 'Peace

under Sky', 'Sense of Sea', and 'Hill of Flying Balls'. Thus, this question refers to these 3 play settings and zones.

However, there is a swing hanging from a branch in the 'Tree of Adventure' area designed especially for handicapped children. Maybe these children can also use green hill-shaped elements for playing on.

8 (a). In your opinion, how safe and accessible is this playground considering its area and location (as an example on the Nordbahntrasse next to the Pakour Park)? Rate 1-7.

9. **How long do you think the user will use each piece of playground equipment/zone? How many hours/minutes?**

10. **How attractive (i.e. visually beautiful) is each piece of playground equipment/zone to users (to your child and/or to you)? Rate 1 to 7.**

11. **How functionally attractive is each piece of playground equipment/zone to user? Rate 1-7.**

12. **How appropriate is the name of each piece of playground equipment/zone according to its appearance and function? Rate 1-7.**

13. **In your opinion, how much does a child (e.g. your child) enjoy being and playing in this playground? Rate 1-7.**

   13 (a) How much do you (as an adult) enjoy spending time in this playground? Rate 1-7.

14. **Do the playground settings/zones harmonize with each other – e.g. in design, color, and themes (quality of corporate identity). Rate 1 to 7.**

15. In your opinion, how visually attractive is this playground to its potential users (e.g. you or your children)? Rate 1 to 7.

16. How long do you think a child and his/her family or companion(s) will spend on this playground? How many hours?

- One hour

- An hour and a half

- Two hours

- More than two hours. If so, how many hours?

- Or?

14.2.1. Evaluation Session

Individual sessions were held to evaluate the quality of the playground and each piece of equipment and the extent to which the needs, wants, and expectations of users were met. Each session was held either face-to-face or online via Zoom, with only one adult participant, in order to prevent participants from influencing each other (see Appendix 10 on the attached CD).

In each session, the images of the whole playground and each piece of equipment as well as their video and 3D model files were shown to the participant from different angles. Also, each play setting – designs, functions, games and activities offered – was described and explained to the participant.

The 16 questions stated above (see Appendix 9 on the attached CD) were asked in each evaluation session. As mentioned, most of these questions relate to individual pieces of play equipment/zones while others are about the whole playground. First the questions about each zone were asked. Questions about the whole playground were then asked. The list of these questions as a table and the answers of the 11 participants are presented in Appendix 9 and Appendix 10 on the attached CD.

Table 14-1 presents the list of participants in the evaluation phase and their information.

Due to the special circumstances of the *Coronavirus pandemic* and also the concerns about confidentiality and intellectual property of the designs, it was very difficult to contact schools, kindergartens, and find (trustworthy) people who agreed to participate in evaluation sessions. Finally, eleven participants were found: 5 Germans living in Wuppertal including a kindergarten teacher, a primary school teacher/pedagogue, two parents, and a grandparent. One participant was an Iranian-German who studied in Germany and has lived in Germany for 46 years. He is also a grandparent (Participants No. 6 - No. 11). The other 4 participants were Iranians who have traveled to Germany and are somewhat familiar with its culture (Participants No. 1-No. 5).

As stated in Chapter 10 (Section 10.2.1.), Wuppertal is the context for creating the future playground and because of that most Creative Sessions were performed in Wuppertal. However, since the future playground aims to be a cross-cultural child-friendly play environment, it is important to consider a wide cultural variety of children's wishes, wants, and tastes. Because of that, some creative sessions were held in Tehran, the author's home city, which made it an accessible context. Since both German and Iranian children's drawings were collected, participants in the evaluation phase were also selected from both nationalities, although the main users of the future playground will be people living in Wuppertal.

Table 14-1: *List of participants in evaluation phase and their information.*

List of participants in evaluation phase through face-to-face meeting or through online meeting via Zoom						
Participant	Gender, age	Occupation	- Nationality - Place of Living - Description	Number of children or grandchildren, age and gender	Participant's relationship with playground and children (especially aged 4-8 as end users)	Type of Meeting (Evaluation Session)

Participant No. 1	Female, 71 years old	Housewife	- Iranian - Tehran - She has traveled to Germany and is familiar with its culture.	- She has 3 daughters who are adults.	- Potential grandmother. - She likes spending time in playgrounds and watching children playing.	Face-to-face meeting
Participant No. 2	Female, 37 years old	- Computer engineer - Artist as a Painter and Photographer	- Iranian - Bonn - She has studied in Germany and worked as freelancer (an artist). She lives in Bonn. - She has visited Wuppertal and the Nordbahntrasse.	No children	- She has no children but enjoys spending time and walking in playgrounds and parks.	Face-to-face meeting
Participant No. 3	Female, 45 years old	Teacher and an engineer	- Iranian - Tehran - She has traveled to Germany and is somewhat familiar with its culture.	No children	- She has no children but enjoys spending time and walking in playgrounds and parks. - She also visits and interacts with her friends' children.	Face-to-face meeting
Participant No. 4	Female,	Housewife Education:	- Iranian - Tehran	Two sons;	Mother:	Face-to-face meeting

	34 years old	Bachelor in Pedagogy (expert in the science, method and practice of teaching and training children aged 0-12).		3 and 12 years old.	3 and 12 year-old sons. Expert in pedagogy and training children aged 0-12.	
Participant No. 5	Male, 77 years old	Teacher/ lecturer	- Iranian - Tehran - He has traveled to Germany and is familiar with its culture.	- He has 3 daughters who are adults.	- Potential grandfather - He enjoys being/spending time on playgrounds, parks and green spaces for walking, doing sport (exercising) and watching children who are playing there. - He exercises in a park for about one to two hours every morning.	Face-to-face meeting
Participant No. 6	Male, around 65 years old	Having a company (Medical equipment; IBA medical technology)	- Iranian /German - Düsseldorf - He was born in Iran but has lived in	He has two grandchildren, a 6-year-old granddaughter and a 4-year-old grandson.	Grandfather: He has two grandchildren, a 6-year-old granddaughter and a 4-year-old grandson.	Online meeting via WhatsApp.

		Electrotech-nical engineering	Germany for 46 years.		He meets with them during the week and sometimes goes to the playground with his grandchildren.	
Participant No. 7	Male, 41 years old	Computer laboratory (technical employee at university)	- German - Wuppertal	He has a 7-year old son and twins, a 3.5 daughter and a 3.5 son.	Father: He has 3 children: He has a 7-year old son and twins, a 3.5 daughter and a 3.5 son.	Online meeting via Zoom.
Participant No. 8	Female, 65 years old	University employee	- German - Wuppertal	She is a grandmother; She has a 1 year-old granddaughter and a 2.5 year-old grandson.	Grandmother: She is a grandmother and has a 1 year old granddaughter and a 2.5 year old grandson.	Online meeting via Zoom.
Participant No. 9	Female, 63 years old	Teacher/ pedagogue in a primary school in Wuppertal.	- German - Wuppertal	She does not have any children and grandchildren. However, she interacts with children in the school.	Teacher: She interacts with children aged 5-11 years old in the school. She is also very close to her nephew's son, aged 6.	Online meeting via Zoom.
Participant No. 10	Female,	Teacher in a kindergart-	- German - Wuppertal	She does not have any children.	Teacher: She interacts with children	Online meeting via Zoom.

	36 years old	en in Wuppertal.		However, she interacts with many children in kindergarten daily because of her job.	aged 2-6 in the kindergarten.	
Participant No. 11	Female, 46 years old	University employee (Design Departme-nt)	- German - Wuppertal	She has 11-year-old twins.	They used to go to the playground when the children were younger.	Online meeting via Zoom.

Source: *Author.*

14.2.2. Findings from Evaluation Sessions (Answers to the 16 Questions)

In this section the answers of the participants and the findings of evaluation sessions are presented and analysed.

➢ **Answers to Question No. 2 – Exploring feelings about each playground zone and piece of equipment.**

1) **'Peace under Sky' models and descriptions**
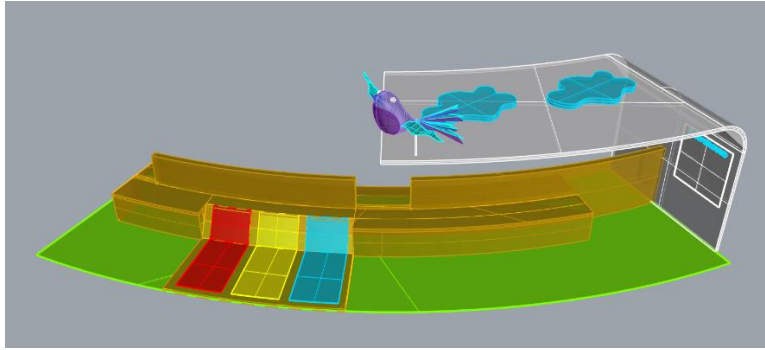
	'Peace under Sky' **Model 1:** **Without** middle wall and **without** cross-wise bench at the end of the curved bench.
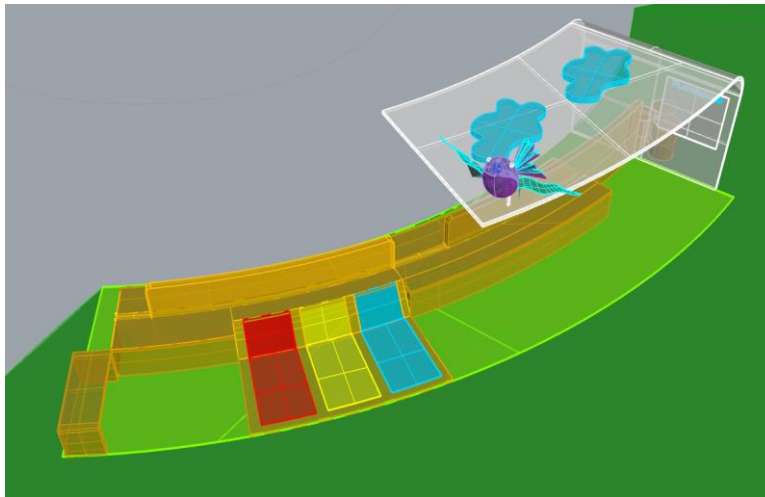
	'Peace under Sky' **Model 2:** **Without** middle wall but **with** cross-wise bench at the end of the curved bench.
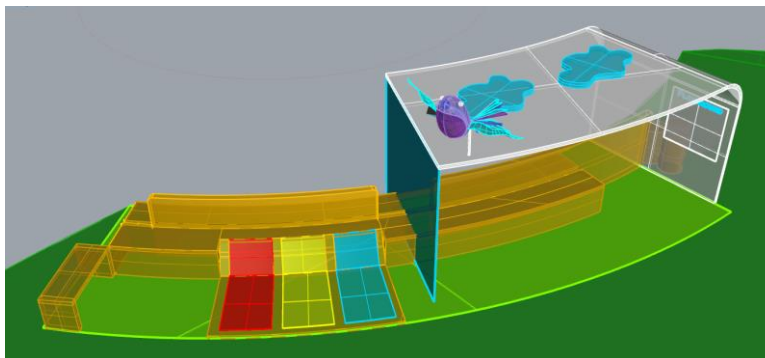
	'Peace under Sky' **Model 3:** **With** middle wall and **with** cross-wise bench at the end of the curved bench.

Figure 14-1: *Different models of 'Peace under Sky'.*

Designer: *Author.*

The main design of this zone/setting can be offered in different models (Figure 14-1), each of which can be selected according to various characteristics and indexes such as:

- characteristics of the playground area (e.g. its location and shape of the area)
- number of potential users and their interests and needs

- contextual and organizational characteristics such as: features of climate and area of playground (e.g. wind direction and temperature), investment/construction costs that the owner organization has to consider, possible materials to be used, and structural stability.

In the first and second models, there is no middle wall, and thus, to some extent, more *open* (seating) area is provided, and it may be more beautiful in appearance for some users than the third model which has a middle wall. In the second and third models, another bench (seating space) has been added cross-wise to the end of the long curved bench, which provides more seating space and also people can sit in more and different directions. For example, by adding this short bench to the main curved bench, people in a group or family can sit on the L-shaped corner and interact better with each other because they can make eye contact during conversation and have a corner for themselves (Figure 14-2). The trash can consists of three parts designed for the waste recycling system (Figure 14-2).

Also, in the third model, by placing the middle wall, its structure could become stronger and the roofed space is better protected from rain, wind and sunlight especially considering the weather in Wuppertal. The wall can be made of semi-transparent acrylic sheets.

Some participants (especially Iranians) preferred the models without the middle wall, but most users, especially German participants, preferred the third model with the middle wall for different reasons (e.g. roofed space is better protected from rain, wind and sunlight considering the weather in Wuppertal, having more private corners/spaces for seating, which is important for most German users, and having different spaces for different groups or families).
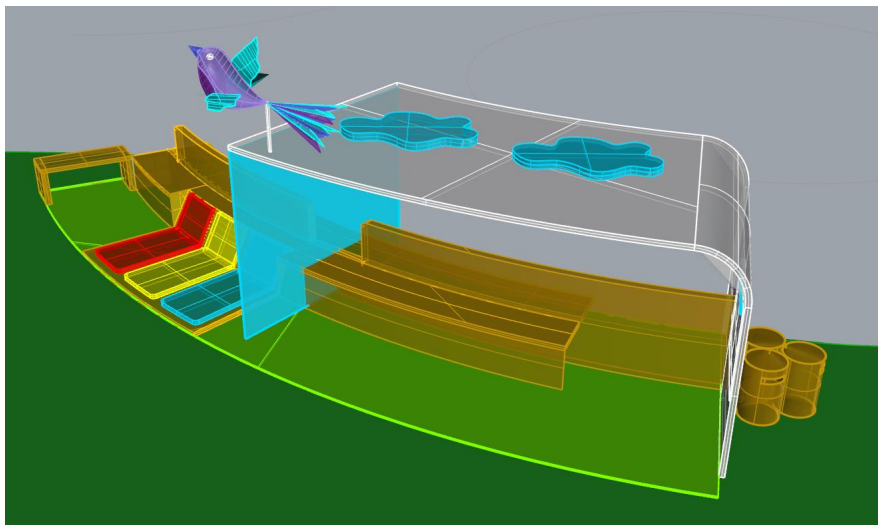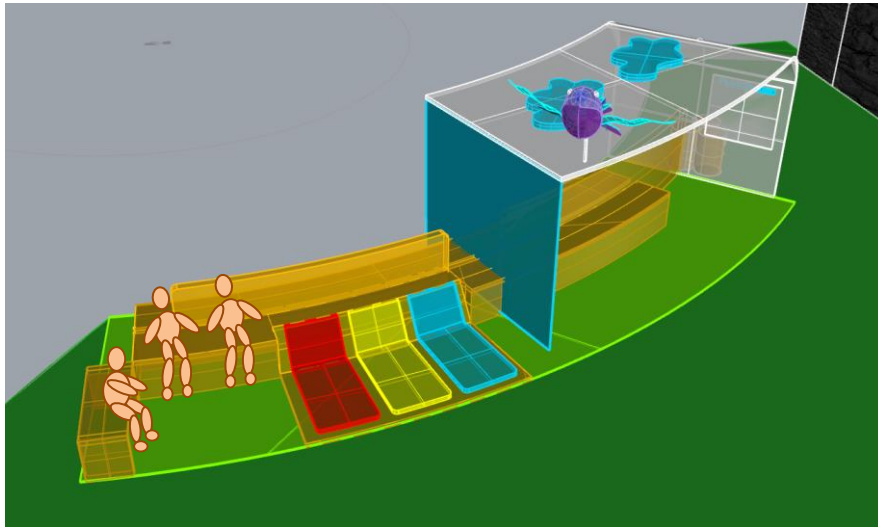
Figure 14-2: '*Peace under Sky' (model 3).*

Designer: *Author.*

However, since many other indexes are involved in the evaluation, all models were presented and the design of 'Peace under Sky' was evaluated generally.

Answers to Question No. 2: Feelings/Feedback about 'Peace under Sky'

Participant 1

- sense of vitality, happiness, peace and beauty
- enjoying the beautiful design and attractive colors reflecting great taste and thoughtful design.

Participant 2

- comfort
- simplicity
- childhood sense
- freedom
- peace
- non-interference of people's spaces with each other (i.e. having personal area since the bench is large enough)
- visually attractive because of principal colors (red, yellow, & blue) and sculpture of bird on roof.

Participant 3

- relaxation
- enjoying watching children while they are playing – parents can take care of children and read books.
- enjoying eating and drinking.

Participant 4

- relaxation – while watching their children playing
- joy
- feeling of being in nature (because of the shapes of clouds and bird and the wooden structure of the seating area)
- attractive because of the colors (red, blue, and yellow)
- enjoying lying down on colorful sun loungers for resting
- parents can read books while their children are playing
- enjoying eating something like ice cream.

Participant 5

- joy/sense of enjoying (enjoying watching children)
- relaxing
- happiness
- feeling free from real world (negative) thoughts and getting involved in children's (imaginary) world by watching them playing
- suitable area for leisure time
- design and coloring is beautiful.

Participant 6

- very pleasant
- attractive design
- welcoming environment
- due to the fact that it is made of wood and has a back, it is a very comfortable and good place to sit[3]
- the roof is useful for sunny and rainy days.

Participant 7

- the bench is an attractive architectural feature, like a sculpture
- the color and design is not childish – should be more colorful
- the bird on the roof is beautiful
- it is very good that part of this bench is roofed
- sun loungers and colors make the area more fun
- lockers for backpacks or cell-phones would be useful
- prefers the third model with central wall and cross-wise bench – offers the possibility of sitting as a group and having a conversation
- soft materials make the bench comfortable for sitting (e.g. suitable for pregnant mother).

Participant 8

- prefers the model with wall in the middle
- comfortable
- welcoming and nice environment
- it is practical (e.g. wheelchair users have room and also enough space to put backpacks).
- she likes the curved shape and round form of this area (the bench)
- sculpture of the bird on the roof is interesting
- because of having a roof, it is useful for sunny and rainy days.

Participant 9

- this design is new and attractive – curved bench makes one feel comfortable in this space
- different sitting areas offer variety: benches under the roof and outside the roof, sitting areas on both sides of the bench, as well as space to lie down (sun loungers)
- good that this area has three bins that are suitable for different types of garbage[4]

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[3] In some playgrounds the benches are made of metal and do not have a backrest to lean on; because of that they are not comfortable to sit on. But the wooden bench is very comfortable.

[4] Providing three bins supports recycling system.

- for example, you can watch the children or do something else, such as reading a book, or/and lying down
- all the colors are good except red (the color of one of the sun loungers) – too aggressive
- it would be nice to have a similar seating area on the other side of the area.

Participant 10

- likes sculpture of bird and clouds – color and design
- prefers design with middle wall, though it may be more beautiful without, because the space offers somewhat more privacy and intimacy
- with middle wall the roofed space offers weather protection
- seating area in the corner of the playground affords good view of children (for a kindergarten teacher who is responsible for the children).
- seats for lying down seem strange in a culture that looks askance at adults lying down in public (except on a beach) – also incompatible with supervising children
- design has good characteristics for supervising children
- more comfortable than normal playground benches
- bird looks cute
- comfortable and attractive area.

Participant 11

- sun loungers should be a little higher
- favors turquoise blue also for sun loungers since this makes the design cleaner
- colors are suitable for playground
- wood/timber is a great material for a bench
- its part is useful for sheltering in the rain and shading on sunny days.

2) 'Sense of Sea' models and descriptions
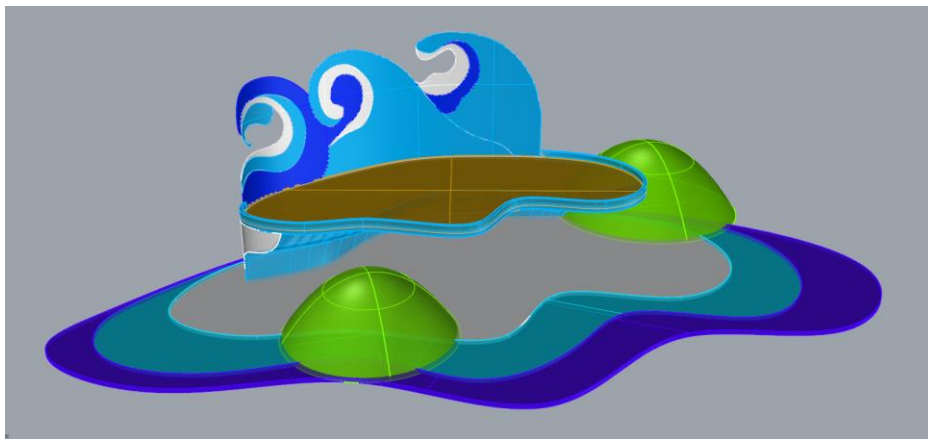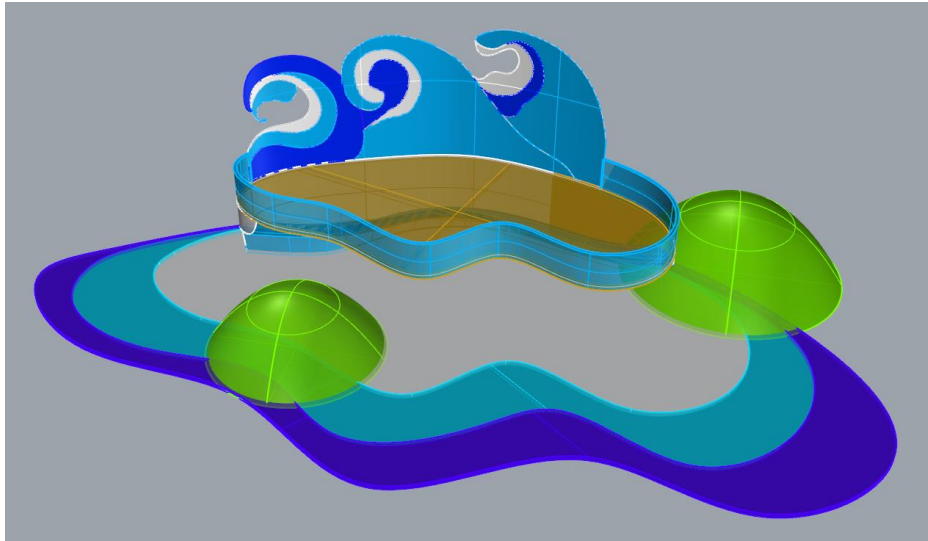
Figure 14-3: '*Sense of Sea: (1) the basic model.*

Designer: *Author.*

This play-zone, called 'Sense of Sea' is presented in 2 models (Figures 14-3 & 14-4). The basic model presented in Chapter 13 just includes the sand table. But the second model – the advanced model of the first – is the final design and includes a sand table and a palm-shaped spinner located next to the sand table. The spinner itself includes a palmed-shaped element installed on the flat surface of a short green hill (Figure 14-4). The green hills around the wave-shaped sand table can be used for sitting; there is a green hill with a flat surface on the right that can be used for climbing to access and sit at the sand table. The distance between the hills can be used by a wheelchair user (Figure 14-4). The green hill with flat surface on the right can be in

the shape of a turtle on whose surfaces are places for children to climb. This design can be interesting for children, especially young children, and it is easy for them to climb by using surfaces on the turtle (Figure 14-4).

To use this spinner, children stand on the flat surface of the hill and turn around with their hands on the trunk of the tree. When rotating, the palm and the flat surface (top of the hill where the children stand) that connects to it, spin together. So when children play (spin), the main body of the hill is fixed, but the upper level of the hill and the palm also rotate. If the leaves are made of soft, light material with a flexible connection to the body of the palm, they move upwards (due to centrifugal force) when rotating, which has the effect (visual beauty) of a breeze blowing in the leaves of a tree (Figure 14-4).

Also, if possible, depending on the design structure of the sand table (e.g. its stability) and its installation location, in the second model, small automatic fountains can be installed on the wave-shaped back wall so that children can enjoy playing with water and sand. Of course, the amount of water outflow should be small and possible with time intervals to not make a mess on the table and avoid making it overly heavy. However, if it is not possible to install the water system and fountain, the sand table, green hills, and palm-shaped spinner in this area can be fun enough for children.
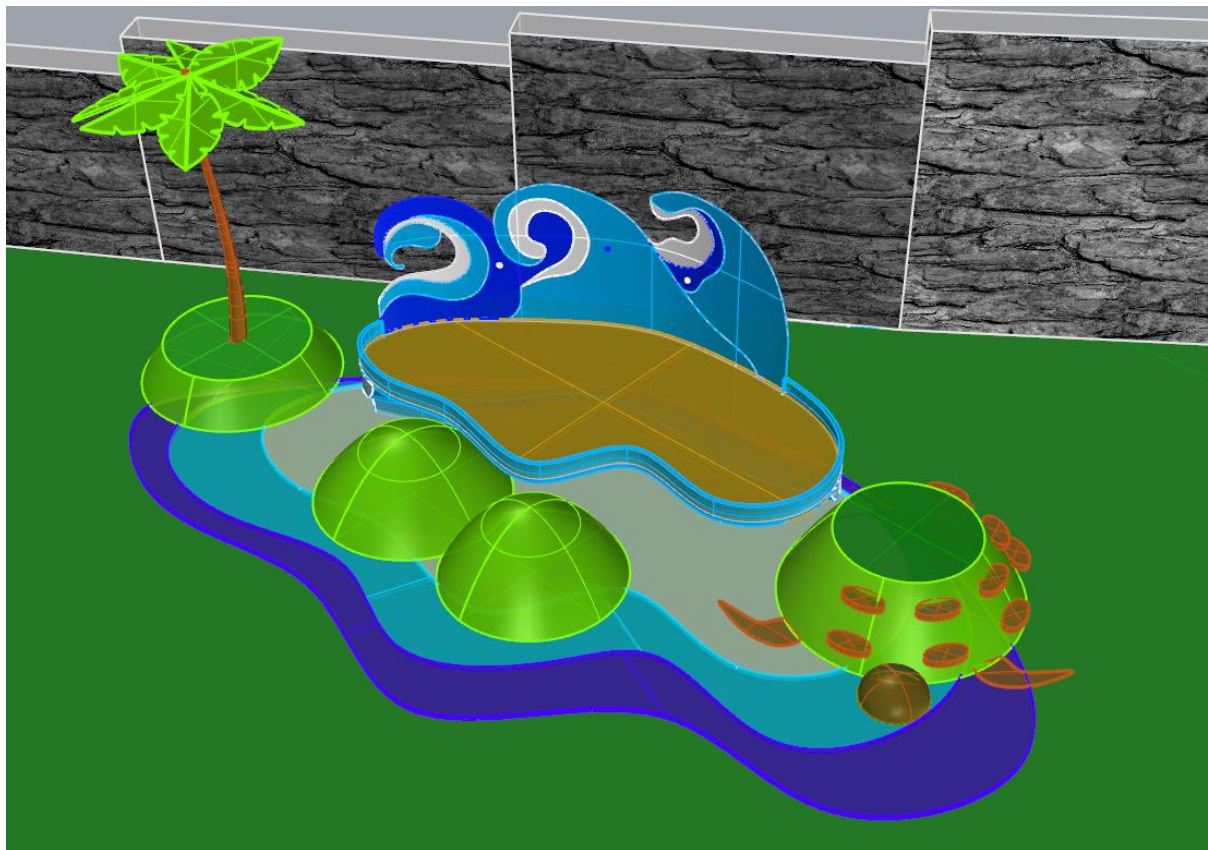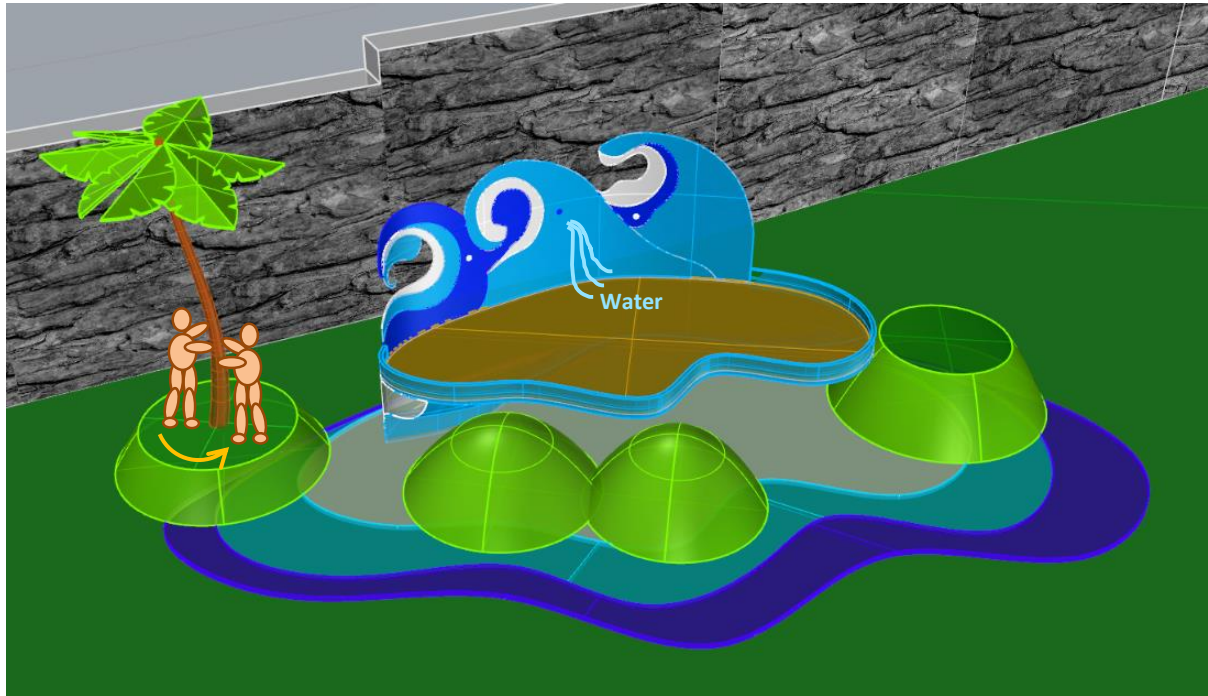
Figure 14-4: '*Sense of Sea*'— *the advanced model which has palm-shaped spinner and climbing hill on the right that can be either a simple hill or in the shape of a turtle.*

Designer: *Author.*

Answers to Question No. 2: Feelings/feedback about 'Sense of Sea'

Participant 1

- area inspires good feelings
- wishing to be a child to use the palm-shaped spinner and climb the turtle-shaped element
- the design and blue color evokes the feeling of being by the sea; the hills next to the sand table looks like the green spaces by the sea and the sand evokes the memory of being on the beach
- beautiful and thoughtful (good) design and atmosphere
- blue and green colors are soothing
- design of the palm tree and the turtle is interesting and beautiful.

Participant 2

- sense of creativity in playing with sand and water
- sense of freedom (children can play in their own way and make whatever they want with items like buckets or moulds)
- being sociable and friendly: gathering around the table brings the children closer together and they can talk while making things together or alone
- sense of being at the seaside
- sense of calm
- the design of palm-shaped spinner and turtle is cute
- the palm gives the feeling of both being in the desert and by the sea
- turtle design encourages children to climb.

Participant 3

- relaxed and calm enjoyment
- seaside feeling
- using creativity to play and build with sand
- having fun (even the adults can play with their children and build differet things with sand like a sandcastle)
- sense of being in the tropics
- all elements are beautiful and in harmony with each other
- using creativity to play and build with sand

Participant 4

- calm enjoyment

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- psychologically, playing with sand is very useful for relieving stress in children and adults (we even have 'sand play therapy')
- stimulates creativity in children
- sense of being by the sea and in nature
- the design of the turtle and the palm is in harmony with the wavy shape of the sand table and is beautiful.

Participant 5

- happiness
- improving mental and spiritual strength
- having good design
- innovative
- suitable for people with high-class urban culture
- parents can enjoy watching their children while playing
- reminds him of his childhood
- colors are visually soothing and relieve mental fatigue.

Participant 6

- design is very attractive
- children enjoy playing with sand
- it is great that wheelchair users can use it too
- the table should be such that no sand falls on the children's heads and its height should be such that wheelchair users can reach it
- the back surface should be stable enough so that it does not move if several children lean on it
- the design of the palm makes the area more beautiful
- the design of palm-shaped spinner and turtle-shaped hill is beautiful, interesting and innovative.

Participant 7

- the area is cozy and beautiful
- the sand table is more suitable for small children since it is not big
- in comparison to younger children, sand table without offering water and/or various equipment is not very attractive for older children
- its design is beautiful (e.g. blue waves and palm)
- elements of palm, sand, water, and turtle evoke the feeling of being on holiday
- likes design of palm (spinner) and turtle (climbing hill)

- since the back of sand table is closed, it is safe for children to sit on the table
- since this area is near the seating area, parents can watch their children easily which is good, and they can also stand or sit (on the green hill) around the sand table.

Participant 8

- very nice
- welcoming for children
- nice idea
- with the palm the area is very attractive
- very enjoyable for children.

Participant 9

- in this sand area, children can take the sand with water and use the hills and space between them or wave-shaped surface on the ground to make sculptures and shapes
- children love the design of this sand area, with its different curved forms and wave-shaped elements in harmony with each other
- the design is beautiful.

Participant 10

- it is a nice and different kind of sand area; it is a cute idea and she likes it
- children probably take the sand from the table and make their own things around that as well, which may make that messy (especially in the basic model of 'sense of sea')
- some children like that very much
- it is more suitable for small children to interact with sand and experience making things
- older children often enjoy playing in a larger sand area which offers more opportunities
- children can make things and play both on the table and also outside that (e.g. on the hills or on the ground around the table)
- for some children who do not want to sit on the sand while playing, it may be practical to present the sand area like a table since they can sit on hills around the table
- in the advanced model, the palm and turtle give the space (the sand table and hills) a more complete view
- palm and turtle-shaped element (for climbing) really fit the design of this area.

Participant 11

- due to the lack of time participant 11 did not evaluate this item.

3) Answers to Question No. 2: Feelings/feedback about 'Hill of Flying Balls'
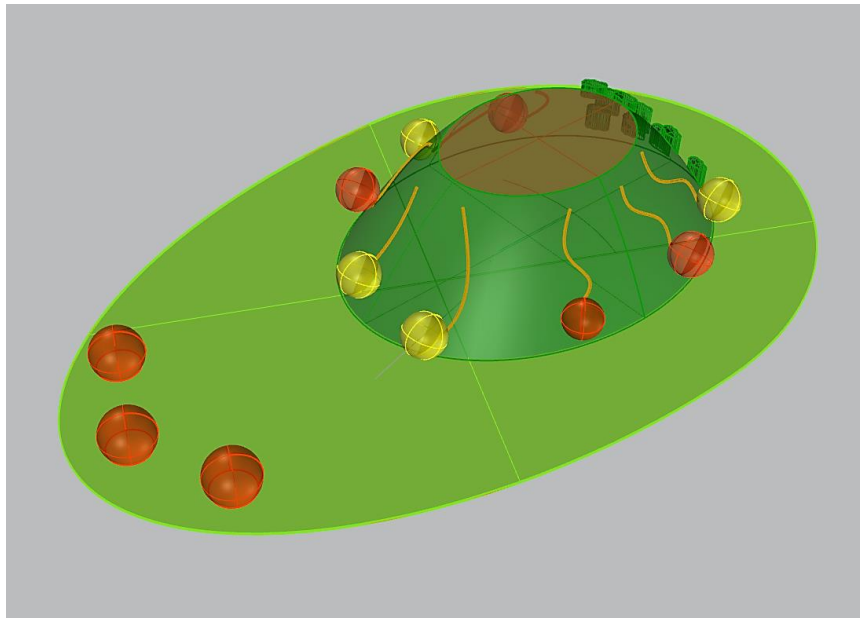
Figure 14-5: *'Hill of Flying Balls'*

Designer: *Author.*

Participant 1

- joyful and fun

- making children happy

- relaxing (soothing) and beautiful space because of the green color and hill-shaped element

- thoughtful design: 1) usable for both healthy children and children who are wheelchair users to play with balls, and 2) considering the fixed balls as seating places for parents for resting and observing their children.

Participant 2

- sense of excitement
- playfulness
- happiness & laughter
- offering physical activity & exercise: it encourages children to move and exercise by keeping balance on the fixed balls, playing with balls (installed on ropes), jumping up and down on the trampoline
- encouraging children to be social: children communicate a lot, for example, while playing together with the balls.

Participant 3

- excitement
- physical activity and mobility
- playfulness
- having fun
- liveliness
- sense of teamwork
- playing with balls together; for example, if someone is on the trampoline and the other children were able to hit him, he should go down and the others can go on the trampoline.

Participant 4

- physical movement & mobility
- creativity
- joy
- excitement.

Participant 5

- feeling good
- design is excellent
- feeling of being in a prosperous and open space
- remembering hills by the sea because of the hill-shaped structure
- remembering the football field because of the colorful balls and green field.

Participant 6

- trampoline is very good
- design is also very beautiful
- idea of the trampoline and hill and its design is good: makes a child happy and curious
- beautiful design, but in terms of function the soft balls may not be practical: children may damage them and also they may be difficult and expensive to produce.

Participant 7

- cool, innovative & enjoyable
- balls are really interesting
- action & fun
- the adults who watch children's playing are interested to integrate in the game
- making children curious to explore different experiences and have fun

- material needs to be soft and stable in summer and in rainy weather.

Participant 8

- very new, modern concept
- exciting and fascinating
- offers great variety of activities and play: children can even use the ropes to which the balls are attached to climb
- older children, especially boys, are likely to grab the ropes and climb the hills, or hang from the balls and swing with them
- younger children are more likely to use stairs to climb the hill
- visually it is very nice; the mixture of colors are also good.

Participant 9

- idea, design, and play opportunities that it offers are very good
- this play (structure) is beneficial for child development since it is so physical
- it is useful for both young and older children.

Participant 10

- it is a very nice idea
- that the rope and ball hang free[5], offers more possibility for play and interaction
- imaginative design
- this place has lot of opportunities:
    - climbing
    - playing with balls
    - jumping on the trampoline.

Participant 11

- design is cool
- it seems fun to play with balls and throw them
- these three fixed balls (which are used for sitting or as balancing elements) are also nice
- the bush-shaped elements (stairs) are also cool: they help children access the trampoline
- if only one person can jump on the trampoline, it will be a bit problematic since most children want to jump
- it also may be a little uncomfortable for some children who are on the trampoline when the ball is thrown at them.[6]

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[5] The ropes are connected to the hill just at one end and the other end, which is connected to the ball, is free.
[6] However, for some or most children, it could be a fun game.

4) Answers to Question No. 2: Feelings/feedbacks about 'Tree of Adventure'
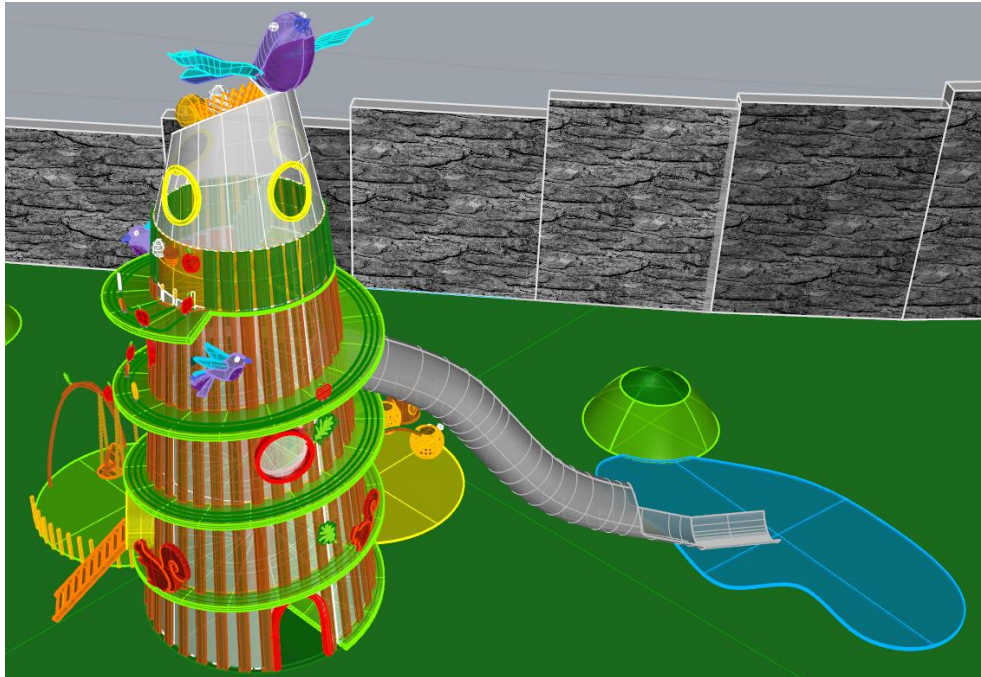
Figure 14-6: '*Tree of Adventure'*

Designer: *Author.*

The feelings/feedback of participants about the 'Tree of Adventure' include (Figure 14-6):

Participant 1

- beautiful
- strengthens children's minds (cognitive development) and skills (e.g. climbing and playing)
- looks like a mountain or minaret
- bird, squirrel and other natural elements evoke feeling of being in the animals' house in the forest or mountains.

Participant 2

- excitement
- movement
- high creativity and intelligence
- its complexities increase children's sense of curiosity
- sense of competition (in "acorn, egg, apple" game, children compete to fill baskets with shapes)
- in general, reminiscent of being in the forest
- shapes of natural elements and animals (e.g. bird, squirrel, bird's egg, acorn, apple shapes), support educational aspects: children get acquainted with animals' forest habitats and food
- suitable for kindergarten teams that bring children to this playground, since it has an educational aspect (e.g. to learn about animals and nature)
- blue and purple bird at the top of the tree looks dreamy, perhaps like a simurgh; bird figure with its nest above setting is an important part of it, as if the bird owned the tree
- interesting for children that this tree-shaped structure is near a blue surface along the slide which looks like a lake
- attractive colors: harmony of green and blue, with main colors of red, yellow, and blue
- swinging from a tree branch decorated with leaves and apples, is like being in the forest
- squirrel hole as an entrance is attractive: the more playful and curious children probably enter the tree by climbing the ladder and entering the squirrel hole, though they can also use the main entrance.

Participant 3

- happiness
- sense of competition: e.g. for transferring more shapes to their baskets in a certain period
- sense of magic and mystery especially because of the shape of this play setting
- sense of excitement and discovery.

Participant 4

- excitement
- creativity
- feeling of being in nature
- feeling of climbing a castle or treehouse
- feeling of exploration.

Participant 5

- fun for children
- happiness
- sense of competition and adventure
- offering risk-taking activities and somehow mysterious feeling
- may evoke the sense of horror and adventure.

Participant 6

- interesting play opportunities
- interesting appearance and play design
- however, due to its height, its construction cost is (very) high and different safety indexes must be considered, which is also costly
- its shape is more cylindrical than a tree
- if it has several slides that are brown like a tree branch and decorated with leaves, it could be called a tree.

Participant 7

- whole construction is nice
- concept of taking fruits (eggs, apples, and acorns) and inserting them in the rails outside the tree is interesting
- challenging and useful for children's cognitive skills[7]
- construction should be safe enough that the child cannot walk on the spiral band (with 3 rails) which is outside the tree[8]

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[7] It offers various experiences which contribute to child cognitive development: figuring out how to play, how to enter this structure, where to insert their shapes.

[8] A guard must be used or this band (which has rails) must be high enough.

- walking on the spiral band outside the structure – which is dangerous — is like climbing the tree that children may be interested to try.

Participant 8

- offers very new ideas and design
- its height attracts children and many children go first to this piece of equipment
- children will want to climb up to find out what is on the top of this tree
- children will like its appearance because of the exciting colors: children are curious to find out what is inside
- it may looks a bit like a Christmas tree, or a lighthouse (because of the windows and the form of the top).

Participant 9

- looks very nice
- "apple, acorn, egg" game is good for social interaction, team working and cognitive development (especially for small children).

Participant 10

- afraid that some children will climb on the outside spiral surface around the tree
- likes this play area very much
- "acorn, apple, egg" game is a cute idea but if the shapes of this game, are always available for all children, some may take them home or damage them
- visual appearance is cute with small decorative elements and attractive colors.

Participant 11

- due to lack of time participant 11 did not evaluate this item.

5) Feelings/feedback about 'Clouds of Joy':
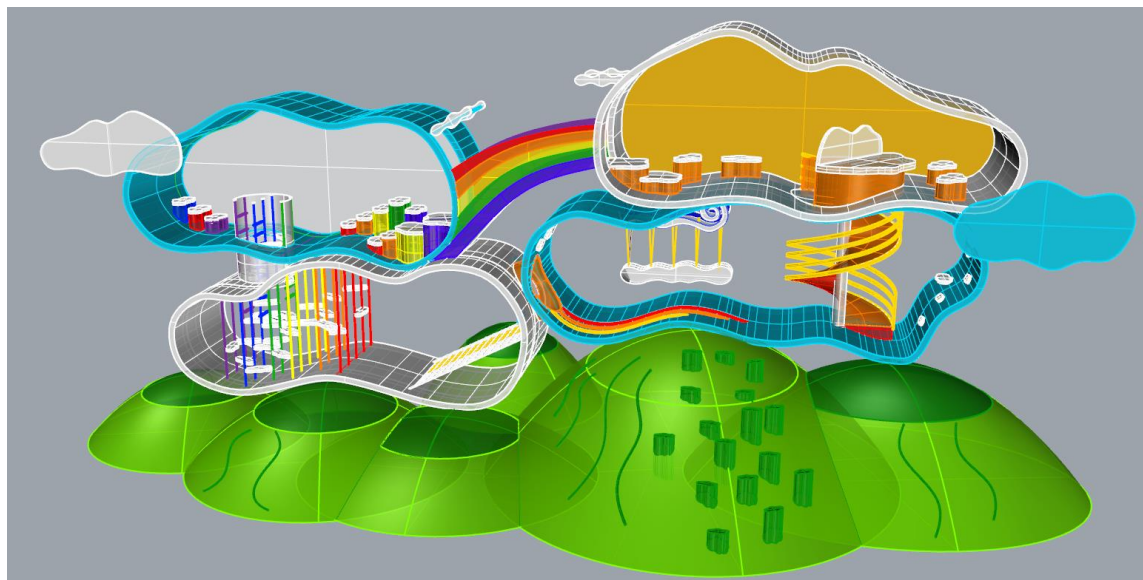
Figure 14-7: *'Clouds of Joy'*

Designer: *Author.*

The feelings/feedback of participants about 'Clouds of Joy' include (Figure 14-7):

Participant 1

- creates the feeling of joy and excitement
- climbing clouds is interesting and gratifying
- it looks like an island where the clouds are close to the ground
- the feeling of flying in the sky among clouds
- the feeling of climbing up the clouds and approaching God
- the feeling of walking on the rainbow
- the cloud-shaped swing makes children feel relaxed and happy with other children.

Participant 2

- feeling of climbing to the sky and discovering something interesting, creative and exciting
- as if you are playing inside a cartoon animation (e.g. 'Kind Bears')
- full of adventure and fun; the user does not get bored at all
- offers opportunity for sports, physical activities, movement, and music
- each cloud-shaped room has an interesting story and inspires special feeling(s)
- cloud-shaped swing is very interesting, also for social play
- climbing the net fosters physical activity

- rainbow bridge between the cloud-shaped spaces is visually beautiful
- clouds mounted on hills make sky and earth seem close
- small clouds around the orange hole and the placement of other small clouds inside the spaces emphasize the original design, which is based on the shape of the cloud
- complementary colors of blue and orange together is attractive
- only the back wall/face of one of the cloud-shaped rooms is orange emphasizes that this room (cloud no 3) faces the sun
- yellow lines on the net connected to the orange hole, look like rays of the sun
- sense of exploration is aroused: discovery of the undiscovered and the unknown
- interaction with the sky (cloud-shaped elements) inspires sense of excitement
- physical activities support children's growth and development.

Participant 3

- joy, pleasure, laughter
- offering elements which support music and dance
- sense of flying in the sky
- excitement
- various types of physical activity and mobility
- vitality and liveliness.

Participant 4

- sense of being in nature (because of the green hills and the sky)
- relaxation
- excitement
- physical games
- creativity
- feeling of climbing clouds in the sky.

Participant 5

- feeling safe (low risk of physical injury)
- sense of excitement, joy, adventure
- physical activity and mobility
- getting out of depression (getting rid of negative thoughts)
- social dimension
- encouraging children to get involved in a particular sport in the future.

Participant 6

- very new, beautiful and futuristic
- good idea, attractive design
- interesting and enjoyable for children
- curved forms are without any danger.

Participant 7

- visually attractive, especially colors of Clouds No. 2 and No. 4, sun/sunrays (orange hole) connecting them, and rainbow bridge
- evokes feeling of being among the clouds: inviting atmosphere
- musical cloud-shaped stairs are attractive
- Clouds No. 1 & No. 3 need to be more colorful.

Participant 8

- it is new; colorful equipment is interesting for children: they will want to play there
- offers many different activities for different ages.

Participant 9

- design is attractive, full of fantasy, futuristic and spicy
- children have many different things to experience
- equipment offers physical play opportunities (e.g. climbing, balancing)
- musical elements are attractive
- children can choose their own paths to come through and there is not just one definite path for entering and moving between different cloud-shaped rooms; for example, from Cloud No. 1 they can either enter Cloud No. 2 or Cloud No. 4 or Cloud No. 2 directly
- elements such as rainbow, sun and clouds are interesting and familiar to children.

Participant 10

- design is cute, wonderful, nice
- elements of clouds, rainbow, and sun are similar to those elements of the sky/heaven
- children will like the design
- design and concept are very creative.

Participant 11

- looks great and fun

- great that it offers lots of opportunities for different types of activities/games individually or socially
- it is great that it offers different levels and various possibilities for going up and down and being at different heights
- it is also great that if offers different places/rooms for being active or quiet, e.g. in Cloud No. 3, people can sit with their friends (or other children) and talk.

➢ **Answers to Question No. 3 – Rating the '*variety*' of experiences/activities/play opportunities offered by each piece of equipment/zone (considering the type/category of the product) from 1 (low) to 7 (high).**

In this section, the *variety* of experiences/activities/games provided by each playground setting (i.e. presented in each playground zone) was evaluated (considering other products in this category) from 1 to 7 by the 11 participants. The first graph shows the results of this evaluation by Iranian participants and the second graph those by German participants (Figures 14-8 & 14-9).
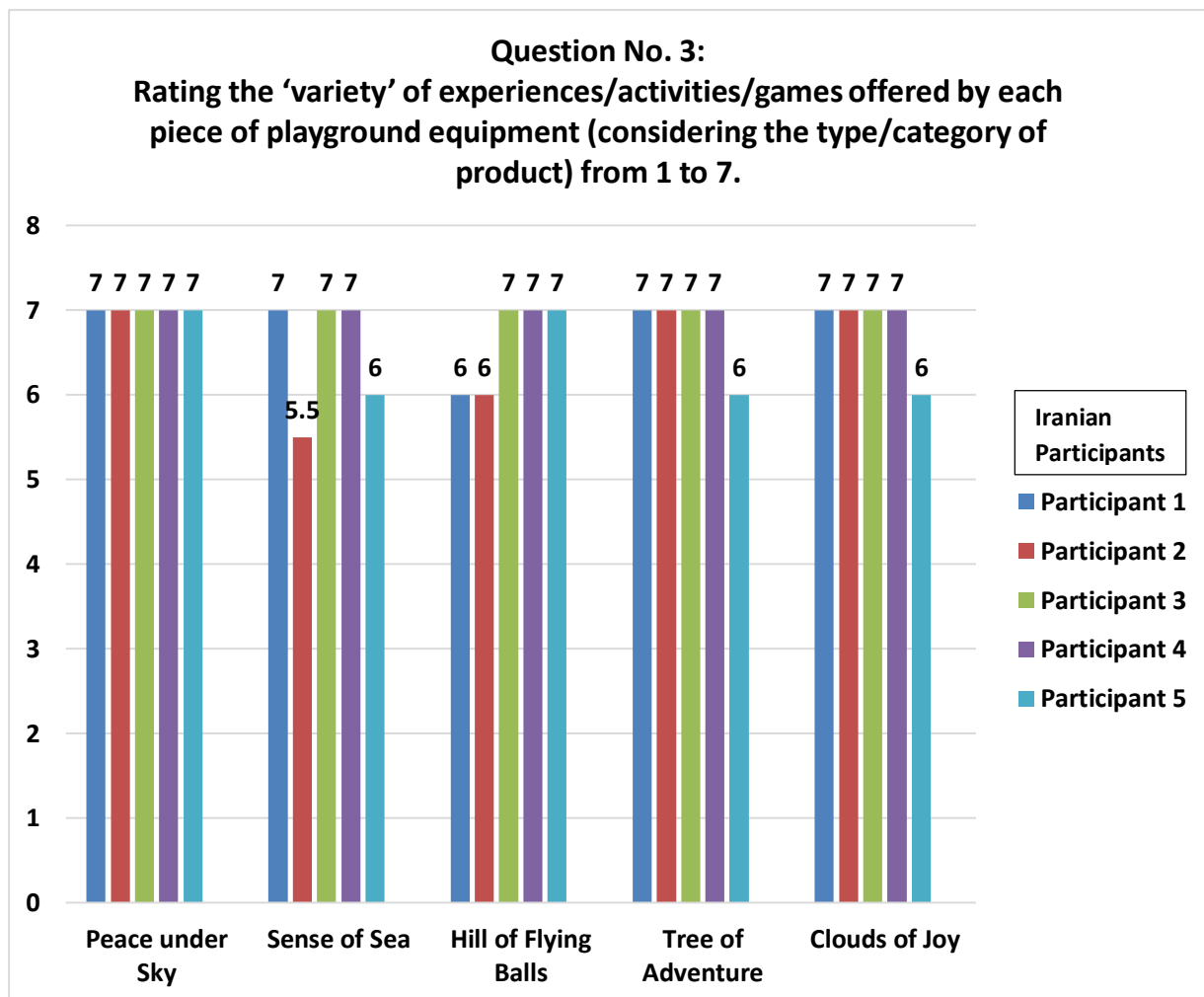
Figure 14-8: *Rating the 'variety' of experiences/activities/games offered by each piece of equipment/zone (considering the type/category of the product) from 1 to 7 by Iranian participants (numbers 1-5).*

Source: *Author.*

The average results of evaluating the ***variety*** of experiences/games provided by each piece of playground equipment by the first five participants (Iranian) are as follows:

'Peace under Sky': **7**

'Sense of Sea': **6.5**

'Hill of Flying Balls': **6.6**

'Tree of Adventure': **6.8**

'Clouds of Joy': **6.8**
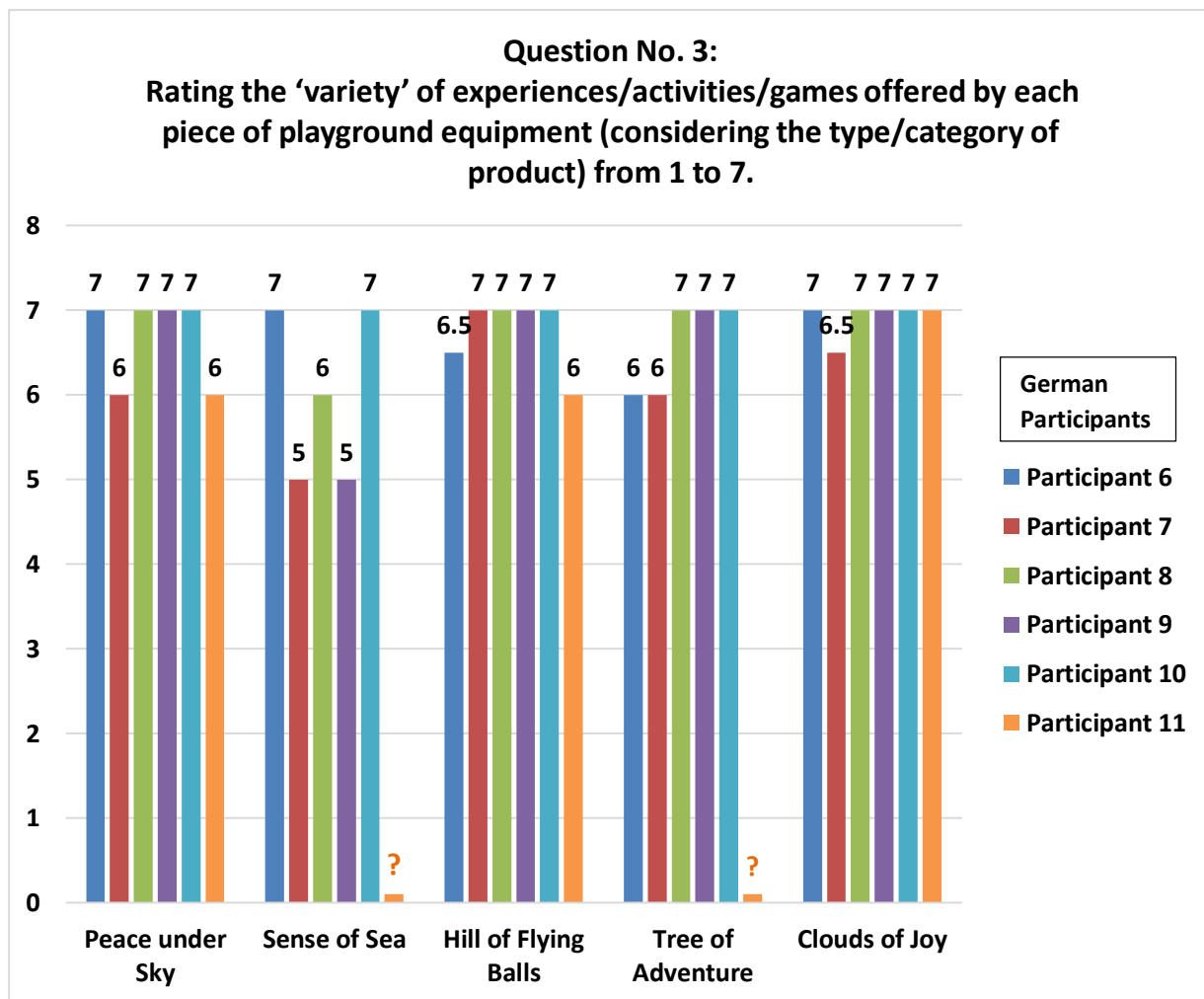
Figure 14-9: *Rating the 'variety' of experiences/activities/games offered by each piece of equipment/zone (considering the type/category of the product) from 1 to 7 by German participants (numbers 6-11).*

Source: *Author.*

(Due to the lack of time, *some* but not all playground settings were evaluated by participant 11).

The average results of evaluating the ***variety*** of experiences/games provided by each playground piece of equipment by participants number 6 to 10/11 (German) are as follows:

'Peace under Sky': 6.66

'Sense of Sea': 6

'Hill of Flying Balls': 6.75

'Tree of Adventure': 6.6

'Clouds of Joy': 6.91

The averages of the results of rating the variety of experiences provided by each piece of playground equipment by all 11 participants (Iranian and German) are presented in Table 14-2.

Table 14-2: *Averages scores of rating the variety of experiences provided by each piece of playground equipment by Iranian, German, and all participants.*

Name of Playground Equipment	Average score of each piece of playground equipment in *variety* of experiences, evaluated by **Iranian participants**	Average score of each piece of playground equipment in *variety* of experiences evaluated by **German participants**	Average score of rating each piece of playground equipment in *variety* of experiences/games evaluated by **all participants.**
Peace under Sky	7	6.66	**6.83**
Sense of Sea	6.5	6	**6.25**
Hill of Flying Balls	6.6	6.75	**6.67**
Tree of Adventure	6.8	6.6	**6.7**
Clouds of Joy	6.8	6.91	**6.85**

Source: *Author.*

➢ **Answers to Question No. 3 (a) – Rating the '*variety*' of experiences/activities/games offered by the whole playground (in comparison with other playgrounds) from 1 to 7.**
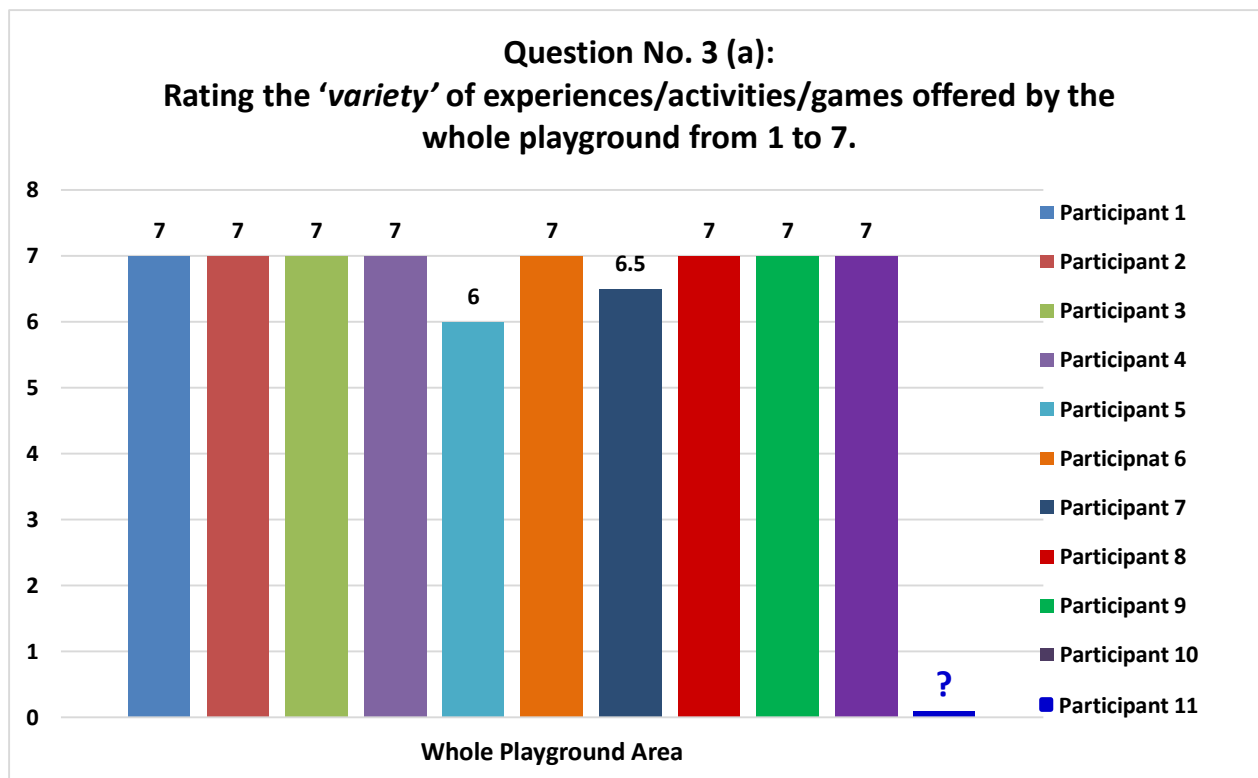
Figure 14-10: *Rating the 'variety' of experiences/activities/games offered by the complete playground from 1 to 7 by the participants (numbers 1-11).*

Source: *Author.*

The average rating scores for the whole playground, by the 5 Iranian, 5 German, and all 10 participants together are respectively 6.8, 6.9, and **6.85.**

(Due to lack of time, participant number 11 could not participate in this evaluation, which is the reason for the question mark in Figure 14-10.)

➢ **Answers to Question No. 4 – Suitable age group as potential users of each piece of playground equipment.**
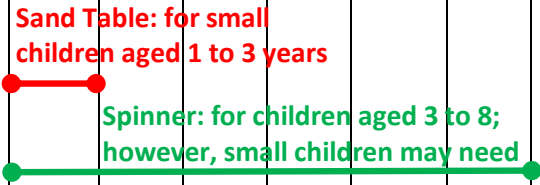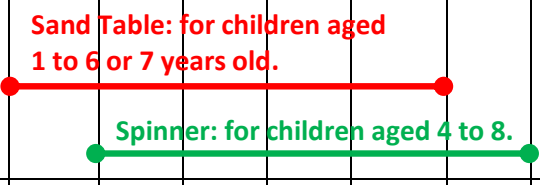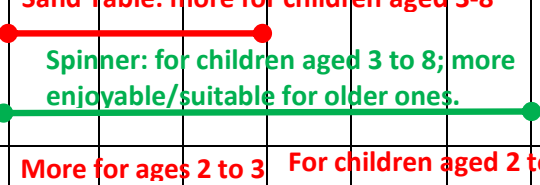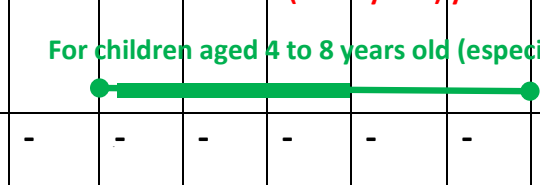
In Question No. 4, participants were asked what age group they thought each playground setting/zone is suitable for. The participants' answers, which are presented in Appendix 10 (on the attached CD), are shown in Table 14-3.

Table 14-3: *Suitable age group as potential users of each piece of playground equipment in participants' opinion.*

Playground Zone & Participant's Number		3-year olds	4-year olds	5-year olds	6-year olds	7-year olds	8-year olds	Older children	Adults
Peace under Sky	Participant No. 1								Everyone, especially adults (e.g. parents).
	Participant No. 2				Everyone				
	Participant No. 3								
	Participant No. 4								
	Participant No. 5								
	Participant No. 6							Often adults, especially young parents and grandparents.	
	Participant No. 7							Everyone, especially parents and small children.	
	Participant No. 8							Everyone	
	Participant No. 9							Often adults, especially young parents and grandparents.	

Playground Zone & Participant's Number	3-year olds	4-year olds	5-year olds	6-year olds	7-year olds	8-year olds	Older children	Adults
Participant No. 10							Everyone, such as families, kindergarten and school groups, and even childless adults.	
Participant No. 11							Often adults, especially young parents and grandparents.	

Sense of Sea	Playground Zone & Participant's Number	3-year olds	4-year olds	5-year olds	6-year olds	7-year olds	8-year olds	Older children	Adults
	Participant No. 1	Sand Table (More for ages 3-5).							
			Spinner: ages 4-7						
	Participant No. 2	Sand Table (More for ages 2-5).							
					Spinner: more for ages 6-8				
	Participant No. 3	Sand Table: More for small children; but also children aged 5-7						Children's parents (adults) can also accompany them and get involved in playing with sand. ✓	
		Spinner: for ages 3-8							
	Participant No. 4	Sand Table: children aged 3-8							
				Spinner: for older children					
	Participant No. 5		Sand Table: for children aged 4 to 6						
				Spinner: for 5-year olds and older.					
	Participant No. 6	Sand Table: for children 1 to 7 years old, especially ages 2 to 4.							
				Spinner: more for older children aged 5 to 8.					

Sense of Sea	Participant No. 7							

Sense of Sea

Participant No. 7

Sand Table: for small children aged 1 to 3 years

Spinner: for children aged 3 to 8; however, small children may need

Participant No. 8

Sand Table: for children aged 1 to 6 or 7 years old.

Spinner: for children aged 4 to 8.

Participant No. 9

Sand Table: more for children aged 3-8

Spinner: for children aged 3 to 8; more enjoyable/suitable for older ones.

Participant No. 10

More for ages 2 to 3   For children aged 2 to 5 (or maybe 6) years old.

For children aged 4 to 8 years old (especially 4-6).

Participant No. 11

-    -   -   -   -   -   -

Playground Zone & Participant's Number	3-year olds	4-year olds	5-year olds	6-year olds	7-year olds	8-year olds	Older children	Adults
Hill of Flying Ball Participant No. 1								
Participant No. 2								
Participant No. 3						More these ages.		
Participant No. 4								
Participant No. 5						More these ages.		

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Playground Zone & Participant's Number	3-year olds	4-year olds	5-year olds	6-year olds	7-year olds	8-year olds	Older children	Adults
Participant No. 6	From three or four years to nine or ten years →						Older children could be the users too.	
Participant No. 7	From three and a half years to all ages even the adults. →						Older children and even adults could be users too.	
Participant No. 8	From two and a half to eight years or even older children. →						Older children could be users too.	
Participant No. 9	From three to ten years. →						Older children could be users too.	
Participant No. 10	Children aged from 2 to 9 years. →						Older children and even adults like kindergarten teachers can get involved.	
Participant No. 11	Three to eleven years old →						Older children aged 9 to 11 years old could be the users too.	
Tree of Adventure — Participant No. 1		All the games						
Participant No. 2	Swings	All the games						
Participant No. 3	Swings	Swings & Slide	All the games					
Participant No. 4		Swings	All the games					
Participant No. 5	Swings, Slide, & hide-and-seek with hills	All the games						

	3-year olds	4-year olds	5-year olds	6-year olds	7-year olds	8-year olds	Older children	Adults
Participant No. 6	From three or four years to nine or ten years old.						Older children aged 9 and 10 years old could be the users too.	
Participant No. 7	Children aged three and a half to eight years.						9	
Participant No. 8	Children aged three to eight years.						10	
Participant No. 9	From 3 to 6 or 7 years old.							
Participant No. 10	More from 2 to 6 years old, but 7 and 8 year olds also can use that.							
Participant No. 11	-	-	-	-	-	-	-	-
Playground Zone & Participant's Number	**3-year olds**	**4-year olds**	**5-year olds**	**6-year olds**	**7-year olds**	**8-year olds**	**Older children**	**Adults**
Clouds of Joy — Participant No. 1	With adults support	All the games					Older children and also parents can also accompany children (e.g. on the hills & in Cloud No.	
Clouds of Joy — Participant No. 2		More suitable for older ones.						
Clouds of Joy — Participant No. 3	Children aged 4 & 5 need the help of parents or older children.	More suitable for ages 6, 7, & 8.						

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[9] Older children may learn how to play that intuitively. But younger children may need to see older children and talk to them to fully understand how to play.

[10] Small children can swing and are curious to go inside the tower while older children will like the slide. All children from 3 to 8 years old, can get involved in the "Acorn, Egg, Apple" Game (see Chapter 13).

Participant No. 4							Older children and also parents can also accompany children.	
Participant No. 5				**For children from 4 to 8 years old.**			Even children over the age of 8 can use these devices.	
Participant No. 6		**From small children to children aged eleven years old can use it.**					Even older children aged 9 to 11 (over the age of 8) can use it too.	
Participant No. 7			**For children aged 4 to 8 years**				[11]	
Participant No. 8			**For children aged 2 to 8 or 9 years** **Small children probably need support and help.**				Children aged 9 years can use that too.	Even adults can go inside this setting and accompany little ones.
Participant No. 9			**Children from 4 to 11 years.**				Older children aged 9 to 11 years can use that too.	
Participant No. 10			**Children from 4 to 11 years.**				Older children aged 9 to 11 years can use that too.	
Participant No. 11		**From one and a half to eight years.** **Small children probably need (parental) support and help.**						

Source: *Author.*

[11] However, climbing rainbow-colored poles may be a little scary or difficult for younger children (aged 4 years old).

Summary of findings from respondents

'Peace under Sky': potential users of 'Peace under Sky' are from all ages and social groups, especially adults (e.g. parents, grandmothers, and kindergarten teachers) and small children who need to stay close to parents compared with older children (Table 14-3; see answers to Question No. 4 in Appendix 10 on the attached CD).

'Sense of Sea': *sand table* is more suitable for children aged 2 to 6, especially younger children including 2, 3, and 4-year-olds; *palm-shaped spinner* is more suitable for older children, from 5 to 8, although younger children aged 3 and 4 can also use it. For example, three-year-olds can use it with the help of older children.

'Hill of Flying Balls': suitable for children from 3 to 8. Even older children aged 9, 10 and 11 can use this device. Some participants stated even adults (e.g. parents) can accompany children in playing, such as playing with a ball and throwing it to each other.

'Tree of Adventure': suitable for children from 3 to 8, although each part may be used more by a certain age group: e.g. some games/activities such as sliding, climbing the spiral ramp, and "Acorn, Apple, Egg" may mostly involve older children, while swings are more likely to be used by small children aged 2 to 3 or disabled children (e.g. wheelchair users).

'Clouds of Joy': suitable for children from 4 to 8. Younger children, aged 2 to 4, can also use this piece of equipment, although most of them may need the help of adults or older children. According to most participants, older children aged 9 to 11 can also use 'Clouds of Joy'. Some participants also stated that even adults can enter this playground setting with children; for example, they can sit and play with children in Cloud No. 3.

➢ **Answers to Question No. 5 – Determining the appropriateness of the playground setting/zone considering gender of user.**

All participants mentioned that all playground setting/zones (including 'Peace under Sky', 'Sense of Sea', 'Hill of Flying Balls', 'Tree of Adventure', and 'Clouds of Joy') are suitable for all genders (see answers to Question No. 5 in Appendix 10 on the attached CD).

> **Answers to Question No. 6 – Determining aspects of child development to which each piece of equipment/zone contributes.**

In Question No. 6, participants were asked which aspects of child development each piece of equipment playground contributes to. The answers of participants – presented in Appendix 10 on the attached CD— are shown in Table 14-4.

Each row of Table 14-4 is divided into rectangular boxes. If, from the participants' point of view, each piece of playground equipment had an effect on any aspect of child development (physical, socio-emotional, cognitive, or language development), the corresponding box in the table is marked blue.

Table 14-4: *Determining aspects of child development to which each piece of play equipment/zone contributes from the participants' point of view.*

Iranian Participants	'Peace under Sky'				'Sense of Sea'				'Hill of Flying Balls'				'Tree of Adventure'				'Clouds of Joy'			
	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language
Participant No. 1	■				■	■	■	■	■	■		■	■	■	■	■	■	■	■	■
Participant No. 2	■		■		■	■	■	■	■	■		■	■	■	■	■	■	■	■	■
Participant No. 3	■				■	■	■		■	■		■	■	■	■	■	■	■	■	■
Participant No. 4		■ [12]	■		■	■	■	■	■		■	■	■	■	■	■	■	■	■	

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[12] Participant No. 4 stated that her three-year-old son might use the bench and its form as an abstract tool for his imaginative play (e.g. jumping on the bench from one side to other side, and walking on different parts of that). Also, elements of clouds and birds on the roof of this zone can be suitable to engage younger children in their imaginative games. For this reason, this participant considered this space to be effective in the physical and mental development of children.

German Participants	'Peace under Sky'				'Sense of Sea'				'Hill of Flying Balls'				'Tree of Adventure'				'Clouds of Joy'			
	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language	Socio-emotional	Physical	Cognitive	Language
Participant No. 5	■		■		■	■	■		■	■		■	■	■	■		■	■		■
Participant No. 6	■			■	■	■			■				■	■			■	■		
Participant No. 7	■	■			■			[13]	■	■			■	■	■		■	■	■	
Participant No. 8	■		■		■	■			■	■	■		■	■	■		■	■	■	■
Participant No. 9	■				■	■	■		■	■	■		■	■			■	■		
Participant No. 10	■	■			■	■			■	■	■		■	■	■	■	■	■	■	■
Participant No. 11	■	■			-	-	-	-	■				-	-	-	-	■	■	■	

Source: *Author.*

1. 'Peace under Sky' and Child Development

- **Socio-emotional development:** as shown in Table 14-4, in the opinion of most participants **(10 out of 11)**, 'Peace under Sky' has an effective role in social and emotional interactions of users and their development (e.g. socio-emotional interaction between couples, mothers, parents and their children, or between children like siblings or friends). However,

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[13] 'Sense of Sea' zone has less effect on language development than other aspects of child development.

play spaces are more effective than this space – which is more for relaxing and sitting— in the socio-emotional development of children.

- **Physical development:** four participants, one Iranian and three Germans, **(4 out of 11)** stated that 'Peace under Sky' zone can also contribute to physical development of young children. Small children, such as those who are just learning to walk, may walk on benches and jump down and walk around the space and its elements.

- **Cognitive development:** two participants, one Iranian and one German, **(2 out of 11)** stated that 'Peace under Sky' can also contribute to cognitive development of young children because of colors, shape of benches and visual elements like birds and clouds.

- **Language development:** two participants, one Iranian and one German, **(2 out of 11)** stated that 'Peace under Sky' can also contribute to language development of young children through interactions while sitting, playing, resting, or eating in this space.

- **Summary:** in the opinion of almost all participants **(10 out of 11)** 'Peace under Sky' plays an important role in social and socio-emotional interactions and development.

  Some participants **(4)** stated that this area can also have an effect on the physical development of small children; and **2** participants stated it could also be effective in children's cognitive and language development.

  Therefore, it can be said that from the participants' point of view this space has definitely an impact on social and emotional interactions and maybe to some extent on the physical, cognitive and language development of children.

2. 'Sense of Sea' and Child Development

- **Socio-emotional development:** as shown in Table 14-4, in the opinion of all participants **(10 out of 10)**, 'Sense of Sea' plays an effective role in socio-emotional development of children. In this play zone, children have various interactions while playing with sand and water, climbing the turtle-shaped hill, and using the palm-shaped spinner.

- **Physical development:** in the opinion of all participants **(10 out of 10)**, 'Sense of Sea' – especially the palm-shaped spinner – plays an effective role in a child's physical development.

- **Cognitive development:** all participants **(10 out of 10)** also stated 'Sense of Sea' plays an effective role in a child's cognitive development. For example, making different things with sand is creative; interacting with different visual elements like the palm, turtle, green hills, sand table or wave shapes influences cognitive development.

- **Language development:** in the opinion of 5 participants **(5 out of 10)** including 3 German and 2 Iranian, 'Sense of Sea' can also to some extent play a role in a child's language development, as children interact and talk with each other while playing with sand, hills and spinner.

- **Summary:** According to the results, in the opinion of all participants **(10 out of 10)** 'Sense of Sea' contributes to socio-emotional, physical[14], and cognitive development. In the opinion of half the participants **(5 out of 10)**, this zone also to some extent contributes to children's language development.

3. 'Hill of Flying Balls' and Child Development

- **Socio-emotional development and physical development:** as shown in Table 14-4, **11 out of 11 participants** stated that 'Hill of Flying Balls' plays an effective role in the socio-emotional and physical development of children: engaging in the different activities that this play area offers, children interact and become involved in physical activities (e.g. playing with balls, climbing the hill, jumping on the trampoline).

- **Language development:** in the opinion of 7 out of 11 participants **(5 Iranians and 2 Germans)**, the 'Hill of Flying Balls' contributes to children's language development, as they talk and interact with each other while playing with sand, hills, and spinner.

- **Cognitive development:** for **3 German participants** the 'Hill of Flying Balls' plays an effective role in a child's cognitive development – for example making things with sand is creative, and interaction with different visual elements like the palm, turtle, green hills, sand table and wave-shaped elements boosts cognitive development.

- **Summary**: In the opinion of **all 11 participants**, the 'Hill of Flying Balls' plays an important role in children's physical and socio-emotional development. For all **5 Iranian** and **2**

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[14] It contributes to physical development especially because of the spinner; however, playing with sand and climbing the hill around the sand table can also influence physical development.

German participants, it also contributes to children's language development. For **3 German** participants, it plays an effective role in a child's cognitive development.

4. 'Tree of Adventure' and Child Development

- **Socio-emotional, physical, and cognitive development:** as shown in Table 14-4, all **10 out of 10** participants stated that 'Tree of Adventure,' as a setting offering various games, plays an effective role in a child's socio-emotional, physical, and cognitive development. For example children's interaction with each other and with different elements of this area (e.g. sculptures/shapes of bird, squirrel, squirrel's hole, bird eggs, apples, and acorns) play a role in socio-emotional and cognitive development. Climbing the tree-shaped structure, sliding, and swinging contribute to physical development.

- **Language development:** in the opinion of **8 out of 10** participants (5 Iranians, 3 Germans), 'Tree of Adventure' contributes to children's language development, as they interact and talk with each other while playing.

- **Summary: All 10 out of 10** participants stated that 'Tree of Adventure' contributes to socio-emotional, physical, and cognitive development of children; and according to **8 participants**, this play setting is also effective in children's language development.

5. 'Clouds of Joy' and Child Development

- **Socio-emotional and physical development:** as shown in Table 14-4, **all 11 out of 11** participants stated that 'Clouds of Joy' – as a setting which offers various games— has an effective role in a child's socio-emotional and physical development.

- **Cognitive and language development:** as shown in Table 14-4, **10 out of 11** participants stated that 'Clouds of Joy' contributes to child language and cognitive development, for example when children interact and talk with each other while playing and also when they interact with different play elements like walking on the musical stairs, interacting with cloud-shaped elements and playing on rainbow-colored elements.

- **Summary:** All **11 out of 11** participants stated that 'Clouds of Joy' offers various games and plays an effective role in child socio-emotional and physical development; also almost all

participants (10 out of 11) stated that it also contributes to child language and cognitive development.

- ➢ **Answers to Question No. 7 – Rating users' enjoyment of playing or interacting with each playground setting/zone from 1 to 7.**

This section presents the results of rating users' enjoyment of playing or interacting with each playground setting/zone from 1 to 7 by German and Iranian participants (Figures 14-11 & 14-12). The reason for the question mark is that participant number 11 could not participate in the evaluation of some playground equipment due to lack of time.
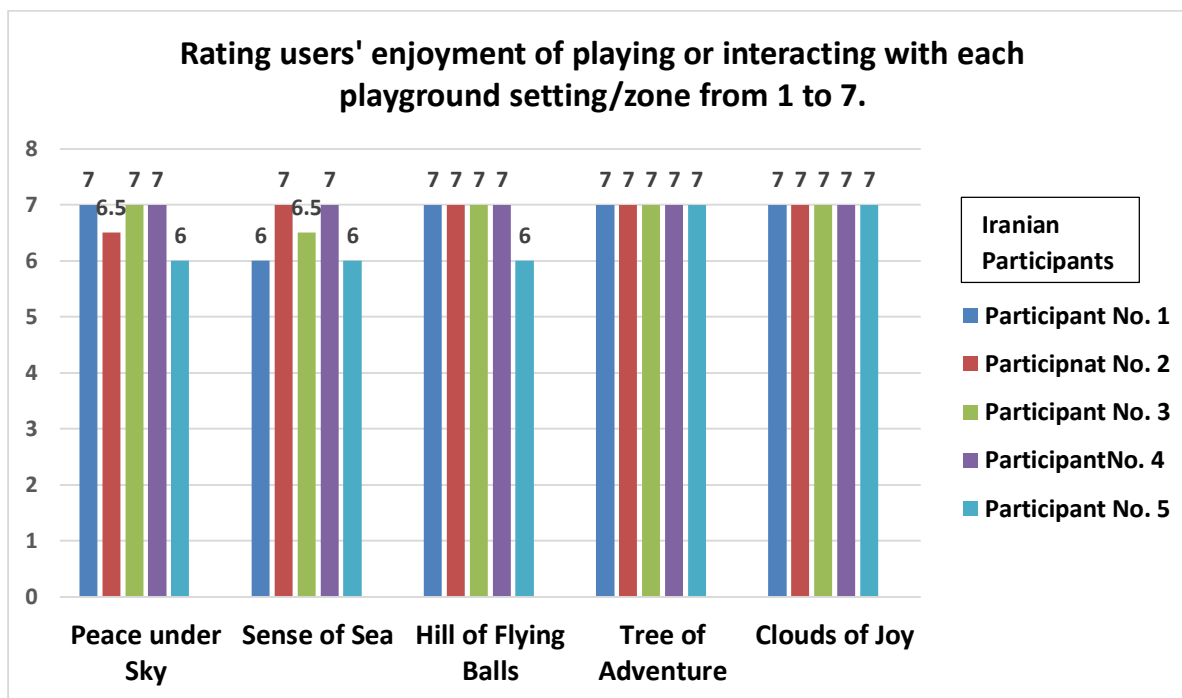
Figure 14-11: *Results of rating users' enjoyment of playing or interacting with each playground setting/zone from 1 to 7 by Iranian participants.*
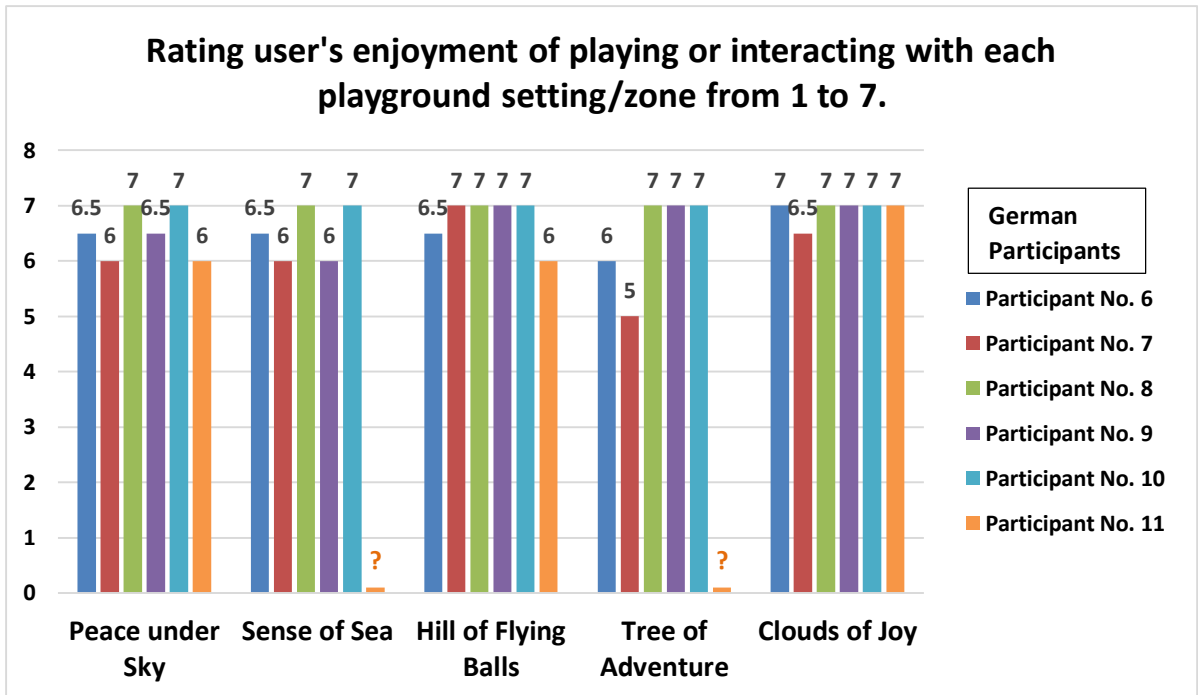
Source: *Author.*

Figure 14-12: *Results of rating users' enjoyment of playing or interacting with each playground setting/zone from 1 to 7 by German participants.*

Source: *Author.*

The average scores of rating users' enjoyment of playing/interacting with each playground setting/zone from 1 to 7, by (1) Iranian participants, (2) German participants, and (3) all participants, are presented in Table 14-5.

Table 14-5: *Average scores of rating users' enjoyment of playing/interacting from the participants' point of view.*

Average scores / Name of Playground Equipment	Average score of rating users' enjoyment of playing/interacting with each playground setting/zone from 1 to 7 evaluated by **Iranian participants**	Average score of rating users' enjoyment of playing/interacting with each playground setting/zone from 1 to 7 evaluated by **German participants**	Final average score of rating users' enjoyment of playing/interacting with each playground setting/zone from 1 to 7 evaluated by **all participants**
Peace under Sky	6.7	6.5	**6.6**
Sense of Sea	6.5	6.5	**6.5**
Hill of Flying Balls	6.8	6.75	**6.77**
Tree of Adventure	7	6.4	**6.7**
Clouds of Joy	7	6.91	**6.95**

Source: *Author.*

➢ **Answers to Question No. 8 – Rating the level of barrier-free accessibility of 3 settings/zones including 'Peace under Sky', 'Sense of Sea' (sand table), and 'Hill of Flying Balls' from 1 to 7.**

The average rating scores for the level of accessibility of each piece of playground equipment ('Peace under Sky', 'Sense of Sea', and 'Hill of Flying Balls'), evaluated by Iranian participants, German participants, and all participants is presented in Table 14-6.
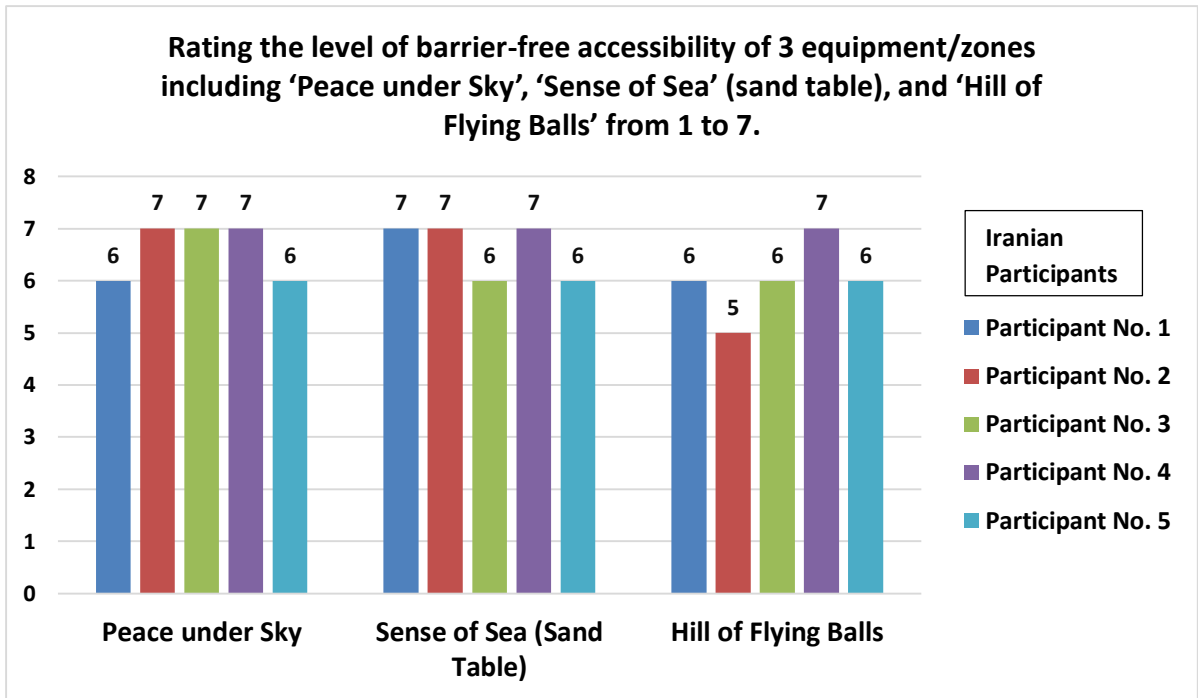
Figure 14-13: *Results of rating the level of barrier-free accessibility of 3 settings/zones including 'Peace under Sky', 'Sense of Sea' (sand table), and 'Hill of Flying Balls' by Iranian participants.*
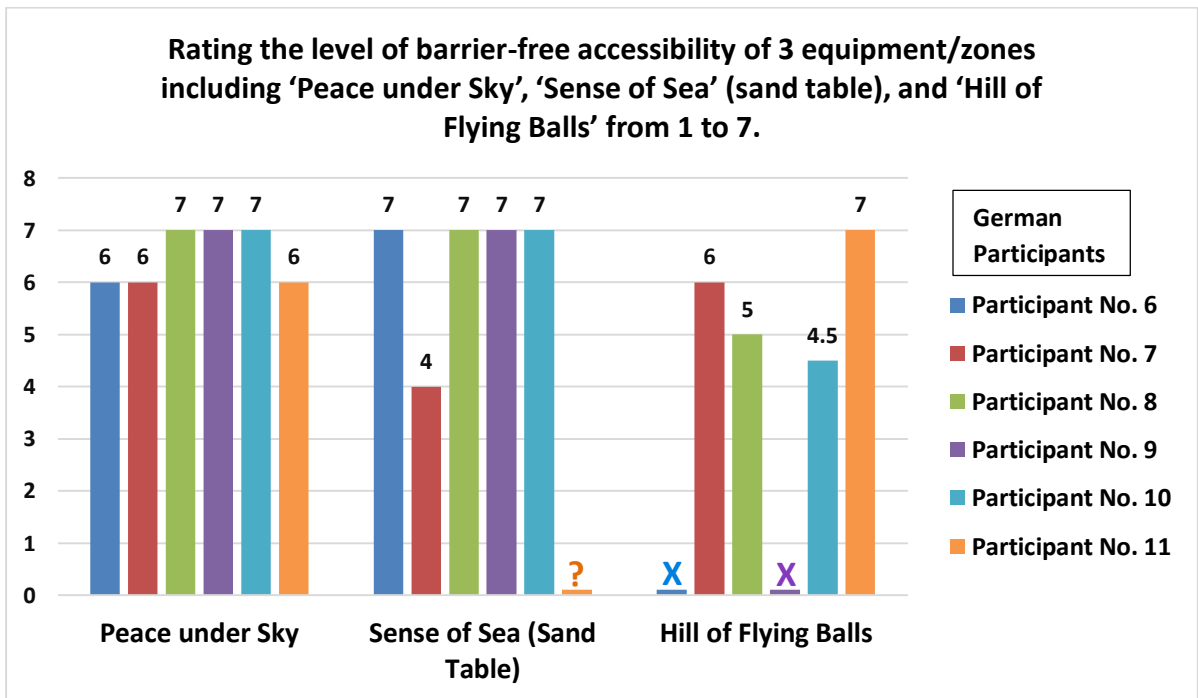
Source: Author.

Figure 14-14: *Results of rating the level of barrier-free accessibility of 3 settings/zones including 'Peace under Sky', 'Sense of Sea' (sand table), and 'Hill of Flying Balls' by German participants.*

Source: Author.

The reason for placing 2 *crosses (X)* in the results of the evaluation of the third playground piece of equipment ('Hill of Flying Ball') is that two people did not answer this question. In their opinion this equipment was not completely suitable for handicapped children, since wheel chair users can only play with the balls but cannot climb the hills or jump on the trampoline.

Table 14-6: *Average score of rating the level of barrier-free accessibility of 3 settings/zones including 'Peace under Sky', 'Sense of Sea' (sand table), and 'Hill of Flying Balls', evaluated by Iranian participants, German participants, and all participants.*

Average Scores Name of Playground Equipment	Average score of rating the level of accessibility of each playground settings/zones by **Iranian participants.**	Average score of rating the level of accessibility of each playground settings/zones by **German participants.**	Average score of rating the level of accessibility of each playground settings/zones by **all the participants.**
1. **'Peace under Sky'**	6.6	6.5	**6.55**
2. **Sand Table in 'Sense of Sea'**	6.6	6.4	**6.5**
3. **'Hill of Flying Balls'**	6	5.62	**5.81**

Source: *Author.*

➢ **Answers to Question No. 8 (a) – Rating the safety and accessibility of the playground considering its area and location (as an example on the Nordbahntrasse next to the Pakour Park[15]) from 1 to 7.**

In this section, the results of rating the safety and accessibility of the playground considering its area and location on the Nordbahntrasse are presented (Figure 14-15). Participants 6 and 11 could not answer the question due to lack of time.

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[15] As stated, the selected site – as an example of a potential area – for presenting the future playground design, is on the Nordbahntrasse next to the Pakour Park.
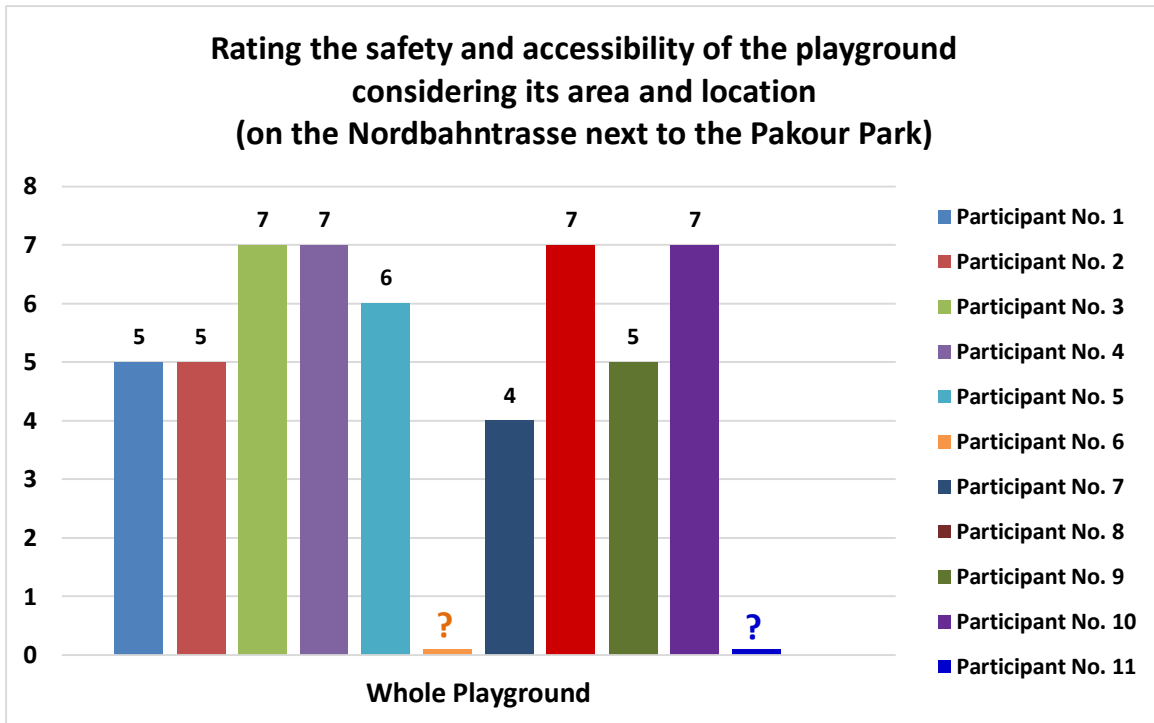
Figure 14-15: *Results of rating the safety and accessibility of the playground considering its area and location (on the Nordbahntrasse next to the Pakour Park).*

Source: Author.

Average safety and accessibility ratings of future playground, considering its area and location on the Nordbahntrasse, by Iranian, German, and all participants are presented in Table 14-7.

Table 14-7: *Average safety and accessibility ratings considering location of the playground on the Nordbahntrasse.*

	Average score of rating the safety and accessibility of the future playground considering its area and location on the Nordbahntrasse by **Iranian participants**	Average score of rating the safety and accessibility of the future playground considering its area and location on the Nordbahntrasse, evaluated by **German participants**	Total average score of rating the safety and accessibility of the future playground considering its area and location on the Nordbahntrasse, evaluated by **all participants**
Whole playground	6	5.75	5.87

Source: Author.

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➢ **Answers to Question No. 9 – Exploring how long the user uses each piece of playground equipment.**

The participants estimated the time duration of use (i.e. using time by the potential users) of each playground setting (i.e. each play zone or piece of equipment). The results of this estimation by Iranian and German participants have been presented in Figures 14-16 and 14-17.

In the diagrams, in the case of 'Sense of Sea', the using time estimated by the participants is about the sand table of this space. Regarding the palm-shaped spinner of this space, most participants stated that children probably use it for about **5 to 10 or 15 minutes** in one round of play but after a while (e.g. after going to other play zones or resting) they may return to use the spinner again and enjoy.

The average results of estimating the duration of use of each piece of playground equipment by Iranian, German, and all participants are presented in Table 14-8.
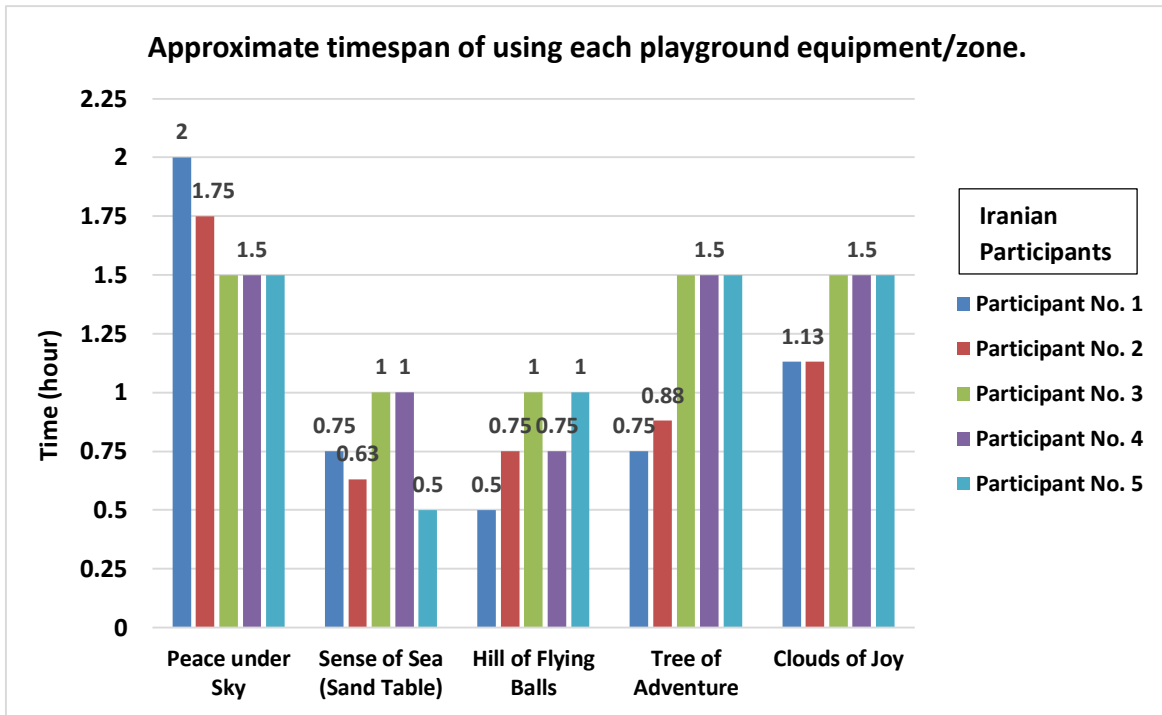
Figure 14-16: *Estimated duration of use of each piece of playground equipment: Iranian participants.*
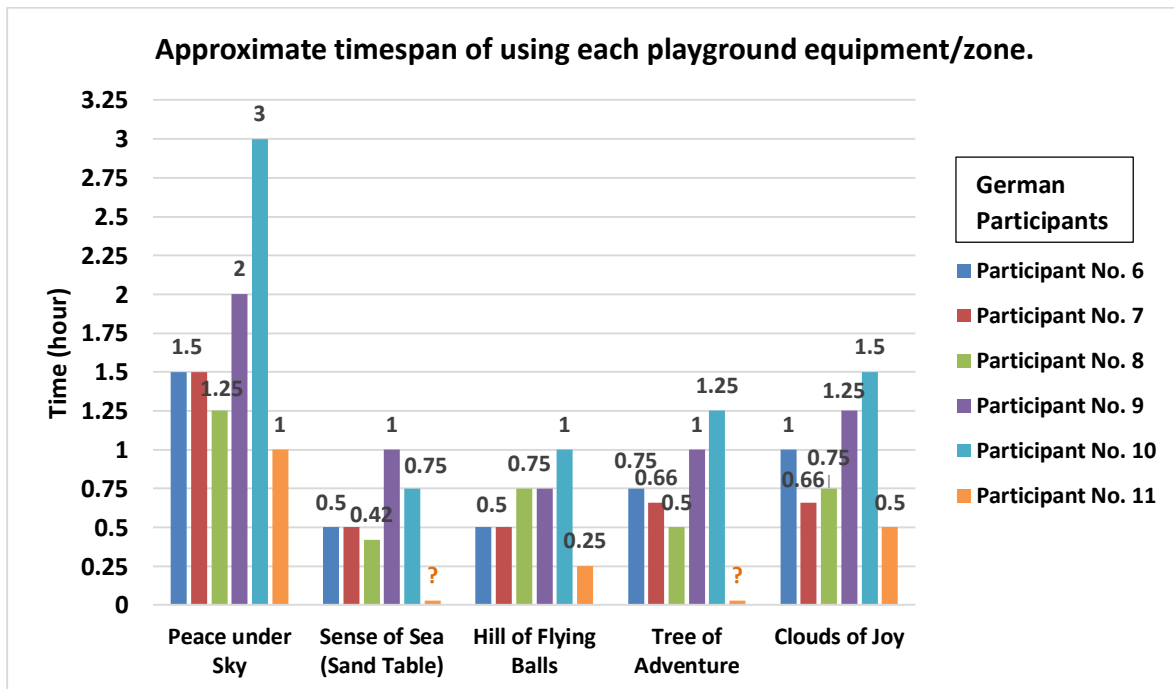
Source: *Author.*

Figure 14-17: *Estimated duration of use of each piece of playground equipment: German participants.*

Source: *Author.*

Table 14-8: *Average results of estimating the duration of use of each piece of playground equipment by Iranian, German, and all participants.*

Average duration Of Use / Name of Playground Equipment	Average results of estimating the duration of use of each piece of playground equipment, evaluated by **Iranian participants.**	Average results of estimating the duration of use of each piece of playground equipment, evaluated by **German participants.**	Average results of estimating the duration of use of each piece of playground equipment, evaluated by **all participants.**
Peace under Sky	1.65 hour (1 hour and 39 minutes)	1.70 hour (1 hour and 42 minutes)	1 hour 40.5 minutes
Sense of Sea (Sand table)	0.77 hour (46 minutes)	0.63 hour (38 minutes)	(42 minutes)
Hill of Flying Balls	0.8 hour (48 minutes)	0.62 hour (37 minutes)	(42.5 minutes)
Tree of Adventure	1.22 hour (1 hour and 13 minutes)	0.83 hour (50 minutes)	(1 hour and 3 minutes)
Clouds of Joy	1.35 hour (1 hour and 21 minutes)	0.94 hour (56 minutes)	(1 hour and 8.5 minutes)

Source: *Author.*

➢ **Answers to Question No. 10 – Rating the visual attractiveness of each piece of playground equipment/zone to its potential users from 1-7.**

The results of rating the visual attractiveness of each piece of playground equipment/zone for its potential users (in the opinion of Iranian and German participants) are presented in Figures 14-18 and 14-19.
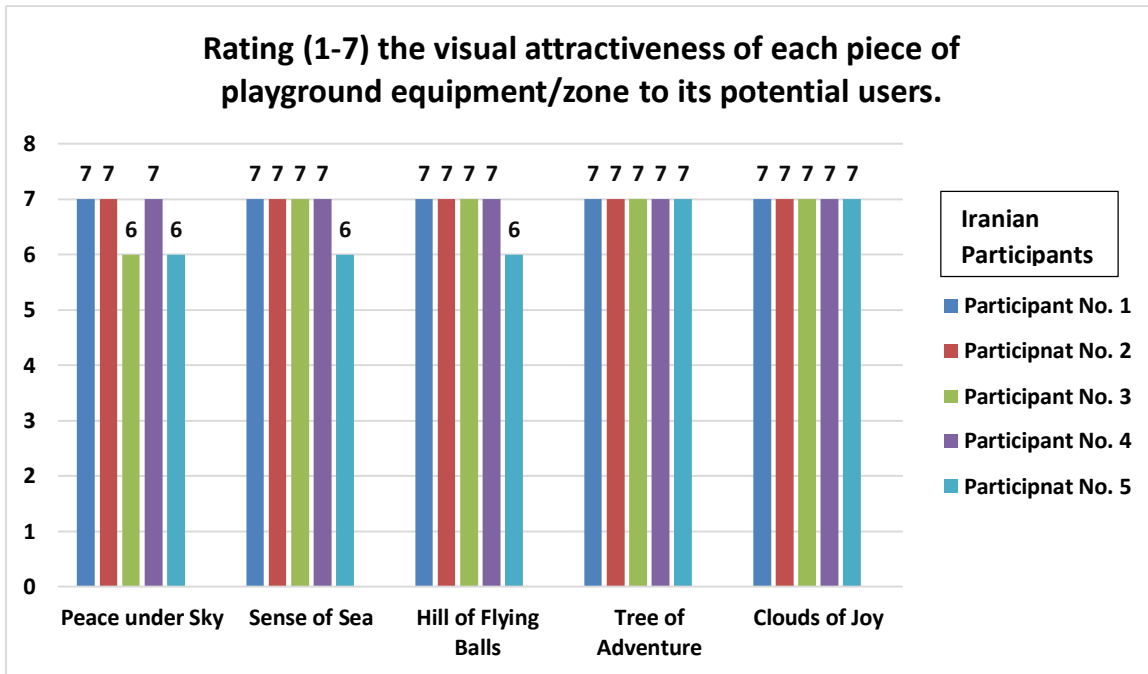
Figure 14-18: *Results of rating the visual attractiveness of each piece of playground equipment/zone for its potential users: Iranian participants.*
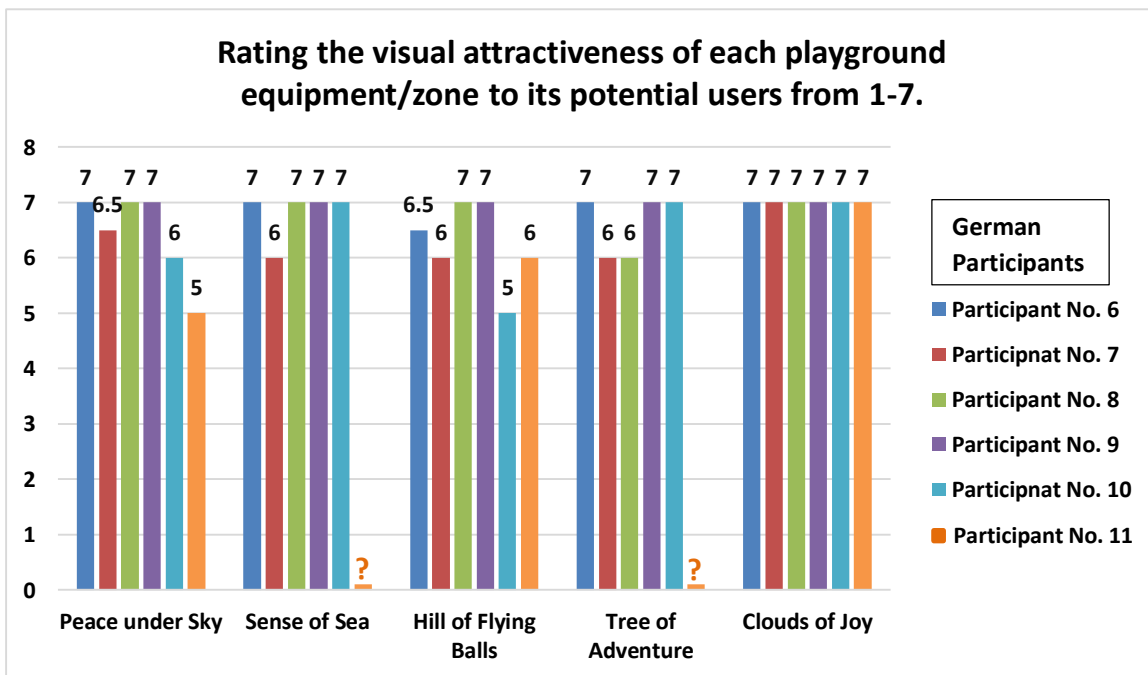
Source: Author.

Figure 14-19: *Results of rating the visual attractiveness of each piece of playground equipment/zone for its potential users: German participants.*

Source: Author.

The average scores of rating the visual attractiveness of each piece of playground equipment/zone for its potential users, evaluated by Iranian, German, and all participants are presented in Table 14-9.

Table 14-9: *Average rating scores for visual attractiveness of each piece of playground equipment/zone, evaluated by Iranian, German, and all participants.*

Average scores / Name of Playground Equipment	Average visual attractiveness ratings for each piece of playground equipment/zone for its potential users, evaluated by **Iranian participants.**	Average visual attractiveness ratings for each piece of playground equipment/zone for its potential users, evaluated by **German participants.**	Average visual attractiveness ratings for each piece of playground equipment/zone for its potential users, evaluated by **all participants.**
Peace under Sky	6.6	6.41	**6.50**
Sense of Sea	6.8	6.8	**6.8**
Hill of Flying Balls	6.8	6.25	**6.52**
Tree of Adventure	7	6.6	**6.8**
Clouds of Joy	7	7	**7**

Source: *Author.*

➢ **Answers to Question No. 11 – Rating functional attractiveness of each piece of playground equipment/zone to its users from 1 to 7.**

This section presents the results of rating the functional attractiveness of each piece of playground equipment/zone by Iranian and German participants (Figures 14-20 and 14-21).
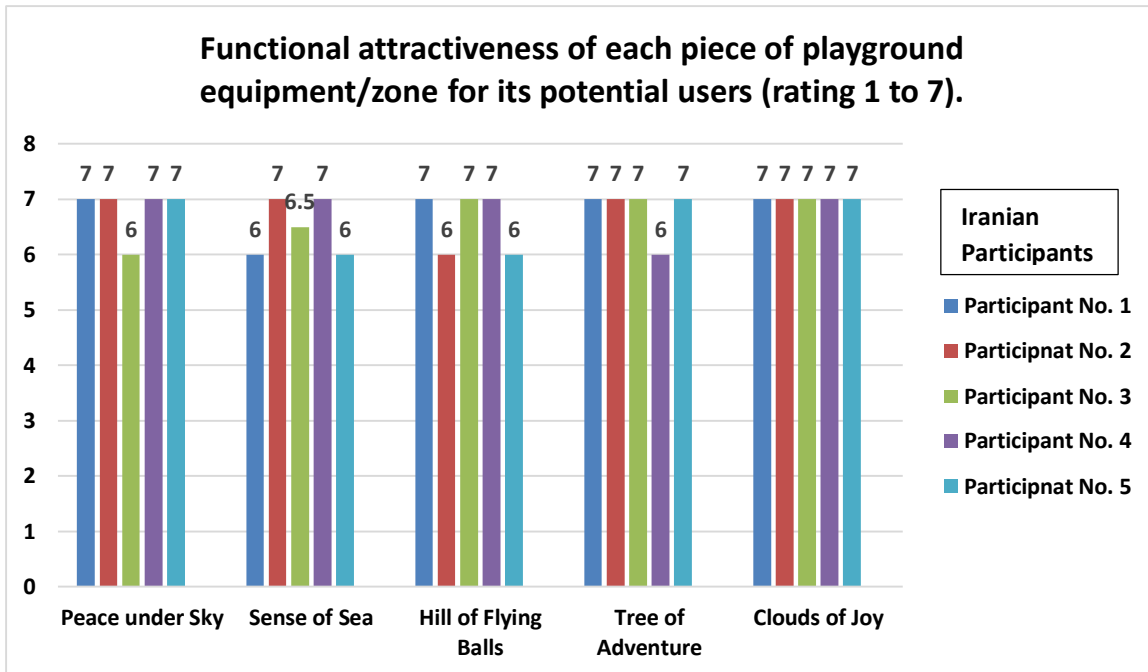
Figure 14-20: *Results of rating the functional attractiveness of each piece of playground equipment/zone by Iranian participants.*
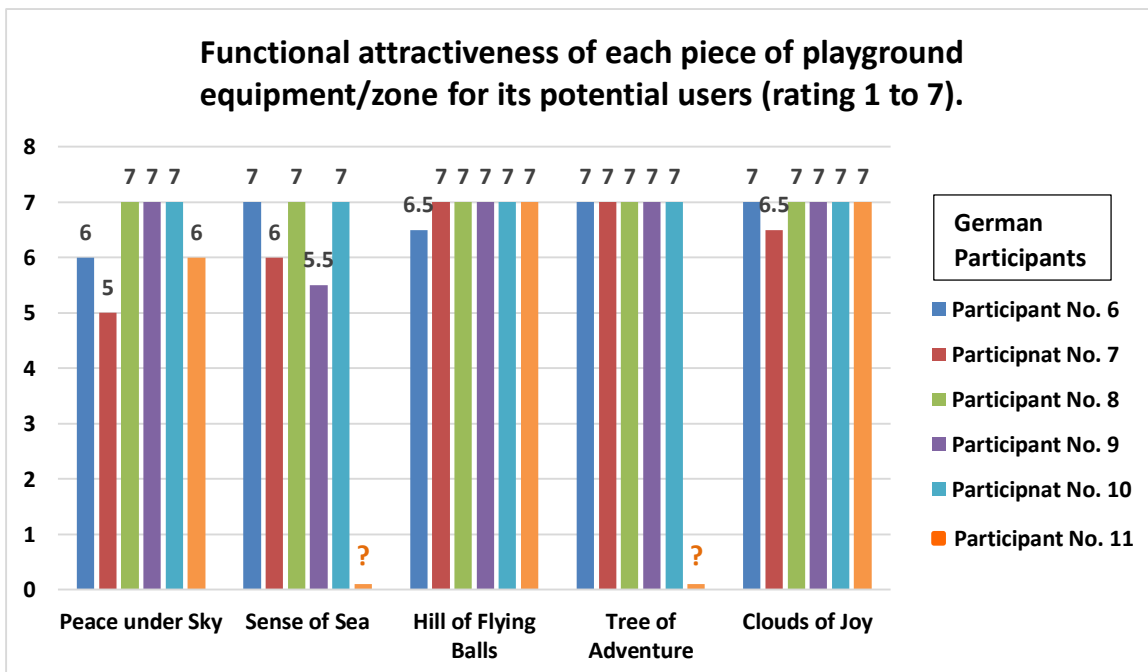
Source: Author.

Figure 14-21: *Results of rating the functional attractiveness of each piece of playground equipment/zone to by German participants.*

Source: Author.

The average scores of rating the functional attractiveness of each piece of playground equipment/zone, by Iranian, German, and all participants are presented in Table 14-10.

Table14-10: *Average scores of rating the functional attractiveness of each piece of playground equipment/zone, evaluated by Iranian, German, and all participants.*

Average scores / Name of Playground Equipment	Average functional attractiveness ratings for each piece of playground equipment/zone, evaluated by **Iranian participants.**	Average functional attractiveness ratings for each piece of playground equipment/zone, evaluated by **German participants.**	Average functional attractiveness ratings for each piece of playground equipment/zone, evaluated by **all participants.**
Peace under Sky	6.8	6.33	**6.56**
Sense of Sea	6.5	6.5	**6.5**
Hill of Flying Balls	6.6	6.91	**6.75**
Tree of Adventure	6.8	7	**6.9**
Clouds of Joy	7	6.91	**6.95**

Source: *Author.*

➢ **Answers to Question No. 12 – Appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1 to 7).**

This section presents *appropriateness* ratings for the name of each piece of playground equipment/zone according to its appearance and function (Figure 14-22 & 14-23).

Participant No. 6 did not evaluate 'Hill of Flying Balls' because he did not find the balls (fastened to the hill by elastic ropes) in the design of this device very practical or cost-effective (Figure 23). See the answers of participant No. 6 to Questions No. 11 & No. 12 in Appendix 10 on the attached CD. Participant No. 11 could not participate in the evaluation of 'Sense of Sea', 'Tree of Adventure', and 'whole playground' due to lack of time.
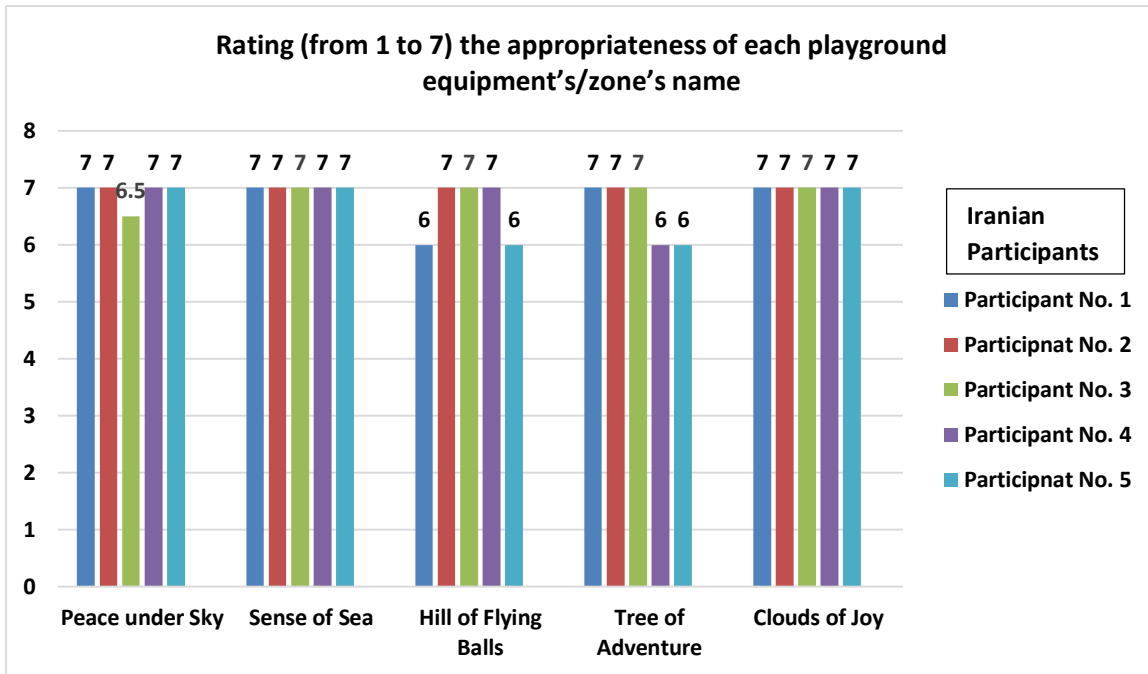
Figure 14-22: *Appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1-7): Iranian participants.*
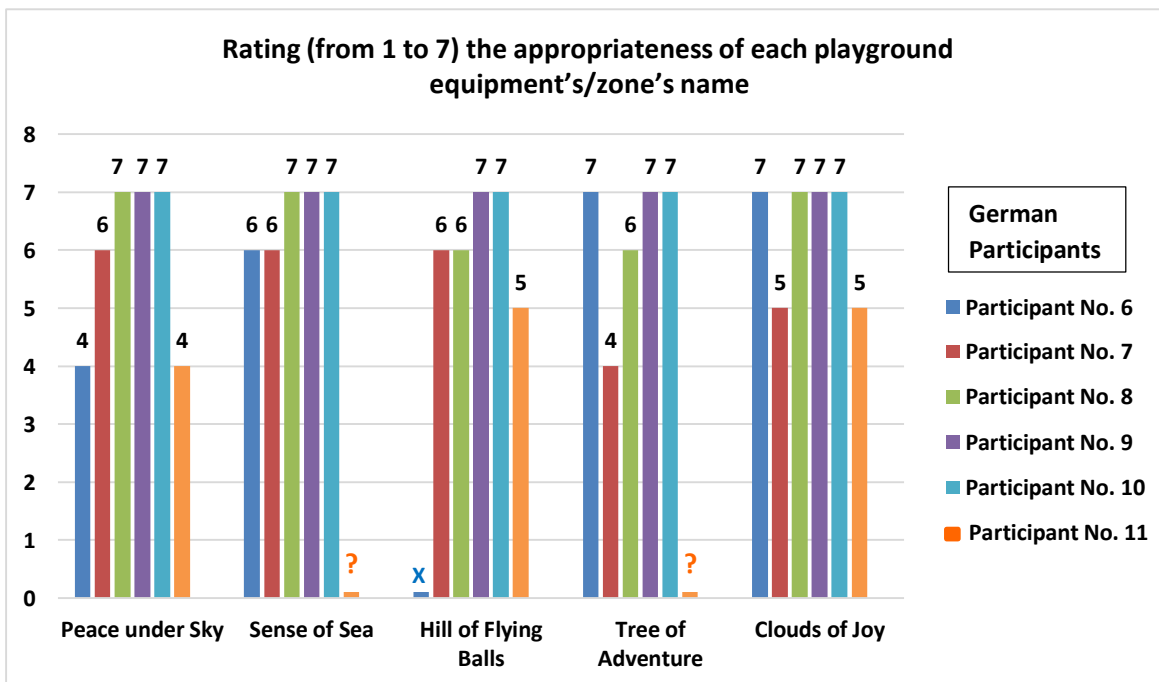
Source: *Author.*

Figure 14-23: *Appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1-7): German participants.*

Source: *Author.*

The average scores of rating the *appropriateness* of the name of each piece of playground equipment/zone according to its appearance and function, by Iranian, German, and all participants, are presented in Table 14-11.

Table 14-11: *Average scores of rating the appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1-7): Iranian, German, and all participants.*

Average scores / Name of Playground Equipment	Average scores of rating the appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1-7): evaluated by **Iranian participants.**	Average scores of rating the appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1-7): evaluated by **German participants.**	Average scores of rating the appropriateness of the name of each piece of playground equipment/zone according to its appearance and function (ratings 1-7): evaluated by **all participants.**
Peace under Sky	6.9	5.83	**6.36**
Sense of Sea	7	6.6	**6.8**
Hill of Flying Balls	6.6	6.2	**6.4**
Tree of Adventure	6.6	6.2	**6.4**
Clouds of Joy	7	6.33	**6.66**

Source: *Author.*

➢ **Answers to Question No. 13 – Rating (from 1 to 7) how much a child (e.g. your child) enjoys staying and playing on this playground.**

The participants were asked to explain their opinion about the level of children's enjoyment of being and playing on the playground. This section presents the evaluation results of children's enjoyment of being and playing on the playground (Figures 14-24 & 14-25)
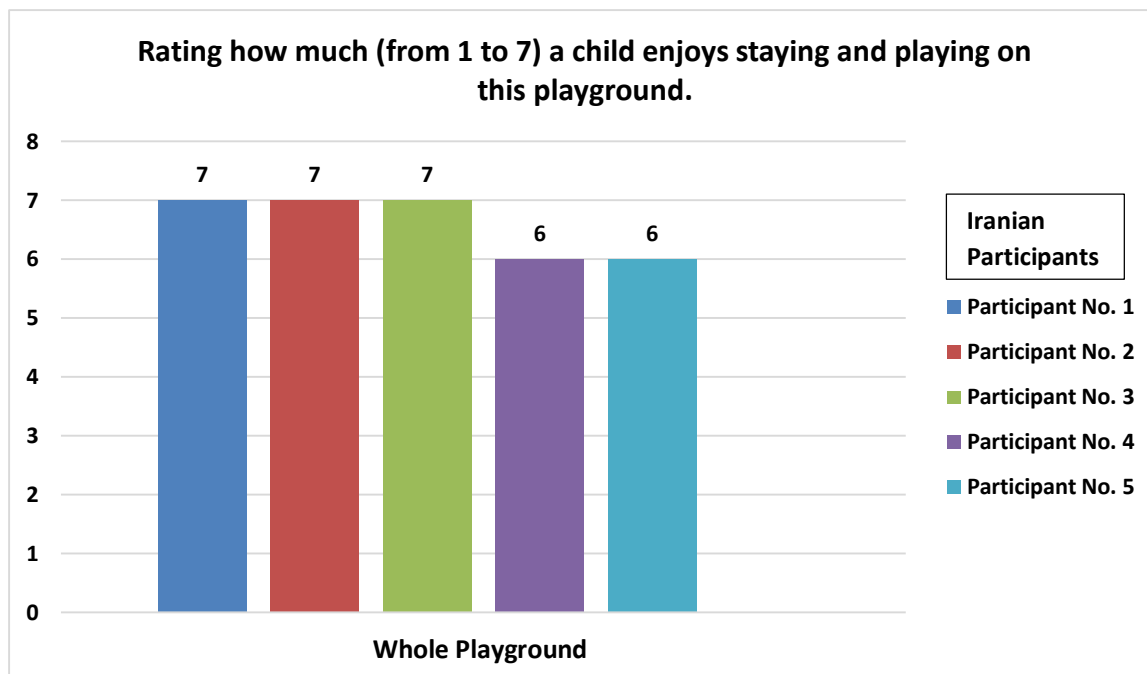
Figure 14-24: *Results of rating children's enjoyment of staying and playing on the playground from 1 to 7: Iranian participants.*
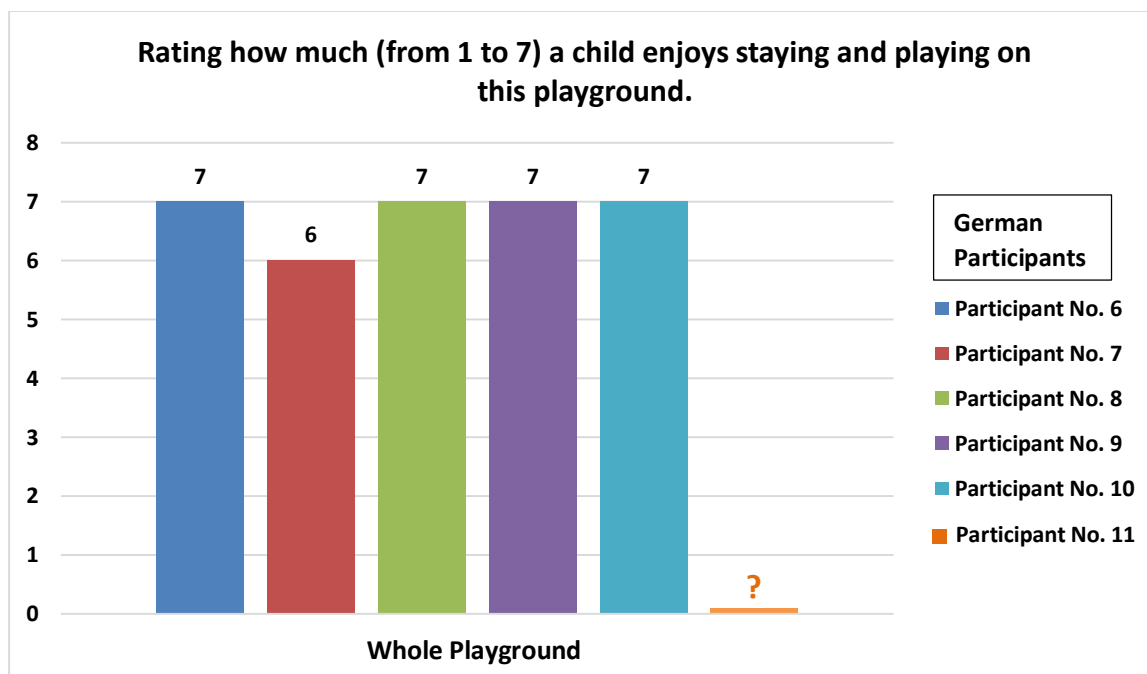
Source: *Author.*

Figure 14-25: *Results of rating children's enjoyment of staying and playing on the playground from 1 to 7: German participants.*

Source: *Author.*

Average scores of rating children's enjoyment of staying and playing on the playground from 1 to 7, evaluated by Iranian, German, and all participants are presented in Table 14-12. The final average score of children's enjoyment of the playground by all participants is 6.7.

Table 14-12: *Average scores of rating children's enjoyment of staying and playing on the playground from 1 to 7, by Iranian, German, and all participants.*

Average score → / Area ↓	Average score of rating children's enjoyment of being and playing on the playground from 1 to 7, evaluated by **Iranian participants.**	Average score of rating children's enjoyment of being and playing on the playground from 1 to 7, evaluated by **German participants.**	Average score of rating children's enjoyment of being and playing on the playground from 1 to 7, evaluated by **all participants.**
Whole Playground	6.6	6.8	<u>**6.7**</u>

Source: *Author.*

➤ **Answers to Question No. 13 (a) – Rating (from 1 to 7) how much adults (e.g. parents) as stakeholders enjoy spending time on this playground.**

The participants also rated how much adults as stakeholders (e.g. parents, grandparents, and kindergarten teachers) might enjoy spending time on this playground. These evaluation results are presented in Figures 14-26 and 14-26. The average scores are presented in Table 14-13.
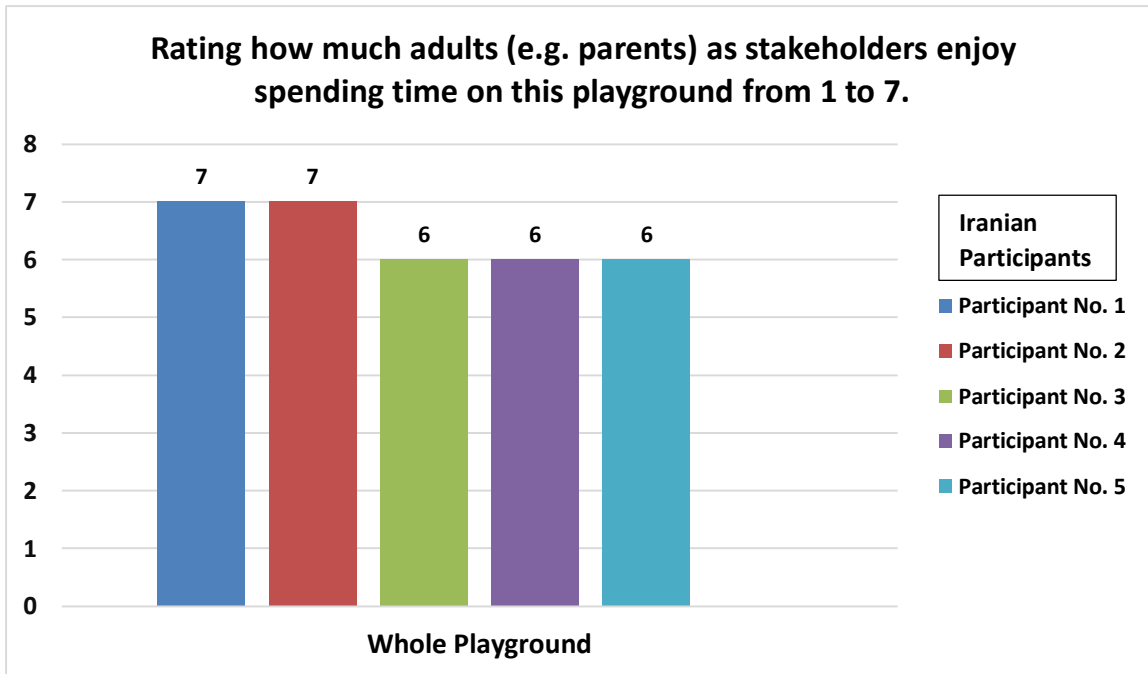
Figure 14-26: *Results of rating adults' enjoyment of staying and interacting on the playground from 1 to 7, evaluated by Iranian participants.*
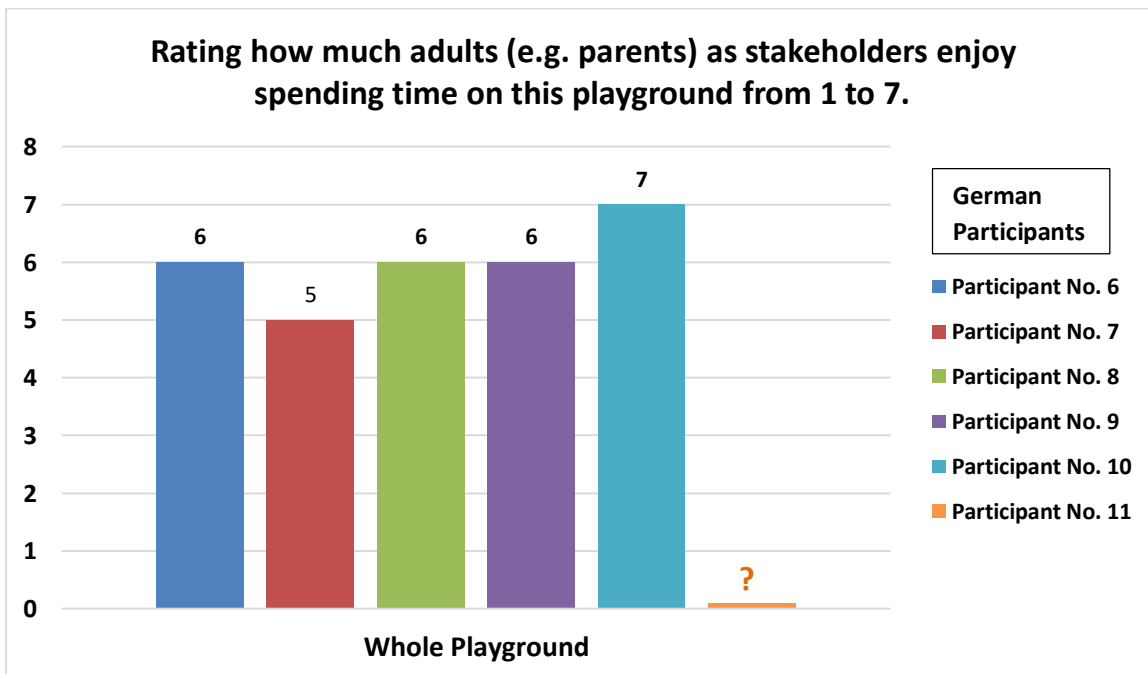
Source: *Author.*

Figure 14-27: *Results of rating adults' enjoyment of staying and interacting on the playground from 1 to 7, evaluated by German participants.*

Source: *Author.*

Table 14-13: *Average scores of rating adults' enjoyment of staying and interacting on the playground from 1 to 7, evaluated by Iranian, German, and all participants.*

Average score → / Area ↓	Average score of rating adults' enjoyment of staying and interacting on the playground from 1 to 7, evaluated by the **Iranian participants.**	Average score of rating adults' enjoyment of staying and interacting on the playground from 1 to 7, evaluated by the **German participants.**	Average score of rating adults' enjoyment of staying and interacting on the playground from 1 to 7, evaluated by **all the participants.**
Whole Playground	6.4	6	<u>6.2</u>

Source: *Author.*

➢ **Answers to Question No. 14 – Rating (1 to 7) level of harmony among different playground settings – e.g. designs, colors, themes (quality of 'Corporate Identity').**

Participants also rated the extent to which different playground settings/zones on this playground are in harmony with each other. The level of harmony contributes to the quality of 'Corporate Identity' of the playground. The results of this evaluation by Iranian and German participants are presented in Figures 14-28 and 14-29 (see Table 14-14). The final average rating in this matter is 6.65.
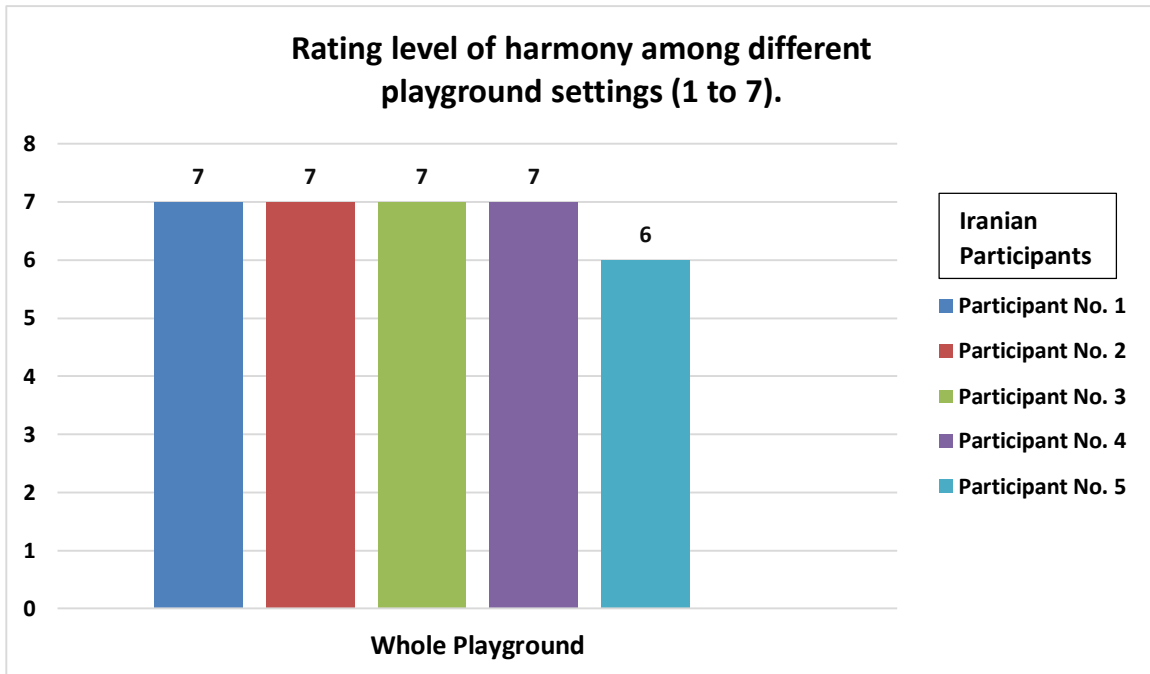
Figure 14-28: *Results of rating level of harmony among different playground settings/zones (e.g. designs, colors, themes), evaluated by Iranian participants.*
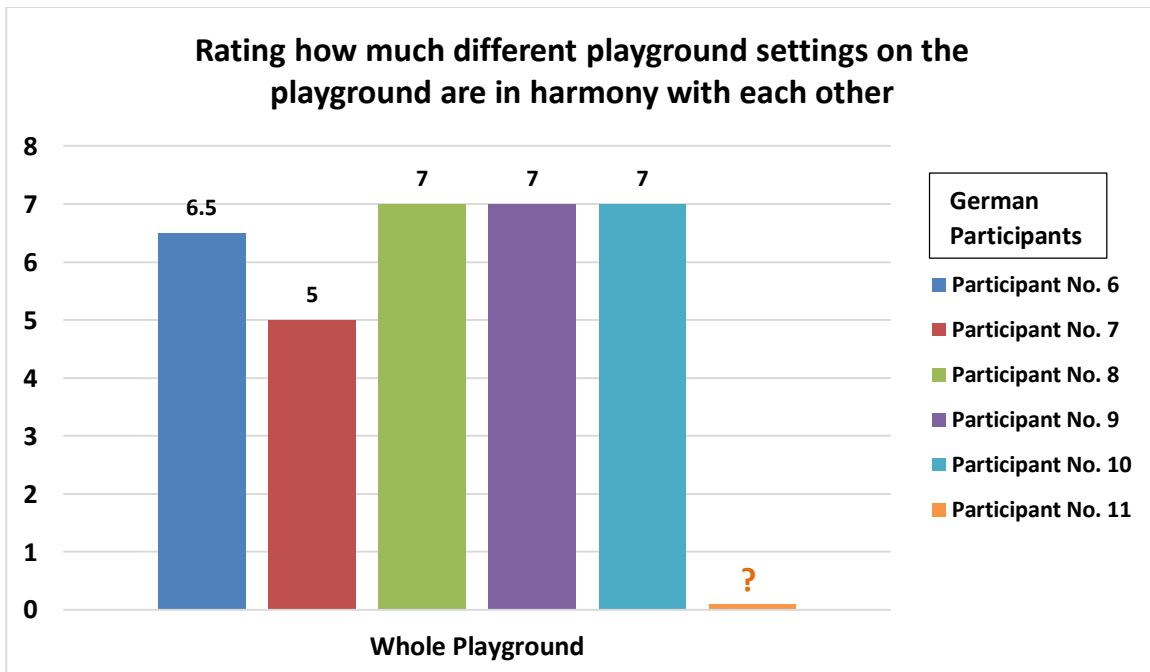
Source: *Author.*

Figure 14-29: *Results of rating level of harmony among different playground settings/zones (e.g. designs, colors, themes), evaluated by German participants.*

Source: *Author.*

Table 14-14: *Average scores from rating level of harmony among different playground settings/zones, evaluated by Iranian, German, and all participants.*

Average score → / Area ↓	Average score of rating how much different playground settings/zones on this playground are in harmony with each other from 1 to 7, evaluated by the **Iranian participants.**	Average score of rating how much different playground settings/zones on this playground are in harmony with each other from 1 to 7, evaluated by the **German participants**	Average score of rating how much different playground settings/zones on this playground are in harmony with each other from 1 to 7, evaluated by **all the participants**
Whole Playground	6.8	6.5	<u>6.65</u>

Source: *Author.*

➢ **Answers to Question No. 15 – Rating the visual attractiveness of the whole playground to its users (from 1 to 7).**

The participants rated the visual attractiveness of the whole playground to its potential users (Figures 14-30 & 14-31).
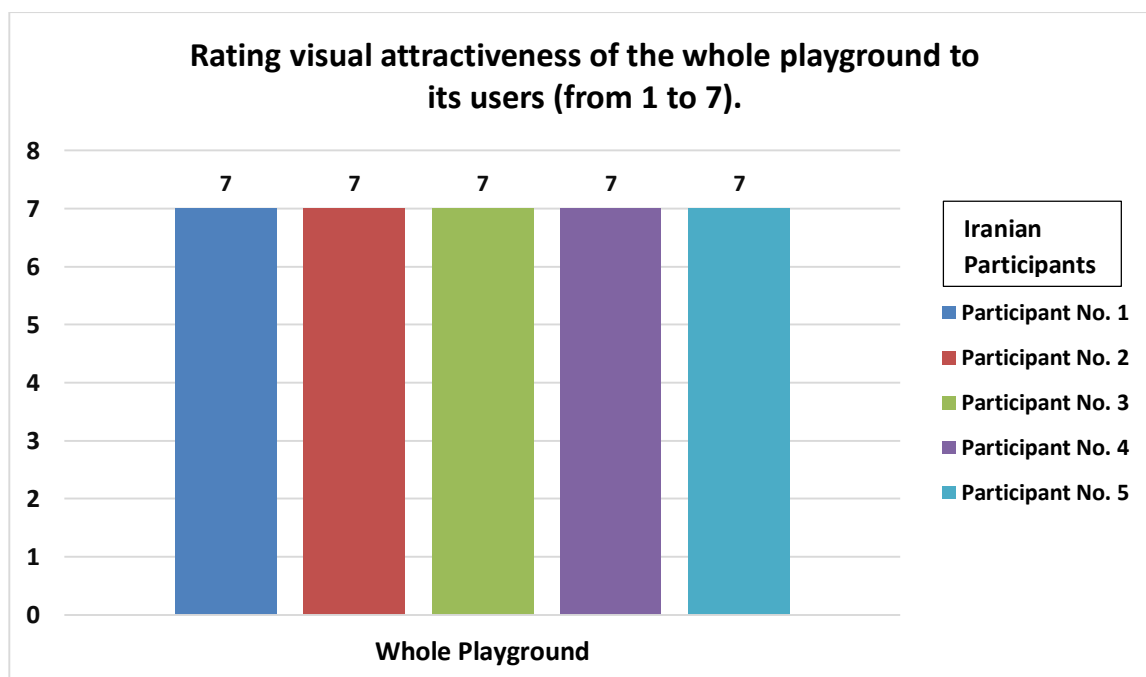
Figure 14-30: *Results of rating the visual attractiveness of the whole playground to its potential users: Iranian participants.*
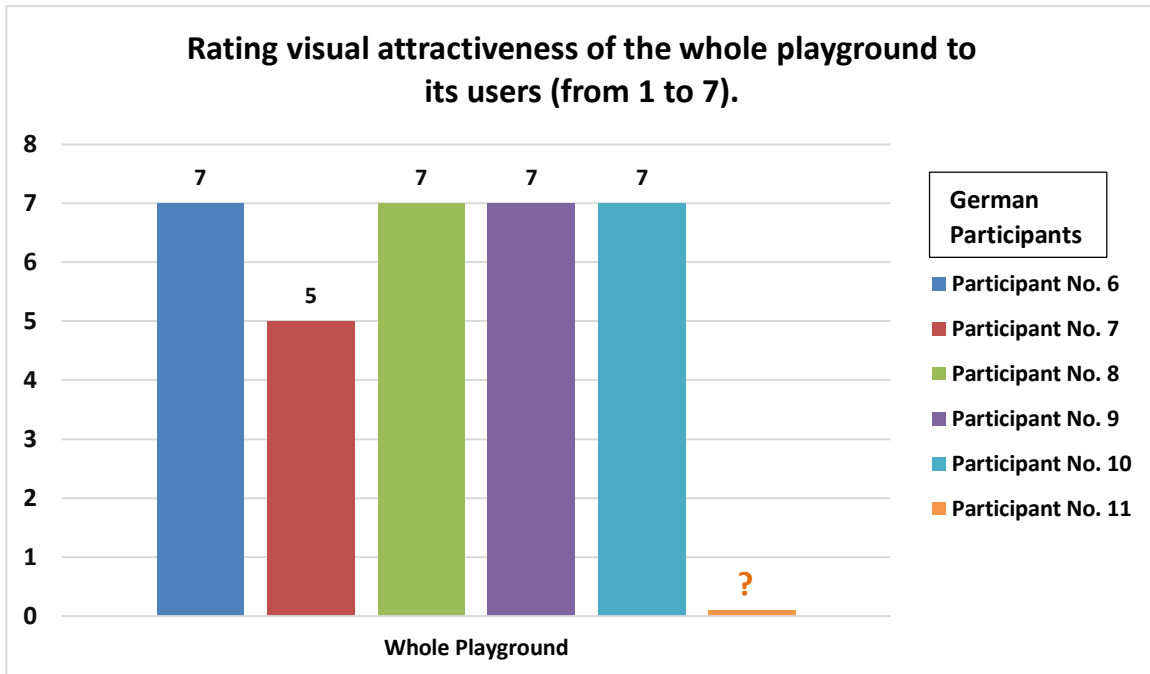
Source: *Author.*

Figure 14-31: *Results of rating the visual attractiveness of the whole playground to its potential users: German participants.*

Source: *Author.*

The average scores of rating the visual attractiveness of the whole playground to its potential users, evaluated by Iranian, German, and all participants, are presented in Table 14-15. The final average score of rating the visual attractiveness of the whole playground is 6.8.

Table 14-15: *Average scores of rating the visual attractiveness of the whole playground to its potential users by Iranian participants.*

Average score Area	The average rating of visual attractiveness of the whole playground (1 to 7), evaluated by **Iranian participants.**	The average rating of visual attractiveness of the whole playground (1 to 7), evaluated by **German participants**	The average rating of visual attractiveness of the whole playground (1 to 7), evaluated by **all participants**
Whole Playground	7	6.6	<u>**6.8**</u>

Source: *Author.*

➢ **Answers to Question No. 16 – Exploring how long users (e.g. children and their parents) generally stay in the playground.**

In the final question, participants give their opinion as to how long users are likely to stay in the playground. The results are shown in Figures 14-32 and 14-33. The average duration of playground usage estimated by Iranian, German, and all participants, is presented in Table 14-16.
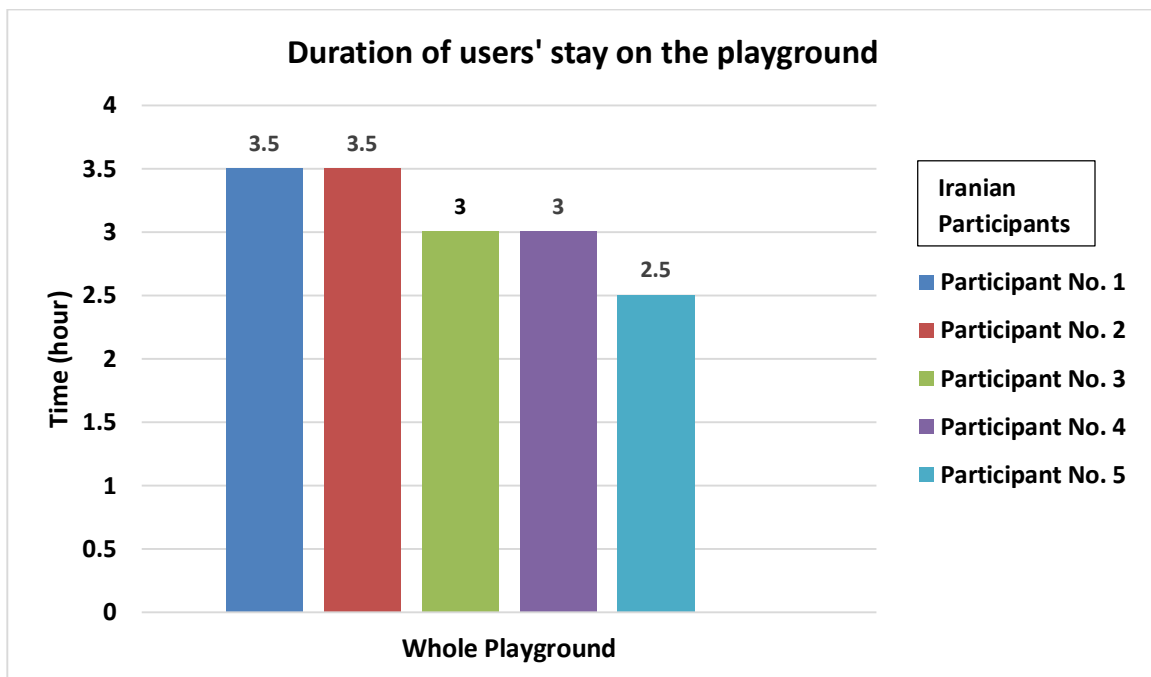
Figure 14-32: *Results of exploring duration of users' stay on the playground in Iranian participants' opinion.*
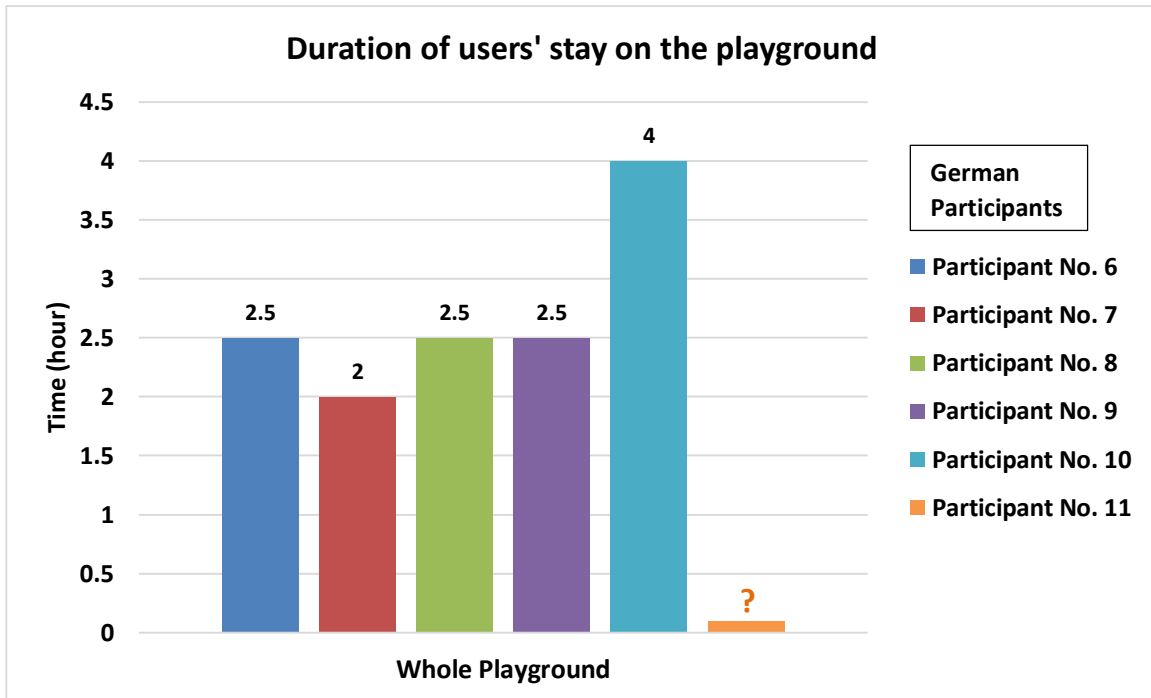
Source: *Author.*

Figure 14-33: *Results of exploring duration of users' stay on the playground in German participants' opinion.*

Source: *Author.*

Table 14-16: *Average duration of users' stay on the playground in Iranian, German, and all participants' opinion.*

Average time duration ➡ Area ⬇	Average duration of users' stay in playground in **Iranian participants' opinion**	Average duration of users' stay in playground in **German participants' opinion**	Average duration of users' stay in playground in **all participants' opinion**
Whole Playground	3.1 hours (3 hours and 6 minutes)	2.7 hours (2 hours and 42 minutes)	2.9 hours (2 hours and 54 minutes)

Source: *Author.*

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➤ **Some suggestions of participants and answers of designer**

In this section some participants' suggestions about the services and equipment of the playground are presented.

Participant No. 3

- **Suggestion:** Providing a place to charge mobile phones.
- **Answer:** In an outdoor public playground with the possibility of vandalism and electricity costs, it is better for users to bring their own powerbanks for this purpose.
- **Suggestion:** It is better to offer equipment for playing with sand like shovels, buckets and molds for playing with next to the sand table for children.
- **Answer:** In interviews and observations, it was found that if these devices are provided, some users may damage and take them home, though these devices can be fastened somewhere with ropes for example to the back wall of sand table. In many sand spaces, children bring their own personal equipment to play with sand.

Participant No. 4

- **Suggestion:** It would be better to offer more swings in 'Tree of Adventure' zone, and another, open and shorter, slide for small children.
- **Answer:** Since there are rails for the game of "egg, apple, acorn" on the spiral band all around this structure, an open slide would cause interference and there is a risk that children would want to remove the shapes from the rails.

  The long closed slide can be used by all children aged four and upward, even in rainy weather. However, a short open slide could be installed on one of the green hill-shaped elements around 'Tree of Adventure'.

  Having two swings on the playground is enough, given the variety of different games (various play settings) that are really more exciting to children and have a greater impact on child development, especially aged 3 to 8 years.

Participant No. 6

- **Suggestion:** Providing recycling bins.

- **Answer:** The trash can consists of three parts designed for the waste recycling system (3 recycling bins have been installed next to 'Peace under Sky' zone) (Figure 14-34).

- **Suggestion:** The structure of 'Peace under Sky' must be stable enough to withstand wind and storm.

- **Answer:** Structural engineering and its calculations can be a guarantee when implementing a real project. Anyway, all models, especially the final model of 'Peace under Sky', because of the middle wall, have a structure that is resistant to wind (Figure 14-34).
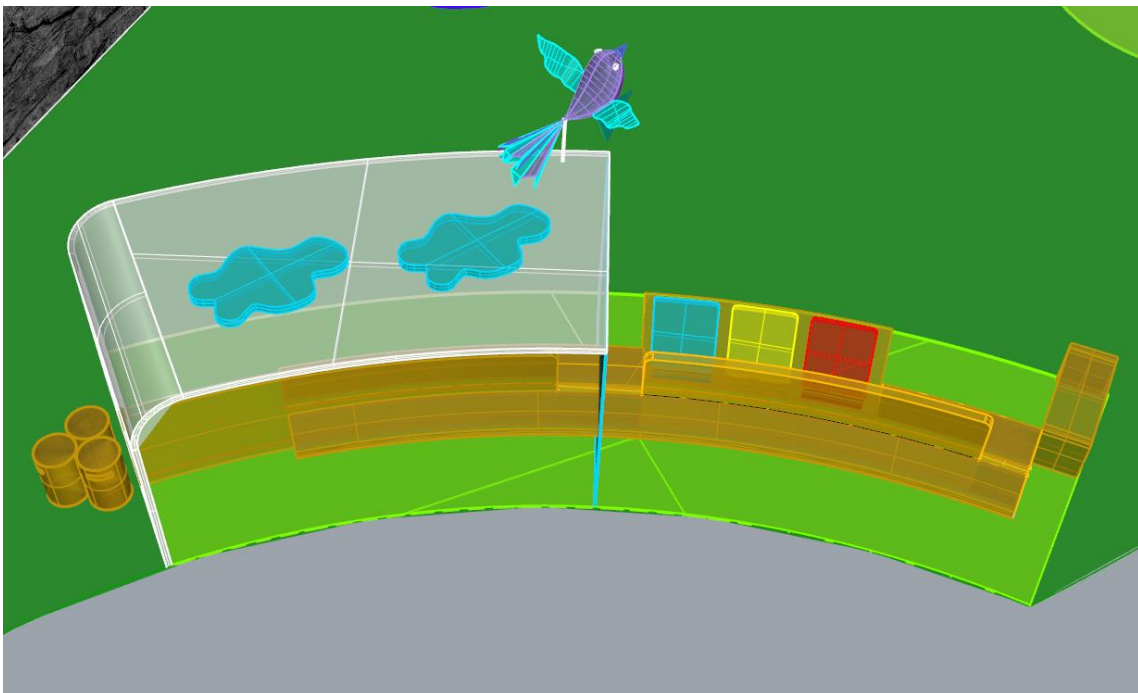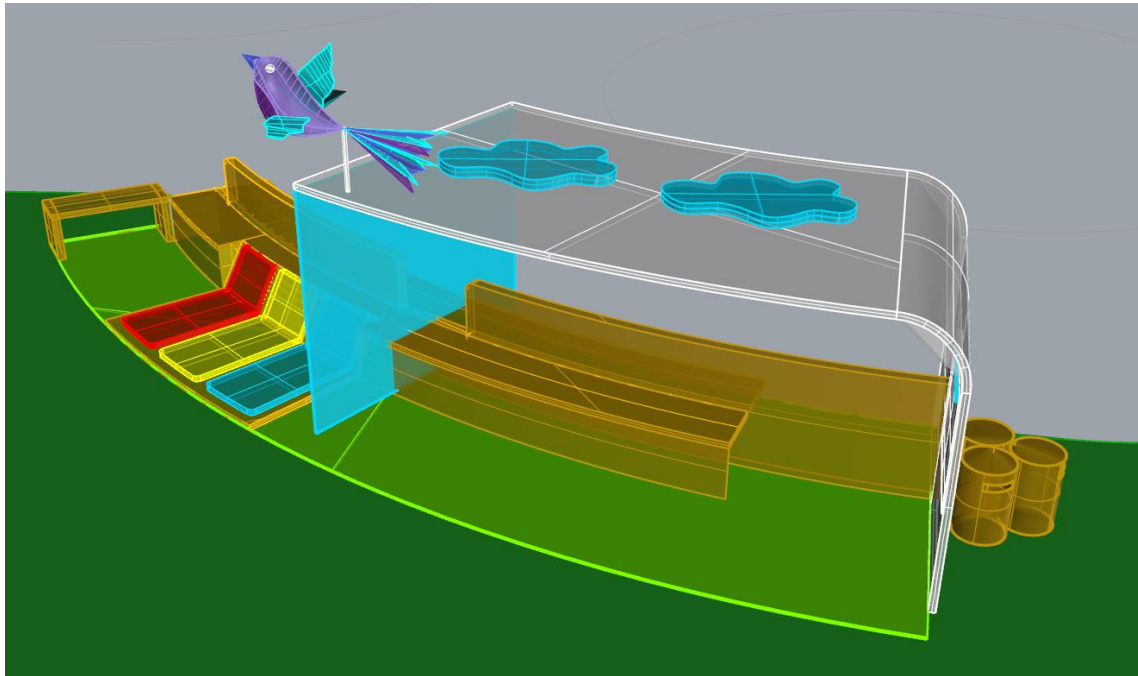
Figure 14-34: *'Peace under Sky' which has middle wall and recycling bins (3 bins).*

Designer: *Author.*

Participant No. 7

- **Suggestion:** Providing lockers so that parents can put their backpacks or cellphones there. This makes it easier for them to follow their children on the playground in a relaxed way.

- **Answer:** The playground is not large enough or in a suitable area for offering lockers for all its users. Putting lockers next to e.g. 'Peace under Sky' would cause noise and behavioral disturbance – for people sitting and resting – and impair the beauty, calm, and simplicity of the space, which makes people relax and enjoy.

  Another seating area (benches) has been designed for the other side of the playground (between 'Tree of Adventure' and 'Clouds of Joy'), where people can sit and put their backpacks/belongings while watching their children playing (Figure 14-35(a) & (b)).

Participant No. 8

- **Suggestion:** Offer another seating area (to adults) for sitting and observing children, somewhere in the middle of the playground.

- **Answer:** As stated, another seating area has been designed and set between 'Tree of Adventure' and 'Clouds of Joy' (Figure 14-35 (a) & (b)).

- **Suggestion:** It would be good to offer water and equipment for playing with sand and water.

- **Answer:** The answer to 'offering water' has been given before Figure 14-4. The answer to offering equipment to play with sand was described above in answer to participant No. 3.

- **Suggestion:** It would be good to offer a merry-go-round (Carousel) in the playground.

- **Answer:** In the last model (advanced model) of 'Sense of Sea', there is a palm-shaped spinner which can present a similar experience to a merry-go-round (Figure 14-4). Adding a large merry-go-round would take up space not in harmony with other designs.

- **Suggestion:** Offering some bicycle racks to park your bike nearby.

- **Answer:** There is some space near the Parkour Park for bicycles. However, later some suitable bicycle racks could be designed (or bought) and installed in the area along the Nordbahntrasse.
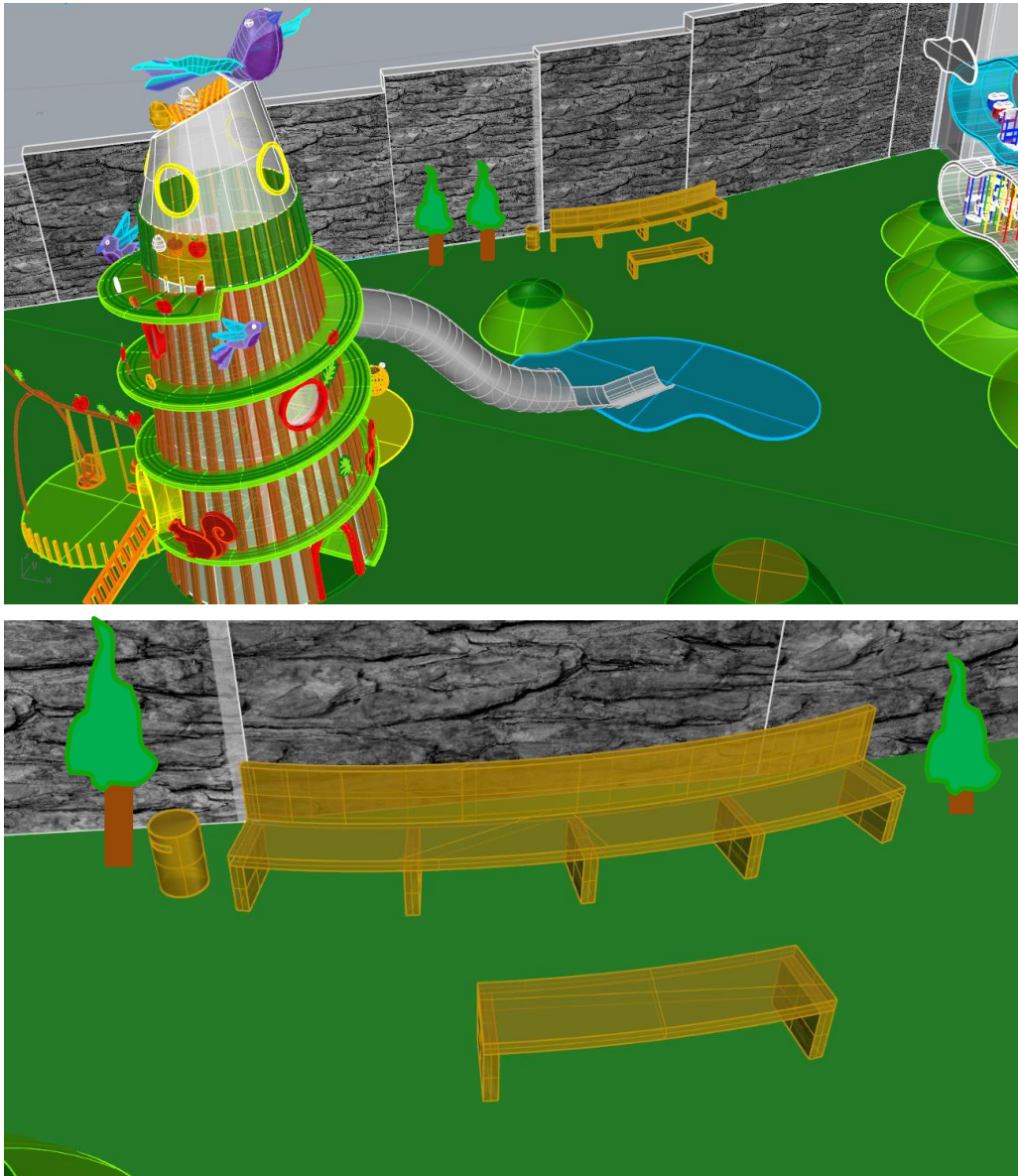
Figure 14-35 (a): *The seating area designed for the area between 'Clouds of Joy' and 'Tree of Adventure'.*
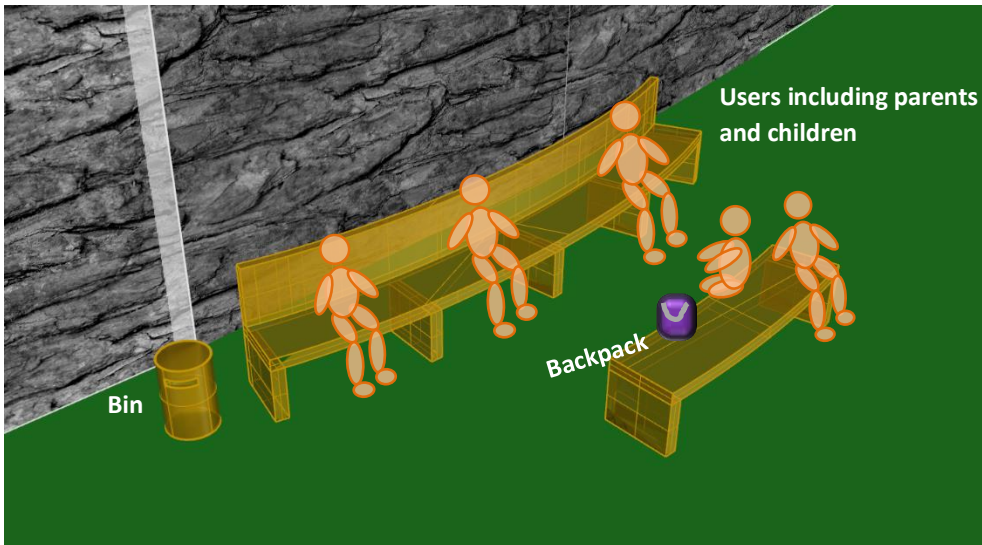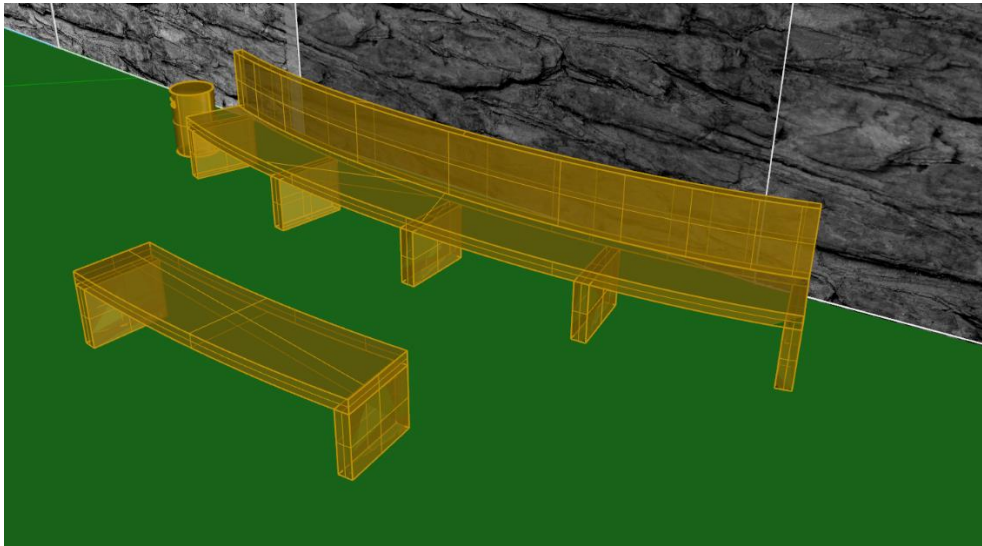
Designer: *Author.*

Figure 14-35 (b): *The seating area (designed for the area between 'Clouds of Joy' and 'Tree of Adventure') and its users.*

Designer: *Author.*

Participant No. 9

- **Suggestion:** It would be nice to have a similar seating area on the other side of the playground.

- **Answer:** As stated another seating area was designed for the area between 'Tree of Adventure' and 'Clouds of Joy' in front of the back wall. Installing this seating area between 'Tree of Adventure' and 'Clouds of Joy' will allow seated people to watch their children while

playing. Also, installing it in front of the back wall has the advantage that the wall shade can be used on sunny days (Figure 14-35 (a) & (b)).

When it is rainy or sunny, people can also use the 'Peace under Sky' zone. Since play equipment such as 'Tree of Adventure' and 'Clouds of Joy' are roofed, children can easily play inside them in both sunny and rainy weather.

- **Suggestion:** In a playground of this size, trees and flowers can be used to create shade and beauty.

- **Answer:** Trees and flowers could perhaps be planted along the bench in front of the wall (Figure 14-35 (a)). However, the back wall can create shadow; also the 'Peace under Sky' zone, which is partly roofed, can provide suitable shelter in sunny and rainy weather.

- **Suggestion:** If the future playground is located on the Nordbahntrasse, it is necessary to provide a large bicycle station (bicycle racks) nearby.

- **Answer:** See the answer to the similar suggestion of participant No. 8.

Participant No. 10

- **Suggestion:** It would be nice to have another seating area in another part of the playground.

- **Answer:** As stated, another seating area was designed between 'Clouds of Joy' and 'Tree of Adventure' which includes two arched benches.

14.3. Final Overall Design of the Future Playground

According to the evaluations made at this stage (Evaluation Phase), the final overall design of the playground was presented with some small changes. The difference between this design and the previous overall design is in the models of 'Peace under Sky' and 'Sense of Sea', as well as in adding a new sitting space on the other side of the playground (Figures 14-36 & 14-37) (see the photos of these structures in Appendix 8 on the attached CD).

In the second overall design of the playground, the 3rd model of 'Peace under Sky' and developed model of 'Sense of Sea' have been used. Also as stated, a new seating area including two large arched wooden benches, have been designed and installed on the other side of playground (Figures 14-36 & 14-37).

First overall design

Second overall design

Showing the differences between first and second overall designs
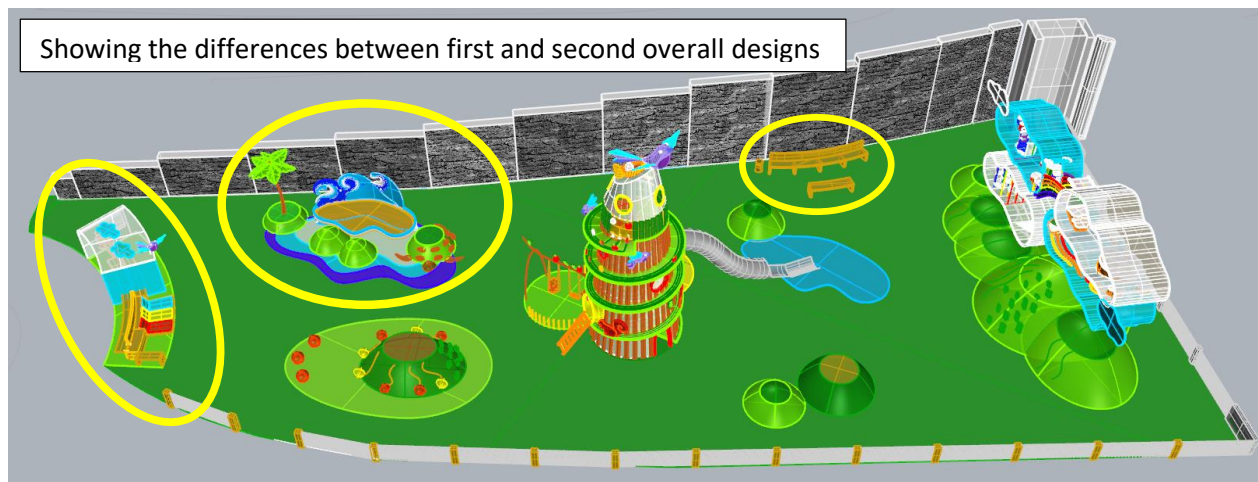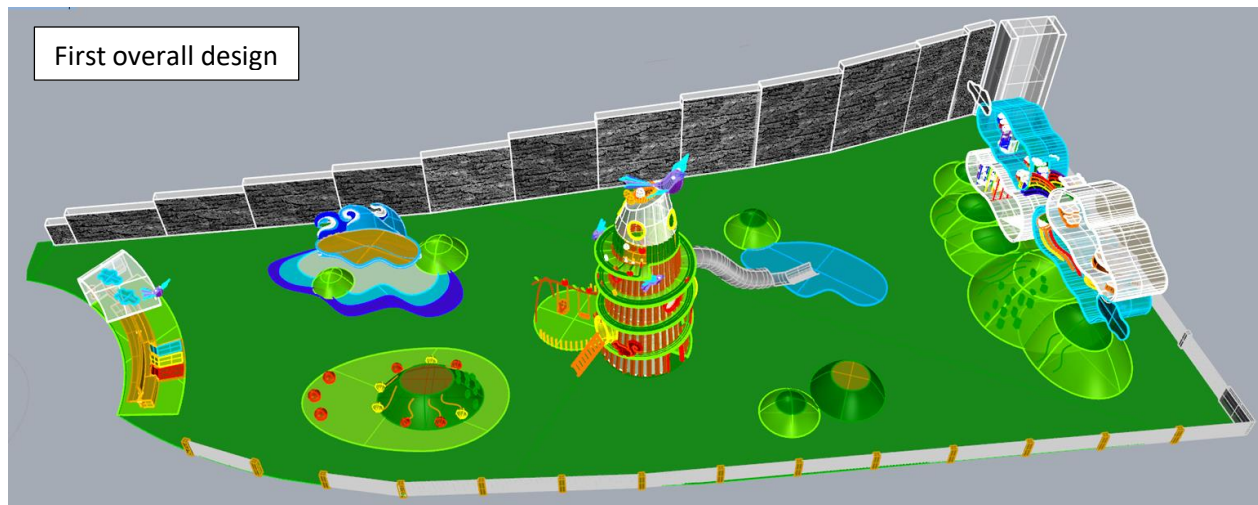
Figure 14-36: *The first and second overall design of the future playground and their differences (also see the photos of these structures in Appendix 8 on the attached CD).*

Designer: *Author.*
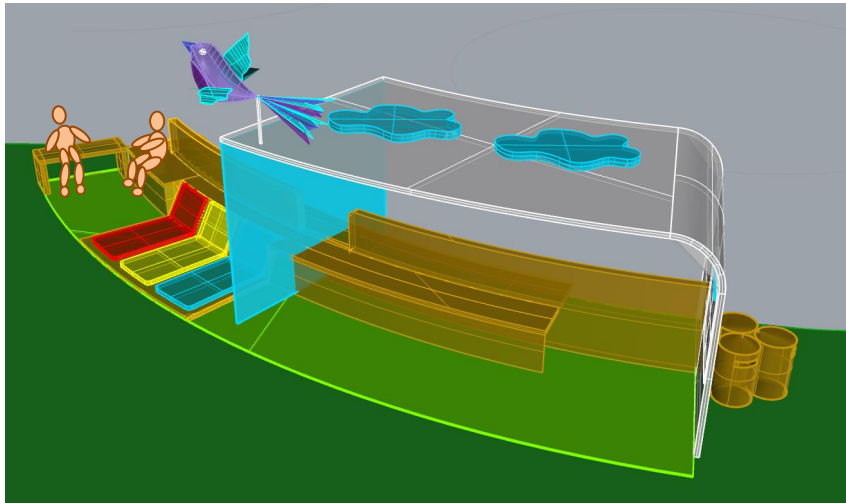
The 3rd model of 'Peace under Sky' with middle wall, with cross-wise bench at the end of the curved bench, and with trash can consists of three parts designed for the waste recycling system.
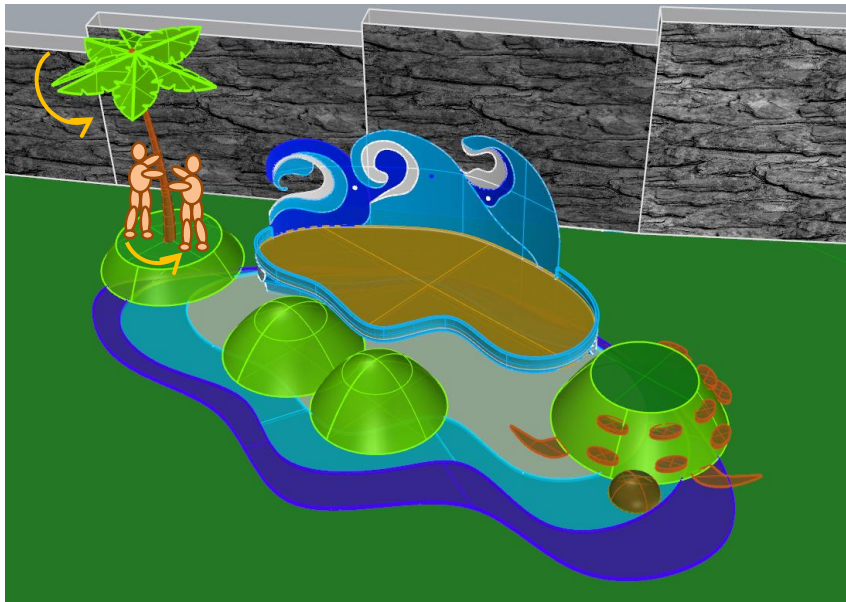
The developed model of 'Sense of Sea' with palm-shaped spinner and turtle-shaped hill for climbing and access the sand table.
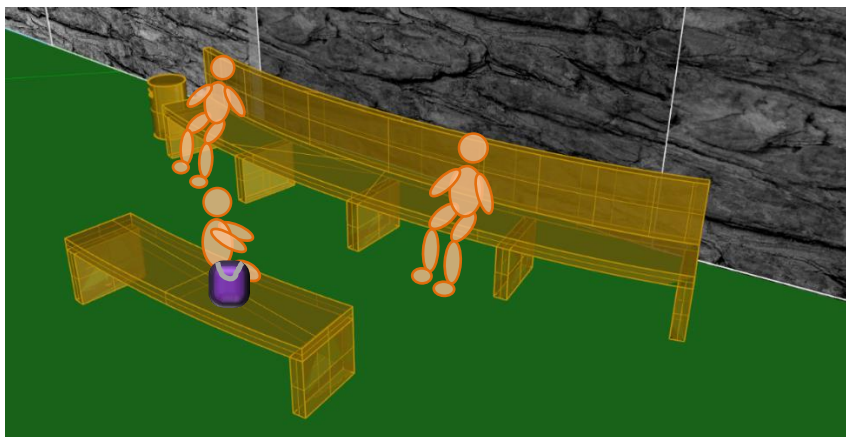
The new seating area including two large arched wooden benches (designed for the area between 'Clouds of Joy' and 'Tree of Adventure').

Figure 14-37: *The design changes in the second overall design of the future playground including: using third (developed) model of 'Peace under Sky', using developed model of 'Sense of Sea', and adding a new seating area including two arched benches.*

Designer: *Author.*

14.4. Summary

This chapter was about the evaluation phase. The quality of final playground design and its play settings/zones were evaluated by 11 participants (6 Germans and 5 Iranians who are familiar with the sociocultural characteristics of Germany/Wuppertal).

Instead of involving children directly in evaluation, adults who interact with children and know them well and/or who interact with outdoor playgrounds (e.g. parents, grandparents, kindergarten teachers, and casual playground visitors) were invited to the evaluation sessions. Involving *children* in evaluation could be complicated, unpredictable, and time-consuming because of their age, unpredictable behaviors, and limited ability to understand and answer assessment questions practically and express themselves easily.

In the evaluation phase, 16 questions were asked which were relevant to different aspects based on design parameters explored in previous chapters. In this list, most questions were about the individual playground settings/zones, some about the overall playground area, e.g.:

- exploring participant feedback and feelings about each piece of playground equipment
- evaluating the variety of games and experiences that each piece of playground equipment and the whole playground offer
- defining the age group of potential users of each piece of equipment
- gender of potential users (suitability for all genders?)
- exploring aspects of child development to which each piece of equipment/zone contributes
- evaluating users' enjoyment of playing or interacting with each piece of equipment
- evaluating the level of accessibility of playground settings including
- evaluating safety and accessibility of the whole playground
- estimating usage time of each piece of playground equipment
- rating the visual attractiveness of each piece of equipment/zone to its potential users.
- rating the functional attractiveness of each piece of equipment/zone to potential users
- rating children's enjoyment of staying and playing on the playground
- rating adults' enjoyment of staying and interacting on the playground

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- rating the visual attractiveness of the whole playground to users
- estimating average time users stay in the playground.

To save time and according to the conditions of the Corona virus, the evaluation was held online via Zoom. In each evaluation session, one person participated so that participants' opinions did not affect each other. In each session, the images of the whole playground and each playground piece of equipment from different angles as well as their video and 3D model files were shown to the participant (see Appendix 8 on the attached CD). Necessary information about each play setting, such as its design, the function of each part, and the games and activities that it offers to its users, was provided for the participant.

The results of the evaluation phase (answers of questions by participants), proved that the playground design and its settings could meet users' (including adults and children especially aged 4 to 8) needs, wants, wishes, and values to a really high degree. Thus, it may be called a child-friendly outdoor public playground.

The evaluation results will be analyzed in the next chapter.

Chapter 15

Analysis of evaluation results, Discussion, Conclusion

Evaluation

- – – – –> Analysis of evaluation results

- – – – –> Discussion of final design, Conclusion

15.1. Introduction

In this chapter, the results of the evaluation phase (presented in Chapter 14) will be analyzed. In this phase 11 participants answered 16 questions covering the 5 individual playground settings as well as the whole playground. The questions were relevant to previously explored design parameters.

15.2. The future playground and its settings/zones: analysis of evaluation results

15.2.1. Zone 1: 'Peace under Sky'

Considering the answers to Question No. 2, almost all the feedback about different playground settings was positive. Feedback can be summarized and divided into three categories. One group relates to participants' ***feelings*** about the playground setting, one group is related to their opinions about the ***appearance and design*** of the setting and equipment, and one group is related to their opinions about the ***function(s)*** of the playground setting and the experiences (play activities) it offers to its users.

In short, in the opinion of participants, the **feelings** that 'Peace under Sky' evokes include:
- sense of vitality, happiness, peace, beauty, joy
- childhood sense[1]
- freedom
- the feeling of being in nature[2]
- pleasant, welcoming environment.

Most feedback about the **appearance** of 'Peace under Sky' was positive. This includes:
- beautiful and innovative design (esp. bird and clouds installed on the roof)
- striking colors (e.g. sun lounger, turquoise bird)
- simplicity
- nice environment

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[1] e.g. getting involved in children's imaginary world by watching them playing.
[2] Because of the shapes of clouds, bird and the wooden structure of the seating area.

- architecturally beautiful (esp. sculptic feature/shape of the bench, arched and rounded form of this area).

Most feedback about the **function** of this area and the experiences it offers to users was positive. This includes:

- practical design (e.g. enough space for wheelchair users, and putting backpacks)
- comfort (e.g. wooden bench has a back to lean on, is big enough, and comfortable to sit on), sun loungers
- suitable area for leisure and relaxation
- since this seating area is in the corner of the playground, parents can have a good view of children playing and watching them
- suitable area for eating and drinking (e.g. an ice cream)
- possible to enjoy various activities such as reading books
- roofed area is useful on rainy and sunny days
- large enough personal space for sitting without interference of others' (sitting) space
- also design of third model (final version) of 'Peace under Sky' (with middle wall and bench added to the end of the arched bench) is suitable for people (e.g. families and groups) who prefer to have their own corner to sit together and communicate
- offers various opportunities for the user to decide where to sit (e.g. benches under both roofed and unroofed areas)
- offers sitting areas on both sides of the bench, and sun loungers to lie down
- wood is a great material for a bench in terms of both ease of use and aesthetics.

The average rating for 'Peace under Sky' in *variety* of experiences is **6.83** out of 7 (see Table 14-2 in section 'Answers to Question No. 3'). This shows that, from the participants' point of view, this setting offers considerably more varied experiences than other products in the same category (i.e. seating areas in urban playgrounds).

As shown in Table 14-3 ('Answers to Question No. 4'), participants judge *potential users* of 'Peace under Sky' to be of all ages and social groups, especially adults (e.g. parents, grandmothers, kindergarten teachers) and small children who need to be closer to their parents. This area is also accessible (barrier-free) for people with different abilities (e.g. wheelchair users). The average

accessibility rating of this zone, as evaluated by all participants, is **6.55** (see Table 14-6: 'Answers to Question No. 8'). This shows that from the participants' point of view, this space is readily accessible to users with different abilities. The design is also suitable for all genders (see section 'Answers to Question No. 5').

As shown above (see Table 14-4: 'Answers to Question No. 6'), participants rate this space as having a clear impact on **social and emotional interactions** and maybe to some extent on the physical, cognitive and language development of children.

The average *enjoyment* rating for interacting with 'Peace under Sky' is **6.6**. This shows that from the participants' point of view, using this space is very enjoyable to its potential users and meets their expectations (see Table 14-5 in section 'Answers to Question No. 7'). The average estimate for duration of use of 'Peace under Sky' is **1 hour 40.5 minutes** (see Table 14-8 in section 'Answers to Question No. 9'), which shows its suitability for sitting, relaxing and remaining for a prolonged period.

The average *visual attractiveness* rating for 'Peace under Sky' is **6.50**. This shows that the design of 'Peace under Sky' meets the aesthetic tastes of potential users (see Table 14-9: 'Answers to Question No. 10').

The average *functional attractiveness* rating for 'Peace under Sky', as evaluated by all participants, is **6.56**. This shows that 'Peace under Sky' offers experiences and activities that are functionally interesting to its users (see Table 14-10: 'Answers to Question No. 11').

The average *appropriateness* rating for the name 'Peace under Sky,' considering its appearance and function, is **6.36**. This result shows that in the opinion of the participants, the design of 'Peace under Sky' matches its name (see Table 14-11: 'Answers to Question No. 12').

15.2.2. Zone 2: 'Sense of Sea'

Considering the answers to Question No. 2, most feedback about 'Sense of Sea' was positive. In the opinion of participants, the **feelings** that 'Sense of Sea' evokes include:
- wishing to be a child to use this equipment

- being by the sea, on the beach, and on green spaces by the sea

- calm, soothing atmosphere: blue and green colors

- creativity in playing with sand and water

- freedom (children can play in their own way and make whatever they want with items like buckets or molds)

- sociability and friendship (gathering around the table, talking while making things together or alone)

- sense of being at the seaside and in a natural environment

- palm gives the feeling of in the tropics: both in the desert and by the sea

- suitable for people with high-class urban culture

- parents can enjoy watching their children while playing.

Most feedback about the **appearance** of 'Sense of Sea' was positive. This feedback covers:
- beautiful design and atmosphere
- colors: blue and green are beautiful together and soothing
- the palm tree (spinner), sand table and the turtle (hill for climbing) evoke the feeling of being on holiday and enhance its functionality.

Most feedback about the **function** of this area and the experiences it offers was positive. This feedback covers:
- design of turtle: encourages children to climb
- creativity: building different things with sand, even with accompanying adults
- relieving stress: playing with sand has a therapeutic value for children and adults alike
- improves mental and spiritual strength
- innovative design
- parents can enjoy watching their children while playing
- wheelchair users can use it too
- sand table is more suitable for small children
- better (esp. for older children) to provide water or other equipment in the space
- as back of sand table is closed, it is safe for children to sit on the table

- children can make things and play both on and next to the table (e.g. on the hills or on the ground around the table).

The average rating for *variety* of experiences offered by 'Sense of Sea' is **6.25** (see Table 14-2: 'Answers to Question No. 3'). This shows that from the participants' point of view this area/setting offers a wide variety of experiences to its potential users.

As shown in Table 14-3 (see 'Answers to Question No. 4'), in participants' opinions, potential users of the *sand table* in 'Sense of Sea' are children aged 2 to 6, especially younger children including 2, 3, and 4 year olds, and the *palm-shaped spinner* is more suitable for older children, from 5 to 8, although younger children aged 3 and 4 can also use it. For example, three-year-olds can use it with the help of older children.

The *sand table* in this area is also accessible for wheelchair users. The average accessibility rating of this setting is **6.5** (see Table 14-6: 'Answers to Question No. 8'). Participants thus consider that wheel chair users can play here with other children. 'Sense of Sea' is also suitable for all genders (see 'Answers to Question No. 5').

The results indicate that, in the opinion of all participants (10 out of 10), 'Sense of Sea' contributes to children's **socio-emotional**, **physical**[3], **and cognitive development.** In the opinion of half of the participants (5 out of 10), this zone also contributes to some extent to children's language development (see Table 14-4: 'Answers to Question No. 6').

The average *user enjoyment* rating for 'Sense of Sea' (including sand table, hills and spinner), is **6.5**. This shows that, from the participants' point of view, playing in this zone is enjoyable to its potential users and meets children's interests (see Table 14-5: 'Answers to Question No. 7'). The final average estimate of duration of sand table use is **42 minutes** (see Table 14-8: 'Answers to Question No. 9') and regarding the palm-shaped spinner of this space, most participants stated that children probably use it for **about 5 to 10 or 15 minutes** in one round of play.

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[3] It contributes to physical development especially because of the spinner; however, playing with sand and climbing the hill around the sand table can also influence physical development.

The average *visual attractiveness* rating of 'Sense of Sea' to its potential users is **6.8**. This shows that the design of this playing area aesthetically meets the tastes of potential users (see Table 14-9: 'Answers to Question No. 10').

The average *functional attractiveness* rating of 'Sense of Sea', is **6.5**. This shows that in the opinion of the participants, the experiences and activities that this zone offers are functionally interesting to its users (see Table 14-10: 'Answers to Question No. 11').

The average *appropriateness* rating for the name 'Sense of Sea' considering its appearance and function is **6.8**. This shows that, in the opinion of the participants, the design of 'Peace under Sky' truly matches its name (see Table 14-11: 'Answers to Question No. 12').

15.2.3. Zone 3: 'Hill of Flying Balls'

Considering the answers to Question No. 2, most feedback about 'Hill of Flying Balls' was positive. In the opinion of participants, the feelings that 'Hill of Flying Balls' evokes include:

- relaxation with green hill-shaped element
- sense of joy, playfulness, and happiness
- high-physical activity
- sense of teamwork and being sociable
- liveliness and creativity
- feeling of being in a prosperous open space
- association of hills by the sea because of the hill-shaped structure
- association of football field because of the colorful balls and green field
- cool colors are enjoyable and fantastic.

Most feedback about the **appearance** of 'Hill of Flying Balls' was positive. This feedback covers:
- visually attractive, beautiful design – esp. color ensemble
- modern concept
- interesting shape.

Most feedback about the **function** of 'Hill of Flying Balls' was positive. This feedback covers:

- physical activity and exercise: keeping balance on fixed balls, playing with balls (installed on ropes), jumping on the trampoline
- encouraging sociability and communication, for example, while playing with balls
- cool, innovative playground equipment offering a variety of activities and play sequences
- design usable for *both* healthy children and wheelchair users
- fixed balls as seating places for parents for resting and observing children
- older children, especially boys, are likely to grab ropes to climb hills, or hang from the balls and swing with them
- younger children are more likely to use supportive, bush-like stairs to climb the hill
- physical structure is beneficial for child development.

Average rating for *variety* of activities and experiences offered by 'Hill of Flying Balls' is **6.67** (see Table 14-2: 'Answers to Question No. 3'). The result shows that from the participants' point of view, this setting offers a wide variety of activities and experiences to children.

As shown in Table 14-3 (see 'Answers to Question No. 4'), in participants' opinions, potential users of 'Hill of Flying Balls' zone, are children from 3 to 8. According to participants, even older children aged 9, 10 and 11 can use this play setting as well. Some participants stated even adults (e.g. parents) can accompany children playing with a ball and throwing it to each other.

Some activities here can involve wheelchair users, even if they cannot use the trampoline. These children can easily play with the balls (fastened to the hill) alone or with other children in different ways. The average rating for level of barrier-free accessibility of this setting, evaluated by 9 participants is **5.81** (see Table 14-6: 'Answers to Question No. 8'). Since wheelchair users cannot use the trampoline 2 participants (out of 11) did not give an evaluation. In their opinion, both types of plays (with balls and trampoline) should be usable for these children. This result shows, in general from the participants' point of view, this setting is accessible to wheel chair users and can integrate them effectively. The participants stated that the design of 'Hill of Flying Balls' is suitable for all genders (see section Answers to Question No. 5).

All 11 participants consider that 'Hill of Flying Balls' plays an important role in children's **physical and socio-emotional development**. 7 participants (all 5 Iranian and 2 German participants)

thought 'Hill of Flying Balls' also contributes to language development. 3 (German) participants stated 'Hill of Flying Balls' plays an effective role in children's cognitive development (see Table 14-4: 'Answers to Question No. 6').

The average *user enjoyment* rating for 'Hill of Flying Balls' evaluated by all participants is **6.77**. This shows that, from the participants' point of view, using this space is enjoyable and meets the interests of its potential users (see Table 14-5: 'Answers to Question No. 7'). The final average estimate of duration of 'Hill of Flying Balls' use is **42.5 minutes** (see Table 14-8: 'Answers to Question No. 9').

The average *visual attractiveness* rating for 'Hill of Flying Balls' is **6.52**. This shows that the design of this setting aesthetically meets the tastes of its potential users (see Table 14-9: 'Answers to Question No. 10').

The average *functional attractiveness* rating for 'Hill of Flying Balls' is **6.75**. This shows that in the opinion of the participants, the experiences and activities that this playground zone offers are functionally interesting to its users (see Table 14-10: 'Answers to Question No. 11').

The average *appropriateness* rating for the *name* 'Hill of Flying Balls,' considering its appearance and function, is **6.4**. This shows that, in the opinion of participants, the design of 'Hill of Flying Balls' matches its name (see Table 14-11: 'Answers to Question No. 12').

15.2.4. Zone 4: 'Tree of Adventure'

Considering the answers to Question No. 2, most feedback about 'Tree of Adventure' was positive.

In the opinion of participants, the **feelings** that 'Tree of Adventure' evokes include:
- sense of being in an animals' house in its natural habitat
- creativity, excitement, sense of adventure and exploration climbing a castle or treehouse
- competition (in "acorn, egg, apple" game, children compete to fill baskets with shapes)
- feeling of movement playing in jungle/forest.
- sense of magic and mystery.

Most feedback about the **appearance** of 'Tree of Adventure' was positive. This feedback covers:

- interesting appearance, innovative design
- blue and purple bird at the top of the tree, looks dreamy and attractive, like a simurgh
- adjacent lake-like blue surface is attractive for children
- swings seem to hang from a tree branch decorated with leaves and apples
- squirrel hole as an entrance is attractive.
- it may looks a bit like a Christmas tree, lighthouse, mountain, or minaret.

Most feedback about the **function** of 'Tree of Adventure' was positive. This feedback covers:

- it supports children's cognitive and physical development – esp. idea of taking eggs, apples, acorns and inserting them in the rails outside the tree
- complexities increase children's sense of curiosity and mystery
- height attracts children and many children probably start playing here
- climbing games support children's physical development: children will want to climb up to the bird crowning the tree
- animals and allied natural elements (e.g. bird, squirrel, bird egg, acorn, and apple shapes), support educational aspects: children become acquainted with woodland animals in their natural habitat – e.g. acorns (as squirrels' food), bird eggs, and apple trees
- suitable for kindergarten teams (because of educational aspects about natural elements).
- offers risk-taking activities
- 'apple, acorn, egg' game is good for social interactions, team working and cognitive development (especially for small children).

The average *variety* rating for 'Tree of Adventure' is **6.7** (see Table 14-2: 'Answers to Question No. 3'). The result shows that from the participants' point of view, this setting offers various types of play and experiences to children. As shown in Table 14-3, in participants' opinions potential users of 'Tree of Adventure' are children from 3 to 8 , although each part of it may be used more by a certain age group (see 'Answers to Question No. 4'). 'Tree of Adventure' is suitable for all genders (see 'Answers to Question No. 5').

All 10 out of 10 participants stated that 'Tree of Adventure' contributes to **socio-emotional**, **physical**, and **cognitive development** of children; and according to 8 participants, this zone also promotes child language development (see Table 14-4: 'Answers to Question No. 6').

The average *users' enjoyment* rating for 'Tree of Adventure' is **6.7**. This shows that from the participants' point of view using this space meets its potential users' interests (see Table 14-5: 'Answers to Question No. 7'). The final average estimate for duration of use of 'Tree of Adventure' is **1 hour and 3 minutes** (see Table 14-8: 'Answers to Question No. 9').

The average *visual attractiveness* rating for 'Tree of Adventure' setting is **6.8**. This shows that the design of this setting aesthetically meets the tastes of potential users (see Table 14-9: 'Answers to Question No. 10').

The average *functional attractiveness* rating for 'Tree of Adventure' is **6.9**. This shows that in the opinion of participants, the plays, experiences and activities that this zone offers are functionally interesting to its users (see Table 14-10: 'Answers to Question No. 11').

The average rating for *appropriateness* of the *name* 'Tree of Adventure' considering its appearance and function is **6.4**. This shows that in the opinion of the participants the design of 'Tree of Adventure' matches its name (see Table 14-11: 'Answers to Question No. 12').

15.2.5. Zone 5: 'Clouds of Joy'

Considering the answers to Question No. 2, most feedback about 'Clouds of Joy' was positive.

In the opinion of participants, the **feelings** that 'Clouds of Joy' evokes include:
- evokes joyful, transcendental feeling of flying in the sky, climbing clouds. walking on the rainbow, discovering something interesting
- cloud-shaped swing makes children feel relaxed and happy with other kids.
- as if you are playing inside a cartoon animation
- sense of creativity, excitement, exploration, discovery of the undiscovered and unknown
- vitality, liveliness, fantasy
- sense of being in nature (because of the green hills and the sky).

Most feedback about the **appearance** of 'Clouds of Joy' was positive. This feedback covers:

- looks like an island where clouds are mounted on hills and sky and earth seem close

- rainbow bridge between the cloud-shaped spaces is visually attractive

- small clouds around the orange hole and other small cloud-shaped elements inside the spaces emphasize the original design, which is based on the shape of cloud

- that only the back wall of one of the cloud-shaped rooms is orange, suggests this room (Cloud No. 3) is facing the sun

- yellow lines on the net connected to the orange hole look like the rays of the sun

- complementary colors of blue and orange together are attractive.

Most feedback about the **function** of 'Clouds of Joy' was positive. This feedback covers:

- climbing the clouds and net (physical activity) is very interesting

- full of adventure and fun (user does not get bored at all)

- everything in the sky and clouds is creative and exciting

- it offers opportunity for physical activities, movement, music, and dance

- each cloud-shaped room has an interesting story and inspires especial feeling(s)

- concept of cloud-shaped swing is very interesting; 4 children can play with it at the same time (social play on the swing)

- curved forms enhance beauty and safety

- children can choose their own paths to come through and there is not just one definite path for entering and moving between different cloud-shaped rooms

- offers different spaces for being active or quiet.

The average rating for *variety* of experiences offered by 'Clouds of Joy' is **6.85** (see Table 14-2: 'Answers to Question No. 3'). This result shows that from the participants' point of view this area offers various experiences and play opportunities to its potential users.

As shown in Table 14-3 (see 'Answers to Question No. 4'), in participants' opinion, potential users of 'Clouds of Joy' are children aged 4 to 8. Younger children, aged 2 to 4, can also use this equipment, although most of them may need the help of adults or older children. According to most participants, older children aged 9 to 11 can also use 'Clouds of Joy'. Some participants also

stated that even adults can enter this playground setting with children; for example, they can sit and play with children in Cloud No. 3. The design of 'Clouds of Joy' is suitable for all genders (see 'Answers to Question No. 5').

Considering the results, all 11 out of 11 participants stated that 'Clouds of Joy' plays an effective role in a child's **socio-emotional** and **physical development**; also almost all participants (10 out of 11) stated that this playground setting contributes to child **language** and **cognitive development** (see Table 14-4: 'Answers to Question No. 6').

The average *user enjoyment* rating for 'Clouds of Joy' is **6.95**. This shows that from the participants' point of view playing in 'Clouds of Joy' truly meets children's interests (see Table 14-5: 'Answers to Question No. 7'). The final average estimate for duration of use of this setting is **1 hour and 8.5 minutes** (see Table 14-8: 'Answers to Question No. 9').

The average *visual attractiveness* rating for 'Clouds of Joy' is **7**. This result shows that the design of this area meets the aesthetic tastes of potential users (see Table 14-9: 'Answers to Question No. 10').

The average *functional attractiveness* rating for 'Clouds of Joy' is **6.95**. This shows that, in the opinion of participants, the experiences and activities this setting offers are functionally interesting to the users (see Table 14-10: 'Answers to Question No. 11').

The average rating for the *appropriateness* of the *name* 'Clouds of Joy,' considering its appearance and function, is **6.66**. This shows that in the opinion of participants, the design of this setting matches its name (see Table 14-11: 'Answers to Question No. 12').

15.2.6. Analysis of evaluation results: whole playground

In the evaluation sessions Questions No. 3 (a), 8 (a), 13, 13(a), 14, 15, and 16 are about the whole playground.

The average rating for *variety* of activities offered by the whole playground is **6.85** (see 'Answers to Question No. 3 (a)'). This shows that, from the participants' point of view, this playground offers considerably more variety in types of play and user experiences than other playgrounds.

According to participants, the result of rating the safety and accessibility of the playground considering its area and location on the Nordbahntrasse next to the Parkour Park in Wuppertal is **5.87** (see Table 14-7: 'Answers to Question No. 8 (a)'). The result shows that this area is good enough to develop a new playground. However, a participant said that this type of design is more suitable for areas at a higher level in terms of urban design and urban life. One of the participants said that it is better to use flowers and trees in order to be more in harmony with this area. Appropriate flowers and trees can, in fact, be planted in front of the rear stone wall of the playground. One participant stated that 'Tree of Adventure' may be suitable for a theme park than an urban playground, as they take money from users and there is more control over the protection of the play equipment. However in a public playground, playground sponsors[4] can have the responsibility to supervise and maintain the playground equipment and manage the game(s).

The average rating for children's enjoyment on visiting and playing in this playground is **6.7** (see Table 14-12: 'Answers to Question No. 13'). This result shows that in the opinion of the participants, children really enjoy staying and playing on this playground.

The average rating for adults stakeholders' enjoyment on visiting and interacting with this playground is **6.2** (see Table 14-13: 'Answers to Question No. 13 (a)'). This shows that adults enjoy spending time and interacting (e.g. with children, with each other or with the environment) in this playground.

The average rating for level of *harmony* among different play zones in this playground is **6.65** (see Table 14-14: 'Answers to Question No. 14'). This shows that in the opinion of the participants, the designs of the various playground settings are largely in harmony with each other. This contributes to the 'corporate identity' of the playground.

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[4] German: *Spielplatzpatinnen* and *Spielplatzpaten.*

The average *visual attractiveness* rating for this playground is **6.8** (see Table 14-15: 'Answers to Question No. 15'). This shows that in the opinion of the participants this playground has a high level of visual attractiveness for its users.

The average estimated duration of users' visits to the playground is **2 hours and 54 minutes** (see Table 14-16: 'Answers to Question No. 15'). This shows that the playground is suitable for users (e.g. families with children, kindergarten teams) to stay, play, interact and use for a long time, about three hours.

15.3. Discussion about the final design and Conclusion

The answers to the evaluation questions, which were based on the design parameters explored in the co-creation approach, show that these parameters (see Section 13.2.3.1.) have been very largely taken into account in the design of the future playground. The results show that the design really meets the wants and needs of children, especially the 4 to 8 age group as main users, as well as the needs and expectations of adult stakeholders such as parents and kindergarten teachers.

As it is evident from this and the previous chapter, most feedback on playground equipment is positive, not only in terms of the emotions conveyed to potential users, but also in terms of design, appearance, and functionality. The playground offers different play zones/settings that support different aspects of child development including physical, socio-emotional, cognitive, and language development (see 'Answers to Question No. 6' in Chapter 14). These playground settings offer a wide variety of play opportunities for different age groups with different interests (see 'Answers to Question No. 3 and Question No. 4 in Chapter 14'; see Table 13-1 in Chapter 13).

The final design evaluation results show that the future playground meets children's wishes and values as described in Chapter 11 (Section 11.7), as well as those of (accompanying) adult stakeholders, and can, therefore, be assessed as really enjoyable to potential users and as a child-friendly outdoor public facility.

As stated in Chapters 13 and 14, the future playground in this study offers *some* barrier-free areas and play settings (esp. 'Peace under Sky', 'Sense of Sea', and 'Hill of Flying Balls') that allow non-disabled and disabled children (esp. wheelchair users) to play and interact together (see Section 13.2.3.1). Hence the playground design can be deemed to support and integrate disabled children.

While the duration of use of playground settings and equipment largely depends on a child's interests, age, physical ability and skills, the design offers a sufficient variety of play opportunities for children and accompanying adults to profit from a prolonged visit, estimated on average as around three hours (Table 14-15 in Chapter 14). Especially 'Peace under Sky' is considered a suitable place for adults and families to spend time (estimated as around 2 hours) to sit, eat/drink something, read books, rest, and watch their children.

Likewise, the overall as well as individual appearance, design, and functionality of the playground settings are judged interesting and attractive to users and in harmony with each other (see Table 14-10 in Chapter 14).

The average rating for the Nordbahntrasse site as a location for developing the future playground and installing the settings, considering the indexes of safety and accessibility is 5.87. Although this score seems adequate for developing the playground, a few participants said that the overall design is more suitable for a space where urban culture is more advanced and more children live. As a real project, the playground design would have to take other indexes like organizational requirements, safety, exact dimensions, possible investment costs, etc. into consideration.

As stated in Chapter 6 (see Section 6.2.8.), this study aims to design a child-friendly playground in Wuppertal for children aged 4 to 8, based on users' (including children and adults) needs, wishes, and values, by actively involving them in the co-creative design process. The results of the evaluation sessions show that the designs of each setting and of the playground as a whole have been developed through a 'co-creation mindset' that meets users' needs, wants, expectations and values. The approach and the applied methods can, therefore, be deemed to have been successful in achieving a child-friendly outdoor public playground design especially for children aged 4-8 on the Nordbahntrasse in Wuppertal.

15.4. Contribution to knowledge

This study (comprising research endeavor and new design of playground settings) has made multiple contributions to the field:

(a) Theory: A new framework based on the co-creation mindset was created and formulated to achieve *user-friendly* design parameters and, taking into account various playground concepts, to design an *innovative quality child-friendly* outdoor public playground actively involving potential users and relevant actors.

(b) Literature survey: Since designing an outdoor playground as an urban space is an interdisciplinary project, a considerably expanded survey of the literature in different fields and subjects was conducted and made available to (design) researchers in this and allied disciplines such as urban/public design, architecture, psychology, pedagogy, child development, and play/play space ideas. In the specific context of this thesis – designing a child-friendly outdoor public playground for children aged 4-8 on the Nordbahntrasse in Wuppertal through a co-creation mindset – a meaningful connection was provided between the fields of urban design and its sub-disciplines, the broad domain of play-spaces and main types of playground in different eras, children's play and development, types of play from birth to age eight, boys' and girls' playing styles, the necessary qualities and features for developing a quality playground, playground equipment and settings, materials and colors, understanding the context of Wuppertal and Germany, and the UCD approach and co-creation mindset (see Chapters 2 to 9).

(c) Design: This extensive literature review, informed with a creative methodology based on the co-creation mindset, and with evaluation results, led the study to extract user- and child-friendly design parameters and create an innovative quality playground for children aged 4 to 8 specifically for the Nordbahntrasse in Wuppertal. The designs and findings of this study can be applied by the author in an actual playground project. As stated in the text, such a project would demand *c*ooperation with organizations responsible for public playgrounds (e.g. urban municipalities), as well as consideration of necessary organizational and environmental indexes. Creating a child-friendly outdoor public

playground as part of an urban landscape increases the quality of public life in that context and develops the image of the *c*ity.

15.5. Future steps

In future, a user-friendly social website could be designed and developed. The aim of this platform would be to explore the gaps and shortcomings in public spaces, decision making, the generation of ideas, redesign/design, and development of the future urban/public project by involving different actors in different phases of a co-creation design process (exploration, ideation, evaluation, implementation, and post-implementation). This platform would be a suitable media to develop or evaluate a public/urban project such as a playground, bicycle station, or innovative park.

The website could be designed and developed either by applying suitable experiences explored in this study (e.g. designing a website and its interaction by using natural elements) or by applying a new methodology to achieve user-friendly interaction. Via this platform actors/co-creators (potential users, experts, relevant institutes, and organizations) could express either their feedback about built/designed public projects (e.g. built playground, bicycle station, bus station) or their insights and ideas about future public projects (e.g. developing a new public park, or new bicycle rental system). In this way, people could contribute to the development of the public spaces and street furniture of their city or region. The feedback, insights, values and wishes of different stakeholders and users of public spaces (e.g. in Wuppertal) could be explored via a platform by applying different (available or creative) methods either per website or in a real context by inviting them to participate in different sessions like normal or focus group interview sessions. This website could support crowdsourcing, mass collaboration, open innovation, and mutual interactions between different actors.

Since the design process is iterative, through this platform, co-creators could share information to achieve a high quality public project (e.g. playground). During the implementation and post-implementation phases, they could be in contact with the designer, experts, and relevant organization(s). The City Council could explore opportunities and gaps and act upon them to set future projects in the urban environment and improve public life and the city image.

The platform could set a stage for creating corporate identity as a brand related to public projects (public services, products, and systems) under the supervision of relevant organizations (e.g. City Council) and the project researcher/designer.

Additional significance/value of social website design via co-creation process includes:

- Creation of cooperate identity among related urban projects, under supervision of organizations and experts supporting and developing the city image; this can also support the city's tourism goals. By engaging users in a co-creative design process, they can be informed about phases of urban/public project(s) and also organizational requirements and values in different fields such as sustainability, urban environment, public life, child health and development, city image, and corporate identity.

- If any shortcomings, defects, problems, or gaps are found by users in public spaces such as playgrounds, relevant organizations (City Council) and the designer and specialists can be informed so that necessary action can be taken such as repairing, maintaining, replacing, redesigning, or developing (the collected and updated understandings and database could be applied in future for redesigning the available projects or establishing new projects related to play, urban environment, etc.).

- On the website (which can support a brand for urban projects of a city) special services or products can be presented in special events. For example presenting postcards designed based on children's drawings explored in creative sessions.

- Potential users can be connected with each other to share their experiences and values (e.g. related to play experiences on playgrounds, hobbies in natural environment, and spending leisure time in different public places). All the connections should be designed with professional control and led in a way that encourage users to interact with public spaces (e.g. play systems) and play roles and take responsibility to increase the quality of public life (e.g. maintaining the cleanliness of the city, environmental sustainability, preventing vandalism).

- Through this online website, users of public spaces (parents, children, etc.) can be connected to different communities, experts (e.g. sports trainers, psychologists, urban

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designers) and be aware of the quality of public life (including different indexes), and its role in people's well-being and the healthy growth of children.

- A suitable user-friendly name should be chosen for this website and the whole co-creation system as a brand for developing urban/public projects and increasing the quality of public life (under the supervision of responsible organizations and experts). The name of the website and design of the whole system should show the future-oriented vision of the city as part of the enhanced city image.

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Appendixes

➔ **Presenting appendixes 1 & 5**

➔ **Other appendixes are on the attached CD.**

Appendix 1

Guideline (Presented in Advance to Teachers/Educator) for Holding Creative Session:

- **Introduction:**
  a) First, you (the teacher in kindergarten/ primary school) introduce me (the researcher) and tell them that I am here to play an interesting game together. Then the researcher introduces herself and asks children to introduce themselves as well.
  b) Each child introduces himself/herself and states his/her age.
     Then the teacher or researcher writes their name and age on a Post-it and sticks that on the child's table.
  c) This game includes two main parts: Making a story (in the mind) & drawing that story.

- **Creating Story:**
  The teacher and researcher ask the children to close their eyes and imagine a great day that they are having a lot of fun. They are told that on that day they can do anything and be where they want to be. They are told "You are enjoying that day; doing or playing something really enjoyable". These things are something that can be strange, fun or whatever you want them to be.

  This place can be completely imaginary or a place that they have experienced/been before. Anything is possible on their enjoyable day. The story can be about themselves or another character. Children can be alone or with others. These people can be imaginary or real.

  *The important point is that the teacher or researcher should not utter a word, such as a playground or any other word that directs the child's mind/story in a certain direction.

- **Drawing:**
  After the children have developed their story, they open their eyes. They are asked to draw/paint their story (with colored pencils and A3/A4 papers).

  While they are drawing we can encourage them and avoid any sense of competition with some sentences like: All the stories/drawings are beautiful and interesting.

  In order for the children to be able to improve their drawings, they are told that you can close your eyes again whenever you want and imagine your story again in your mind so that you can draw it more easily.

- **Listening to children's stories while explaining them from their drawing**

  When the children have finished their drawings, we (researcher and teacher) ask them to tell their story about the drawing. To listen to the children's story, the teacher sits next to the child and asks him/her to explain the story and show it on the drawing.

Listening must be dynamic. That is, when we (a teacher or researcher) asks a child to tell a story, our gesture and actions should be such that the child feels we are really interested in her/his story. For example, we can nod our head in approval, look at the drawing carefully, smile when listening to a story, and show our curiosity and interest.

- Please do not interrupt the child while talking.

- Please be calm and patient and do not show your rush to the child because it influences the child in a negative way.

- We should pay attention that child explains everything (every object) in his painting. If he forgot to mention one of them we will ask him about that object.

- After finishing that we repeat his story shortly.

- Some main questions that needs to be answered while describing the story:

  1. Where is <u>that place</u>?

  2. <u>Where are you</u> in your painting?

  3. Does that object make fun? Why does that object or event <u>make fun? Why is it interesting for you?</u>

  4. And ask the child to choose a <u>name for his painting.</u>

Then we say "Thank you! It was really interesting!"

I appreciate the cooperation of your institute (kindergarten/primary school).

Neda Batenipour, Researcher and designer of the study, Ph.D. candidate in industrial design, University of Wuppertal

Appendix 5

List of questions (English version) asked of adults in questionnaires or group interview sessions. The following pages present the list of questions in English. Where participants were German, the questions were also presented in German.

Personal information

How did you receive this questionnaire?

Name of school, kindergarten, or institute:

Your first name: Family name:

Age:

Gender: Male   Female

Educational Level:

Occupation:

Nationality:

City & region of residence:

How many children and grandchildren do you have?

Children's age and gender (daughter/son):

Grandchildren's age and gender (granddaughter/grandson):

Questions

1. What are your hobbies in your leisure time? (Please explain your hobbies and the reasons that you enjoy them).

2. Who accompanies you in your spare time when you enjoy your hobbies? (Who do you spend most of your free time with?).

3. What were your main hobbies in childhood and youth? Why did you enjoy them?

4. What hobbies and activities, were you interested in pursuing but could not pursue at all or only rarely?
    a- What are the main reasons that prevented pursuit of your dream hobbies?
    b- What are the especial characteristics of your dream hobbies?

5. How often do you spend your time in outdoor environments or green spaces (e.g. parks, playgrounds, forests, etc.)?
    a- Where do you go most? With whom? Why do you go there? What do you do there?
    b- When do you usually go there? On which days of the week? And when or around what time? (Morning/afternoon/evening/night?)
    c- How long do you stay there?

6. Do you usually go to a playground?
    a- What are your reasons for going to the playground? What activities do you do there?
    b- When do you usually go there? On which days of the week? And when or around what time? (Morning/afternoon/evening/night?)
    c- How long do you stay there?
    d- Who accompanies you?

7. How important is it for you to spend your leisure time outdoors?

8. Please describe a day that you have enjoyed spending your time in an outdoor environment (e.g. park, playground, etc.) as below:
    a- Where is that place?

b- What activities did you do there? When did you go there? Who were you with?

c- Please explain what activities you enjoyed the most? And why did you enjoy them?

d- What did you experience there that you did not like? (What were the flaws of that place?)

9. Do you take care of any child? Or do you interact with any child? What is your relationship with this child or these children? (e.g. your own children, grandchildren, children of relatives or friends, etc.) What are their age and gender?

   a- What kind of activities are these children interested in?

   b- What kind of activities are the children interested in especially in winter? Where do they do these activities? With whom?

   c- What kind of activities are the children interested in especially in summer? Where do they do these activities? With whom?

   d- What are the frequent/usual wishes and requests of children?

10. Where does your child (or the child that you know) prefer to spend his/her time? And why?

11. What activities do children like to do indoors (e.g. in kindergarten, at home, in class, etc.)?

    a- Why do you think children enjoy these activities?

12. Could you please name some attractive playgrounds?

    a- Where are they?

    b- Have you ever been there?

    c- Why is this playground attractive/interesting to you?

13. What does your ideal playground look like? What kind of equipment, facilities, and experiences does it offer?