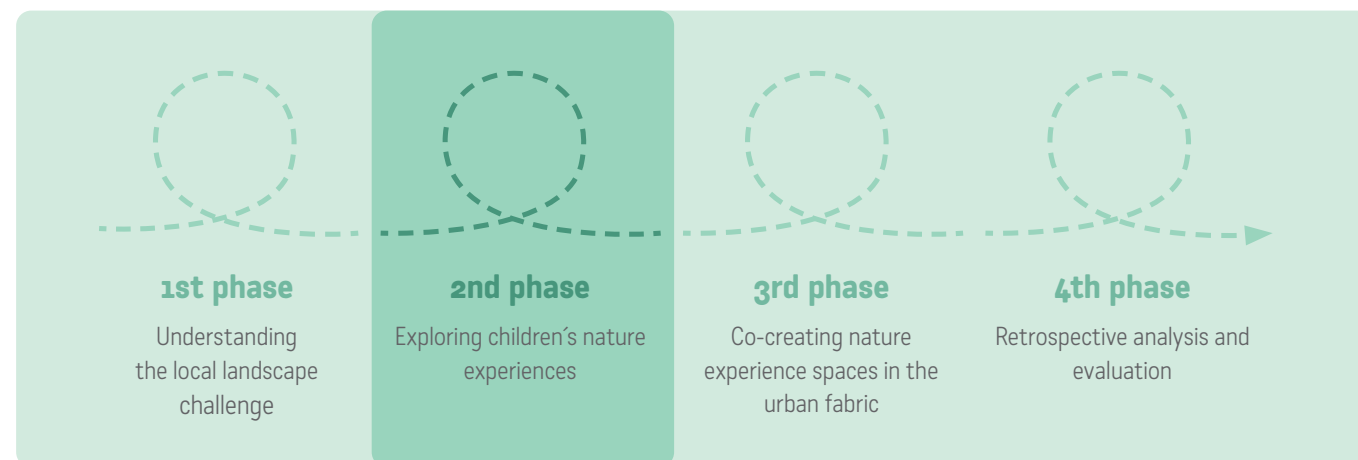


# GYERMEKEK TERMÉSZETHZ VALÓ KAPCSOLÓDÁSÁNAK ÖSZTÖNZÉSE A VÁROSI TÉRBEN *RECONNECTING CHILDREN WITH NATURE IN URBAN SPACE*

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## ABSZTRAKT

A gyermekek és a természeti környezet közötti egyre növekvő elidegenedés mélyreható következményekkel jár fejlődésükre és jóllétükre nézve. Jelen tanulmány olyan stratégiákat vizsgál, amelyek elősegíthetik az újrapcsolódást a természethez, a Vácon létrehozott Living Lab megközelítésén keresztül, a szociális konstruktivista tájelmélet elméleti keretére építve. A tanulmány egy vegyes módszertani keretet alkalmazva – rajzok, narratív interjúk, kérdőívek, megfigyelések és térbeli feltérképezések kombinációján keresztül – azt vizsgálja, hogyan érzékelik és értelmezik a természethez fűződő viszonyukat a gyermekek, a szülők és a tájépítész hallgatók. Az eredmények jelentős különbségeket tárnak fel ezen csoportok nézőpontjai között, különösen a spontán, strukturálatlan természeti élmények és a szabályozott városi zöldfelületek megítélésében. Rávilágítva ezekre az eltérésekre,

a tanulmány hangsúlyozza, hogy szükség van olyan részvételi tervezési megközelítésekre, amelyek bevonják a gyermekek hangját olyan városi környezetek tervezésébe, amelyek formális és informális zöldterületei egyaránt támogatják a spontán felfedezést.

*Városi természet, Gyerekek, Természetélmény, Gyerekbarát város, Living Lab, Részvételi akciókutatás* ©

**Figure 1:** Overview of the iterative phases of the research process

## ABSTRACT

The increasing disconnect between children and their natural environment has profound implications for their development and well-being. This study examines strategies to foster reconnection by employing a Living Lab approach in Vác, Hungary, grounded in social constructivist landscape theory. Through a mixed-method framework—including drawings, narrative interviews, questionnaires, observations, and spatial mappings—the research explores how children, parents, and landscape architecture students perceive and engage with nature. The findings reveal significant discrepancies in these perspectives, particularly regarding the value of unstructured natural interactions versus structured urban green spaces. By highlighting these divergences, the study underscores the need for participatory planning approaches that integrate children's voices to design urban environments with both formal and informal green spaces that support spontaneous exploration.

*Keywords: Urban nature, Children, Nature experience, Child-friendly city, Living lab, Participatory Action Research*

## INTRODUCTION

Urban green spaces provide a wide range of health benefits [1], with various pathways through which nature can positively impact health, including enhanced air quality, increased physical activity, stress reduction, and improved social cohesion [2]. Nature experiences are particularly crucial for the holistic development of children, contributing to their physical, mental, emotional, and cognitive growth [3] [4]. Whether in untouched landscapes [5] [6], or in urban green spaces [7], nature experiences support children's comprehensive development.

However, children's nature experiences are declining due to societal changes: increased urbanization, car reliance, structured activities, and parental safety concerns limit unstructured outdoor exploration [8][9][10]. This separation from nature negatively impacts children's health and well-being, a phenomenon referred to as nature-deficit disorder [11]. Beyond these personal impacts, nature separation reduces children's environmental appreciation, hindering advocacy for sustainability and ecological problem-solving [12][13].

As such, there is a growing need for “re-naturing urban childhood” [14] and for the integration of a salutogenic approach into urban planning, emphasizing

environments that actively promote health and well-being [15]. Despite increasing recognition of nature's role in fostering resilience, well-being, and social cohesion, knowledge gaps persist regarding effective strategies for embedding nature into urban planning frameworks [16] [17]. This gap is particularly pronounced when considering children's perspectives [18], which are often overlooked in the development of urban green spaces.

In Hungary, there is a growing focus on integrating nature experiences into urban and educational environments. Research [19] indicates that children's nature connectedness tends to decline with age, with significant regional differences, and varies according to settlement type, being lower in large cities and stronger in smaller towns. Moreover, studies have demonstrated the positive effects of environmental education programs [19] [20] and the green characteristics of school environments [21] on fostering nature connectedness. However, it remains unclear how the design and social interpretation of urban landscapes – and their subsequent use – affect children's ability to connect with nature within urban environments.




## RESEARCH METHODOLOGY

### *Living Lab approach*

To address the challenges of incorporating children's nature experiences within urban settings, the Child-Friendly City Living Lab in Vác, Hungary, has been established as an experimental platform. The lab is co-run by the Department of Landscape Protection and Reclamation at the Hungarian University of Agriculture and Life Sciences (MATE) and kultúrAktív Association, bringing together academic education, research, and participatory practice. Rooted in the Living Lab methodology [22][23], the project engages children, families, policymakers, and landscape architecture students in a collaborative process to co-create strategies that strengthen children's connection to nature.

### *Local context*

Vác, a rapidly expanding city located on the left bank of the Danube River at the base of Naszály Mountain, is part of the Budapest metropolitan region and has a population of 34,040 residents [24]. Despite its urban infrastructure, the city retains a significant number of green spaces. However, urbanization and shifting land-use patterns pose challenges when it comes to preserving accessible nature experiences for children. Areas that once provided

PARTICIPANT GROUPS		METHODOLOGY	DATA COLLECTION AND ANALYSIS
<div><p><b>CHILDREN</b> • 25 participants • aged 11–12 • one 5th-grade class</p></div>	Children, as primary users of urban green spaces, provide direct insight into their perception, engagement, and navigation of nature in daily life.	<b>NARRATIVE INTERVIEWS</b> Captured children’s lived experiences and emotional connections to nature, ensuring open-ended expression	Facilitators used storytelling to prompt children’s nature memories, expressed through stories, drawings, or clay modeling. Landscape architecture students documented and analyzed responses for themes on place, actions, interactions, and natural elements.
	<div><p><b>PARENTS</b> • 58 participants • parents or grandparents of children aged 7–14, distinct from the study participants</p></div>	Parents and grandparents shape children’s nature experiences through decisions on play locations and permitted interactions with natural spaces.	<b>STRUCTURED QUESTIONNAIRE</b> Systematically captured parental attitudes, green space access, and barriers to children’s independent play, revealing patterns in decision-making and the resultant impact on nature experiences.
	<div><p><b>EXPERTS</b> • 20 participants • BA landscape architecture students</p></div>	Experts offer an analytical perspective on green spaces, assessing accessibility, quality, and design features that shape nature engagement.	<b>CADASTRAL SURVEY</b> Assessed the availability, quality, and usability of nature spaces in Vác, highlighting structural and design factors shaping children’s access and interaction. This approach bridged experiential perspectives with the physical realities of the urban landscape.

rich nature interactions – such as orchards, informal play areas, and green fields – have been transformed by construction or repurposed, such as the development of a large playground along the Danube that, while designed for children, offers limited spontaneous nature engagement. Thus, the alienation of children from nature, a global phenomenon, is particularly challenging in Vác due to the radical transformation of the landscape.

An iterative research process

The research evolved through an open, iterative approach, shaped by community input and grounded in real-world engagement. Rather than adhering to a rigid framework, the project adapted dynamically to the insights and needs emerging from local actors.

The process unfolded in four main phases, as shown in Figure 1. This study focuses on the second phase,

examining children’s nature experiences in Vác to establish an empirically grounded basis for design strategies aimed at enhancing urban landscapes and fostering meaningful interactions with nature.

A social constructivist approach for exploring children’s nature experiences in Vác

Our study is grounded in social constructivist landscape theory, which posits that landscapes are not just physical environments but are shaped through social interactions, cultural expectations, and institutional structures [25]. As children navigate their surroundings, their connection to nature is influenced by family narratives, peer interactions, educational settings, and the design of urban spaces. We also draw on Moore and Young’s [26] framework – based on Hart’s [27] concept of the “phenomenal

◀◀Table 1: Mixed-method data collection framework for exploring children’s connection to nature in Vác  
Figure 2: Children’s representations of recent nature experiences through clay  
PHOTOS: HANNA SÁNTHA



landscape” – which posits that children’s experienced environment emerges from the interplay of three interdependent realms: the physiological-psychological (body and mind), the sociological (interpersonal relations and cultural values), and the physiographic (spaces, objects, persons, and built natural environments). Recognizing that these three driving forces are essential to fostering nature experiences in urban settings, this simplified model served as the basis for our methodology, integrating the perspectives of children, parents, and landscape experts to inform both the study and the design of urban landscapes.

The data collection was conducted during an intensive fieldwork week in September 2024, in Vác, as part of the third-year Bachelor’s curriculum at MATE. The research team developed the data collection framework and tools, which were then implemented by students under supervision. A mixed-method approach was employed to accommodate the specific characteristics of each participant group, as shown in Table 1. While the use of different methods limits direct comparability across datasets, it enables a more nuanced understanding of the diverse perspectives and experiences of children, parents, and experts.

RESULTS

Children’s perspectives: embodied play in small-scale urban green spaces

Children demonstrated a deeply personal and interactive connection with nature, conceptualizing it on a small, localized scale through specific, tangible elements tied to their daily lives. Rather than identifying vast natural landscapes – such as forests or large parks – they associated nature with small-scale environments that offer opportunities for sensory exploration and play (Figure 2). They

referenced micro-spaces such as a bush used for hiding, a bench for enjoying ice cream, a favorite spot along the Danube for skipping stones, or a bridge over the Gombos Creek for observing water flow and throwing sticks. These spaces are not defined by their ecological significance but by their affordances for action, agency, and personal meaning.

In children’s narrations, the small-scale natural elements and environments served as arenas for discovery, connection, and play, fostering embodied experiences and direct interaction with nature. This highlights that children’s relationship with nature is inherently action-driven. Activities like climbing trees, skipping stones, or building dams highlight the importance of tactile and immersive experiences in shaping their understanding of the natural world. For children, nature is not an abstract or distant concept but an integral part of their lived experience, something they shape and engage with dynamically rather than a static backdrop to their activities.

Their suggestions for improving access to nature also reflected this hands-on, tangible approach. One child proposed planting fruit trees in playgrounds, allowing children to engage with nature through direct sensory experiences like picking and eating fruit. These ideas underscore the importance of designing everyday urban spaces to support multisensory, hands-on interactions and affordances for exploration and agency, thereby reinforcing the need for child-centered approaches to urban nature grounded in children’s own experiences and interactions.

Parents’ perspective: insisting on structured, safe urban spaces

Our findings confirm that parents generally perceive a growing disconnection between their children and nature. A majority believe their children spend less time outdoors





compared to their own childhoods, a sentiment particularly strong among those who themselves grew up in Vác. They acknowledge that children enjoy outdoor play and engaging with natural surroundings, and most claim that they do not prefer playgrounds over natural environments for outdoor activities.

However, despite this, parental choices and restrictions often limit children's engagement with nature. When listing the places they visit with their children, it became evident that they primarily frequent structured spaces, such as playgrounds, rather than unregulated natural environments. Convenience, safety, and opportunities for social interaction appear to be the driving factors behind these decisions. In line with international trends, most parents reported that they do not allow their children to play unsupervised in natural spaces and frequently restrict their independent mobility, such as walking to school alone. These protective measures, often motivated by safety concerns, curtail children's opportunities for free exploration and autonomy in outdoor settings.

Parental restrictions not only influence how much time children spend outdoors but also where they experience nature. A striking contrast to children's perspectives

is that parents do not perceive nature as an integrated part of the everyday living environment. Instead, they conceptualize nature on a broader, more abstract scale, referring to locations such as "the forest" or "the park." This contrasts with children's place-based, experiential understanding, where nature is embedded in everyday life through specific, tangible elements. For parents, nature is event-like—something experienced through planned activities such as weekend excursions or hikes, rather than a continuous, everyday interaction. This resource-dependent perception may explain why many parents believe strengthening children's connection to nature should be the responsibility of formal education. Many expressed the view that schools and local governments should play a more active role in organizing environmental programs, indicating a preference for institutional interventions over family-led nature experiences.

Parental suggestions for improving children's connection to nature primarily focused on infrastructure-based solutions, such as new playgrounds, sports fields, improved maintenance, and additional safety features in public parks, as well as educational programs (Figure 3). While parents voiced concerns about the decline of green

**Figure 3:** The word cloud displays parental suggestions for enhancing children's connection to nature. The words represent clusters derived from freely provided responses, rather than direct quotes, and their sizes and the accompanying numbers reflect the frequency with which respondents mentioned each cluster

**Figure 4:** Excerpt from the cadastral survey: mapping and documentation of green spaces in Southern Vác. The map highlights green spaces identified by students, with accompanying photographs illustrating two specific sites – B3 and B7

MAP: HENRIETTA SZABÓ AL'QUAIRAH,  
PHOTOS: DÓRA NAGYOVÁ (LEFT), HANNA SÁNTHA (RIGHT)



spaces in Vác, only a small minority considered the potential for developing informal green spaces within the urban fabric. This reveals a missed opportunity for more immediate, everyday nature experiences, suggesting that parental advocacy remains largely centered on structured, built environments rather than informal, accessible green spaces integrated into children's daily routines.

**Landscape experts' perspectives: addressing barriers and opportunities in urban green spaces**

The analysis conducted by landscape architecture students revealed three key insights regarding the availability, condition, and development potential of urban green spaces in Vác.

First, the green-space cadaster highlighted a paradox: while both data and public perception indicate that accessible green spaces are shrinking, there remains substantial untapped potential for integrating nature experiences into the urban fabric (Figure 4). The study identified a significant number of small, informal green spaces that do not appear on the municipality's official list of parks and gardens, while also not featuring prominently in the mental maps of parents and children. Despite their underutilized status, these spaces hold significant potential due to their proximity to children's daily routes and their location in areas lacking significant community green spaces.

However, the quality and maintenance of existing green spaces emerged as a major barrier to their usability

for children's play. While some highlighted green areas – such as large sections of the Danube riverbank, which attract visitors from across the city and beyond, or neighborhood-scale green spaces like Munkácsy Park, a key recreational area for local residents – are well-used and appreciated, most green spaces lack adequate upkeep. Student surveys indicated that the majority of green areas were in poor condition, with few receiving sufficient maintenance. In many cases, neglected vegetation, safety concerns, and lack of infrastructure prevent children from freely engaging with these spaces.

As a result, the development proposals formulated by the expert teams primarily addressed qualitative improvements, such as plant management, better maintenance strategies, and improved accessibility to encourage more active use. The emphasis was not merely on expanding green space but on ensuring that existing areas support children's needs and afford meaningful interactions with nature.

A further distinction emerged when comparing the development proposals of different landscape architecture teams. Out of the five teams conducting the green space survey, two had the opportunity to gain direct insights into children's experiences of nature through narrative interviews conducted in schools. Their proposals differed significantly, as they incorporated design elements directly supporting children's play preferences. Instead of general landscape improvements, they proposed nature-based play features, such as climbing trees,

constructing shelters and hideouts, and integrating a water play area along Gombás Stream. This contrast underscores the importance of integrating children’s voices into the planning process: when experts engage directly with children’s experiences, their design proposals become more aligned with children’s actual needs and interactions with nature.

CONCLUSION: BRIDGING  
PERSPECTIVES ON CHILDREN’S  
NATURE EXPERIENCES

This study confirms that children have an inherent preference for being in nature, in line with biophilia theory, which posits that humans have an innate tendency to connect with the natural world [28]. Our findings demonstrate that children actively desire engagement with nature, not only as a passive setting but as a space for exploration, autonomy, and risk-taking. This finding supports the increasingly prevalent view that affording children greater independence in outdoor environments is essential for their development and well-being [29]. However, while children express a strong affinity for nature and a willingness to engage in unstructured, adventurous play, their actual opportunities are shaped by parental attitudes, societal norms, and the urban environment itself.

Parents play an important role in mediating children’s nature experiences. Their preferences for structured, safe, and institutionally managed spaces often conflict with children’s desire for free and immersive interactions with natural elements. This reflects a broader adult-child disconnect in urban nature engagement [30], where adults perceive nature as something distant or requiring formal access, whereas children integrate it into their everyday micro-experiences. Parental risk aversion and restricted independent mobility – common trends globally [8][29] – limit children’s ability to experience nature in an autonomous way, despite their legal right and developmental need to play and access to a safe and healthy environment [31].

The cadastral survey revealed that the city harbors numerous unused yet potentially valuable green spaces, representing untapped opportunities for enhancing children’s playful interactions with nature. This underscores experts’ responsibility to consider and harness the full potential of the urban open space system – not only to support children’s play but also to uphold their

rights to access these environments [2] [32]. Further, our study highlights that when experts design without direct interaction with children, their proposals often prioritize general environmental improvements over interventions that truly support children’s play and exploration. However, when professionals actively engage with children, as seen in the teams conducting direct fieldwork with young residents, their designs become more responsive to children’s needs. This underscores the necessity of integrating child participation into landscape and urban design processes to ensure that public spaces genuinely cater to their experiences.

Beyond its immediate insights, this research has laid the foundations for the next phase of the Living Lab, where we will collaboratively develop informal green spaces with children. Moreover, our findings highlight the need for further research on the state of children’s connection to nature in Hungary, including the quality of this relationship, intergenerational differences in nature perception, and strategies for harmonizing these diverse perspectives in landscape design. As cities continue to evolve, ensuring that urban environments foster meaningful, self-directed interactions with nature is not only a design challenge but a societal imperative.

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