

FROM SAFETY AND SECURITY TO LIVEABILITY AND LOVEABILITY – A CASE STUDY FOR INTRODUCING CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN PRINCIPLES TO A HIGH SCHOOL DORMITORY IN HUNGARY

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Abstract

Due to rapid urbanization and the increase of density in large cities, urban safety and security strategies became increasingly important for development processes. The proper design and effective use of the built environment can reduce the incidence and fear of crime that can lead to improvements in the quality of life. Crime Prevention Through Environmental Design (CPTED) can be a tool not only for reducing crime and creating safer cities but also for increasing liveability and lovability in cities.

Safecity program was the first comprehensive initiative in Hungary with the approach of mapping and promoting crime prevention tools and methods supported by environmental design. In the frame of the program, design out of crime strategies have been introduced by presenting national and international best practices. Sub-projects have been implemented to explore and provide guidelines in training young professionals and in urban development processes. The main goal of the pilot projects was to establish adaptable models and initiate professional discussions about how CPTED strategies and tools can be implemented in the different fields.

Besides engaging future and practicing professionals, a special collaboration with a dormitory was provided an opportunity to engage youth and to make an example of how environmental crime prevention can contribute to create more liveable and lovable environments.

Keywords: urban safety, public health, liveability, loveability, CPTED, environmental crime prevention, youth engagement

1. INTRODUCTION

One of the four global demographic “megatrends” is **urbanization** - meaning that more and more people are living in cities. While in the 1950ies only 30 percent of the world’s population was urban, today it is more than 55 percent (United Nation 2019). As more and more people are living in cities all around the world, cities are becoming bigger and denser. Based on the estimation of the United Nations (UN), 2007 was the year when the number of people living in urban areas overtook the number in rural settings. This phenomena is still ongoing and urban shares are projected to increase in the coming decades. By 2050 more than two-thirds, 68% of the world’s population is expected to be urban. That is close to 7 billion people (Richie, H, Roser, M 2018; United Nation 2019).

It is important to understand what are the impacts of the above mentioned phenomena on **human health and well-being**, and on the urban ecosystems. The importance of ecosystem services, ecological networks and the links between ecosystems in the city as a specific ecosystem has already been recognized (Szilágyi, K 2012). According to Benedict and McMalon (2002), the relationship between access to green spaces and physical well-being and health is now conscious. Rapid urbanization contributed to the sprawl of grey infrastructure that not only increased fragmentation in the landscape and in the urban ecosystem, but also created social and economic divisions, and led to

social alienation from nature (Benedict, M 2002). At the same time, with the increase of the urban population, not only the ecological significance of urban green spaces increases, but also the number of people who want to access nature. It is obvious that equal access to nature plays a critical role in human health and well-being in today's urban environments (Fekete, A, Molnár, IJ, Reith, A, Szaszák, G, Zelenák, F 2019).

By definition, **safety** is the state of persons and organizations, which is determined by the interaction of intentional illegal behaviours endangering their existence or proper functioning and the protection resources applied against them (Berek, L, Berek, T, Berek, L 2016; Fekete, A, Molnár, IJ, Reith, A, Szaszák, G, Zelenák, F 2019). Therefore, safety has to be considered as a condition that can be easily changed. In 1943, in "A Theory of Human Motivation" Maslow introduced the internal needs that drive human attitude and motivation. In Maslow's pyramid, safety is a core value and motivation for human beings, right after the completion of physical needs (like food, drink, sleep, etc.). This study is still fundamental today and can be translated as urban safety and security is a basic element in the urban environment that is needed in order to make urban services accessible for all.

While the conditions offered by modern cities often stimulate crime, one of the reasons why people started to live in cities was the need for safety and security. In contrast with nature where all the mysterious creatures lived, cities were surrounded by walls and guarded by soldiers. People were living close to each other in a more concentrated way where they felt more secure. By the time, despite the protected, well-defined environment, living in cities brought new challenges. Implicit and explicit regulations of social coexistence were necessary to be introduced in the urban community. Existence of certain rules and norms of behaviour are considered as a basic condition for functioning urban communities. Due to rapid urbanization and densification of the past centuries, urban safety has become an important issue all around the world over. Following the global trend, even in Hungary **most of the crimes are committed in cities** (Barabás, T 2010). One of the main reasons is that with the growth of cities - larger numbers and more diverse (ethnicity, income level, social status, etc.) habitants concentrated in smaller spaces -, violation of norms and deviant behaviour became easier to remain unnoticed. (Barabás, T, Dallos, E, Kelenné Török, Sz, Nagy, A, Ongjerth, R, Péti, M, Sütő, A, Tomay, K, Windt, Sz 2011)

However, it is important to note that crime does not equally appear in all parts of the cities, so different urban environment qualities bring different crimes and safety and security levels. **Correlation between the quality of the built environment and urban safety and security** was already found in the 1830ies when Guerry and then Quetelet studied how the different neighbourhoods attract different crime types (Guerry, AM 1833; Quetelet, A 1835). Further serious studies were only taken in the topic a century later when Clifford R. Shaw and Henry D. McKay started to analyse Chicago and then other cities in the US. In their research they have found that different crimes occur in different proportions in different parts of the city. The research has shown that the number of crimes were inversely growing with the distance from the city centre (Kara, L 2017; Shaw, CR, McKay, H, Zorbaugh, H, Cottrell, LS 1929). The main reason for occurring more crime in city centres is density meaning that more people are living in smaller spaces. Often city centres have narrow and dark streets that can be inviting environments for criminals. However, the safety and security of modern cities, especially large ones, cannot be simplified to the dangers posed by crime committed by deviants. Beside the behaviour of individuals there are other aspects that can affect urban safety and security. Traditional designing methods - in landscape architecture and in architecture as well - incorporate safety elements as their basic requirements. Accessibility, general safety, traffic or road safety, or disaster prevention are basic elements of today's practitioners.

Crime prevention through environmental design (CPTED) on the other hand was a new wave starting in the 1960ies when researchers and practitioners realized that the environment can be modified in order to influence human behaviour. Jane Jacobs, an American-Canadian journalist and urban activist was the first who raised her voice when she published the book of *The Death and Life of Great American Cities* in 1961. She developed the concept of "eyes on the street" and concluded her findings for safety in three main areas: clear demarcation between public and private space; eyes upon the street and sufficient buildings facing streets; and continuous eyes on the street to guarantee

effective surveillance (Jacobs, J 1961). This work became one of the basic theories of crime prevention through environmental design.

Today, beside the control of the use of land and designing urban environment networks, urban planners' primary concern is **public welfare**. The concept of liveability has become common in urbanism in the past few decades. Jan Gehl, the Danish architect and urban designer was one of the first who focused on improving the quality of urban life. In 2016, in an interview Gehl mentions 5 key elements that are the basics of **liveable, sustainable and healthy cities**. He emphasizes the importance of safe mobility, walkability, walkable distances in the city, and equal access to transportation and networks. He points out that if we create a lively and active urban public space that stimulates all senses it will bring more people outside that will increase safety and can also promote social inclusion. (Gehl, J 2016)

While the concept of liveability is already well-known in urbanism, **loveability** is a recently developed concept that gives priority to emotional attachment, identity and sense of belonging, and social connectedness. The Philips Center for Health and Well-being think tank released a paper about the three main components of a liveable and loveable city that are resilience, inclusiveness and authenticity (The Philips Center 2011). These three components are demonstrating the approach towards social integration and cohesion, the local character of the city and the maintenance of it. RobersDay, an award-winning Australian urban designer office have also analysed what it takes to create a loveable urban environment. They have found seven elements that can enhance emotional attachment between people and places: identity, equity, greenery, urbanity, mobility, wellness and resilience. Each of the seven elements builds a complete picture of a loveable city that makes people happy, healthy and provides emotional fulfilment (Moore, S 2019). The Lovability Index has been established and is a tool to measure how people feel about the place in the urban environment (Gray, F 2016; Novacevski, M, Gray, F, Garduno-Freeman, C 2017).

Both **liveability and loveability** builds on long-term sustainability and public welfare. While liveability prioritizes the physical networks of the environment that influences the social aspect - the concept of loveability says that strong emotional attachment with the environment will lead automatically to long-term sustainability of the physical environment. Cities are complex and dynamic ecosystems having different layers (social, economical, and environmental) that constantly interact with each other and influence the overall quality of life in the city (Mateja, M, Gregory, S 2019). Therefore, in this paper we use the two terms together as we believe that both directions are important and can be relevant in different situations.

Various liveability and loveability indicators have been developed by several groups and city governments. Annual world rankings are available that are based on objective and statistical indicators (The Economist Intelligence Unit 2018, Mercer 2019). It can be stated that however all these rankings include safety and security is an important aspect, most of them do not mention safety and security as a separate element or an indicator. The content and measurement of these indicators can vary in the different systems, but it is common in most cases they do not consider safety and security in isolation from other needs and quality of life elements (Mateja, M, Gregory, S 2019). Therefore, security and crime prevention are complex tasks, and the implementation of them expects the **collaboration of many interrelated disciplines** (Fekete, A, Molnár, IJ, Reith, A, Szaszák, G, Zelenák, F 2019). Not only the fact that urban safety is a culture-specific issue, but also the perceived safety, security is subjective and changing in every person. Therefore, it needs special attention to details in local circumstances and the general principles of urban safety and crime prevention must be applied wisely after investigation to specific - international, national, town, and neighbourhood - levels.

2. MATERIALS AND METHODS

2.1. *The Evolution of Crime Prevention Through Environmental Design Principles*

The CPTED principles were grown and developed for three generations. The **First Generation CPTED** was mainly aiming to block crime opportunities by target hardening, territorial control and

surveillance. This approach is based on Oscar Newman's theory of Defensible Space from 1972. In his work, he focused on the design principles of how the building and its surrounding should be implemented (Newman, O 1972, Kara, L 2017). Therefore, First Generation CPTED approaches to reduce problems to the simplest crime opportunities and to handle one aspect of safety at a time. That is the reason why it is often called reductionism (Mateja, M, Gregory, S 2019). The first version of CPTED focuses on the areas of architecture and design tools that can help reduce crime opportunities by modifying the physical environment like: territoriality, surveillance, access control, target hardening, image & management, and activity support.

Parallel to Newman, C. Ray Jeffery was also discovering that the physical environment has an influence on the opportunity for crime. The expression of crime prevention through environmental design was first used by Jeffery in 1971. He proposed an integrated and more holistic approach for development of an interdisciplinary behavioural science of crime and prevention (Jeffery, CR 1977; Mateja, M, Gregory, S 2019). As Jeffery mentioned, crime and its prevention are not entirely based on the physical environment, but rather they lay in a much broader canvas that includes many professions like organic sciences, genetics, cognitive psychology, social psychology and ecology along with physical sciences such as architecture, engineering, and urban planning (Mateja, M, Gregory, S 2019). Unfortunately, his point of view was only accepted decades later.

Second Generation CPTED - beside the 1st generational principles - stresses the importance of social belonging and collective efficacy. It revisits social ecology roots, the social motivation in crime prevention. Second Generation CPTED expanded prevention strategies into neighbourhood conditions and social relations to build a sense of community and social cohesion over a longer period of time (Mateja, M, Gregory, S 2019). This idea was first introduced by Jane Jacobs who believed that the safety of the neighbourhood depends on the sense of social cohesion and the sense of ownership that helps the community to look after their neighbourhood (Jacobs, J 1961, Kara, L 2017). Second Generation CPTED introduced four new principles in addition to the previous ones: social cohesion, community connectivity, community culture and threshold capacity. All of the additional tools are working towards building well-connected and integrated communities that can support positive perspectives and behaviors, including self-policing (Cozens, P, Love, T 2017).

However the Second Generation CPTED looks much more integrated and thorough, there was a need to update it recently. Third Generation CPTED makes the assumption that focusing on safety and crime as only one integrative element in the urban environment is insufficient and outdated. This new generation aims to follow a more holistic approach that creates safer neighbourhoods in the long term and also increase the overall quality of life by specifically making neighbourhoods healthy, socially and personally fulfilling, and ultimately, safe (Mateja, M, Gregory, S 2019). Third Generation CPTED was created to focus on the linkage between the First and the Second Generation CPTED theories. However, it was never a question that the above described theories cannot stand alone, but rather they are complementing each other, it was necessary to create a concept that is highlighting this connection and how the physical and the social environment interact with each other. Social innovation and sustainability driven by local communities is a key element in the Third Generation CPTED theory (Mateja, M, Gregory, S 2019). In some definitions, green technologies and reprogramming the urban space through digital means is also one new aspect of the new CPTED theory (United Nations Interregional Crime and Justice Research Institute (UNICRI), and Massachusetts Institute of Technology (MIT) 2011).

The **Third Generation CPTED** proposes a neighbourhood **Liveability Hierarchy** that integrates human motivation and aspirations focusing on two key factors: public health and sustainability. It elevates liveability from the role of basic infrastructure and aims to provide residents with opportunities to enhance their own personal aspirations and improve their quality of life in a more holistic and integrated way (Mateja, M, Gregory, S 2019). *Figure 1* shows the 3 levels of the pyramid that can be achieved. The diagram describes the main characteristics of each level. The new generation of CPTED aims to reach the Advanced Level Neighbourhood and believes that it cannot only lead to high quality of life, liveable and loveable neighbourhoods but also safer environments.

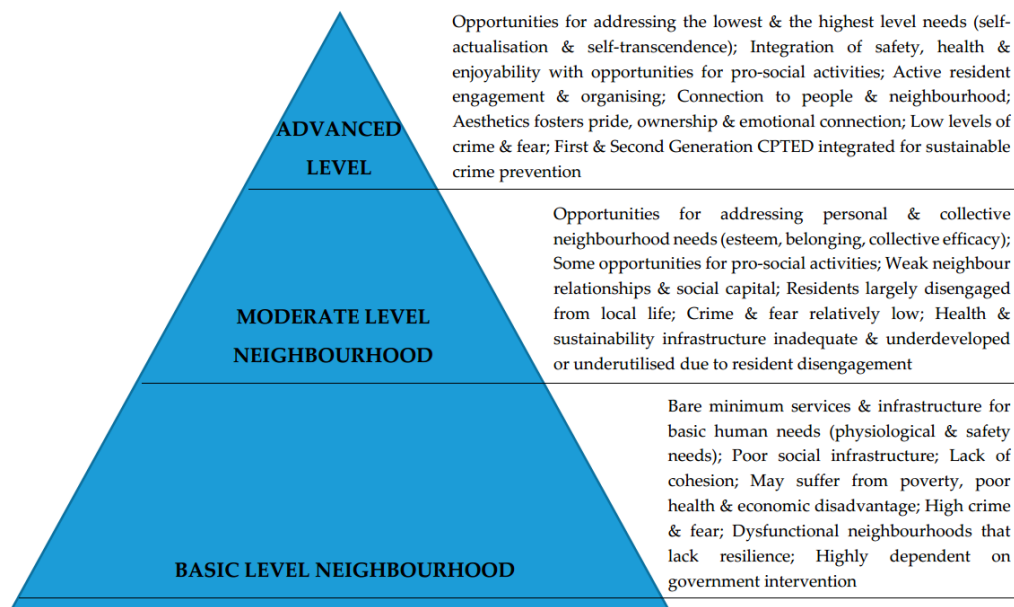


Fig. 1. The neighbourhood Liveability Hierarchy established by the Third Generation CPTED

Source: Adopted from Mihinjac, M and Saville, G, Third-Generation Crime Prevention Through Environmental Design (CPTED), Social Sciences, 2019, 8, 182 (June 2019), p. 10.

Creating safer urban open spaces can foster people staying longer, spending more time outside and can lead to more diverse and lively functioning of the urban environment. It is a necessary step in order to create more bonding with the environment, to enforce belonging and to develop a sense of place and sense of ownership. It is a growing demand for cities to think beyond basic amenities and services like food and shelter and to reach higher-level of living quality. Long-term resilience and sustainability can be achieved through co-creation of social programs, promoting pro-social places and building emotional connections between people and places, i.e. their neighbourhoods that can lead to more liveable and loveable cities (Mateja, M, Gregory, S 2019).

2.2. Case Study Framework

Crime Prevention Through Environmental Design started to reach Hungary only a decade ago when the Hungarian Government established the **National Crime Prevention Council (NCPC)** by the government decree 1087/2011. (IV. 12.) in order to coordinate the efficient facilitation of the new model of crime prevention, which ensures the creation and maintenance of public safety, combating crime and the reduction of the phenomena of triggering crime and factors leading to crime (Tóth, E 2019). As one of their tasks was the elaboration and implementation of the necessary action plans for the interest of crime prevention, NCPC have created the **National Crime Prevention Strategy (NCPS)** in 2013 for a 10-years time frame. This was the first step to create a Hungarian adaptation of CPTED. The strategy aims to promote the CPTED method within the widest possible circles and also to prepare training of experts.

NCPC started the implementation of the strategy in 2014, with bringing the representatives of the architecture and crime prevention together and defining the necessary measures. Hungary's first CPTED experts have been formed by completing successfully a special architectural crime prevention training in the United States. The delegated Hungarian team were certified as CPTED professionals by the American National Institute of Crime Prevention (Szilágyi-Nagy, A 2019). After exploring the American context it was necessary to adopt the learnt skills to the current Hungarian situation. As one of the first results, NCPC in collaboration with the Hungarian Lechner Knowledge Centre (HLKC) prepared the first Hungarian publication about CPTED in 2017 (Kara, L 2017, Tóth, E 2019).

Both the publication and the US training were focused on the First Generation CPTED principles. The next important step of the implementation of the strategy was to launch the **Safecity - Safety. City. Community program** in 2018 that was already putting more focus on the social aspect and the Second Generation CPTED principles. This program was the first comprehensive initiative in Hungary with the aim of promoting and experimenting with crime prevention tools supported by environmental design in practice. The program aimed to introduce the principles and methodology of CPTED not only for professionals, but also for the broader community, and to create its practical application at multiple scenes in Hungary. The program was based on a cooperation between the NCPC and the kultúrAktív Association who was responsible for coordinating and implementing the project. KultúrAktív Association is an NGO specialized in built environmental education, active participation and youth engagement. Their strong belief in empowerment directed the program in a way that **participants and local communities could get tools in their hands to sustain the program themselves**. This approach helped a lot to get closer to the Third Generation CPTED.

In the preparation phase of the program, it was important to learn from other European countries who have already developed CPTED strategies and adopted the CPTED principles to the European context. Two professional tours have been completed - one of them in the Netherlands and other one in Sweden. Eindhoven, where the **Dutch Institute for Technology, Safety & Security (DITTS)** is located, is one of the most innovative cities around the world. Many living labs are currently investigating CPTED principles. Their experimental attitude helps to invent and try out creative tools that can support environmental crime prevention methods. Participation and community engagement is also one of their key aspects in every project. **The Safer Sweden Foundation (Tryggare Sverige)** on the other hand is more strategy-oriented. Their approaches towards policy-making are exceptional. The Swedish National Crime Prevention Programme (SNCPP) prioritizes situational crime prevention that strengthens the CPTED principles. SNCPP has developed a toolkit that meets the holistic approach of today's urban planning standards and provides guidance for planning safe cities. Stockholm has many good examples and completed projects where safety was the initial organizing approach. (Szilágyi-Nagy, A 2019)

The Safecity program was based on four pillars (Szilágyi-Nagy, A 2019):

- **Conferences**, including three national and one international conference about CPTED. This pillar was important in order to establish a platform where different related professions could meet and share ideas and experiences. Altogether 390 people were attending the conference series, 50 experts from 20 different fields held presentations and several workshops were conducted to implant theories in practice.
- **A pilot project for settlements**, where the municipal sector could gain and share good practices about how CPTED can be implemented and incorporated in the governance. In Törökbálint, 75 active participants were engaged in three roundtable discussions, two workshops, a public hearing and a community action. As a result, Kálvária-domb (Calvary hill) was collaboratively renewed in the heart of the city centre of Törökbálint along with local actors and community members.
- **An experimental educational program for university students and young professionals**, where 37 university students and 9 university instructors from 4 different universities have been working together to learn about CPTED in a practical way. Young architects, urban planners, landscape architects and environmental psychologists have teamed up for one semester and had a design task to renew an urban open spaces located in the centre of Törökbálint. At the end of the semester, teams have proposed 22 different design concepts for the area that contained all the new knowledge learned about CPTED principles.
- **A collaboration with a high school dormitory**, where indoor and outdoor environments of the dorm have been collaboratively renewed with the students and the teachers in order to increase safety and security in and around the institute.

One of the highlights of the program was that the different professions had an opportunity to **initiate dialogs** about common issues. The importance of safety and security brought people together: policemen, teachers, educators, criminologists, psychologists, urban planners, architects and landscape

designers could make **meaningful connections** through the program. Synergies between the projects led to a coherent and strong outcome. An important results of the program was the establishment of a website (www.safecity.hu) that is today the only open resource of know-hows in CPTED in Hungary and is freely accessible nation-wide.

2.2.1. Site Selection

Formal educational environments like kindergartens, schools, nurseries, dormitories, etc. are controlled and limited in use. In Hungary, the open spaces of these educational facilities are regulated as institutional gardens which means that they are only open to the public for a limited time and use (Balogh, PI, Báthoryné Nagy, IR, Reith, A, Takácsné Zajacz, V, Teremy, V 2020). These spaces are primarily designed for the education and socialization of children and young people. In contrast with other formal educational institutions, **dormitories have a stronger focus on socialization** as it is not only an environment where children and young people study but it is also their living space. Students are residents and their daily life requires special attention to safety and security. That was the main reason why the Safecity program has selected a dormitory to investigate CPTED principles in relation to young people's environments. It is important to understand that however dormitories' educational program is also regulated by the Hungarian Authorities, it is still more **flexible and adjustable** than the educational program of regular Hungarian schools. Therefore, innovative and irregular ideas are more welcome in these educational institutes by the directorate.

Vécsey János Dormitory is located in the third district of Budapest, in a block housing neighbourhood, with a large private garden as it can be seen on *Figure 2*. The institute was established in 1939 and currently has almost 150 female high school students living there. Girls are between the age of 14 and 20. The dormitory is a 3-storey building with a ground floor area of 1,266 square meters. The size of the garden is 6,557 square meters which means that more than 40 square meters of green area is available per person.

Dormitories are between a big family and a micro-society. They behave and function in many ways similar to a bigger community. Due to the series of social situations and the joint activity, the dormitory life is extremely suitable for the **development of the personality**. The stage of the high school students' development can have a significant influence on the student's future quality of life. The size and staffing of the dormitory allows the teacher-student relationship to be direct and more partner-like. It is important that the activities in the dorm should support community building and personal development, and to build the right values and collaboration skills. Continuous communication with students, application of experiential pedagogical methods, motivation, feedback, creation of an open, honest, trusting atmosphere and implementation of meaningful programs and activities are necessary for the successful implementation of the educational program.

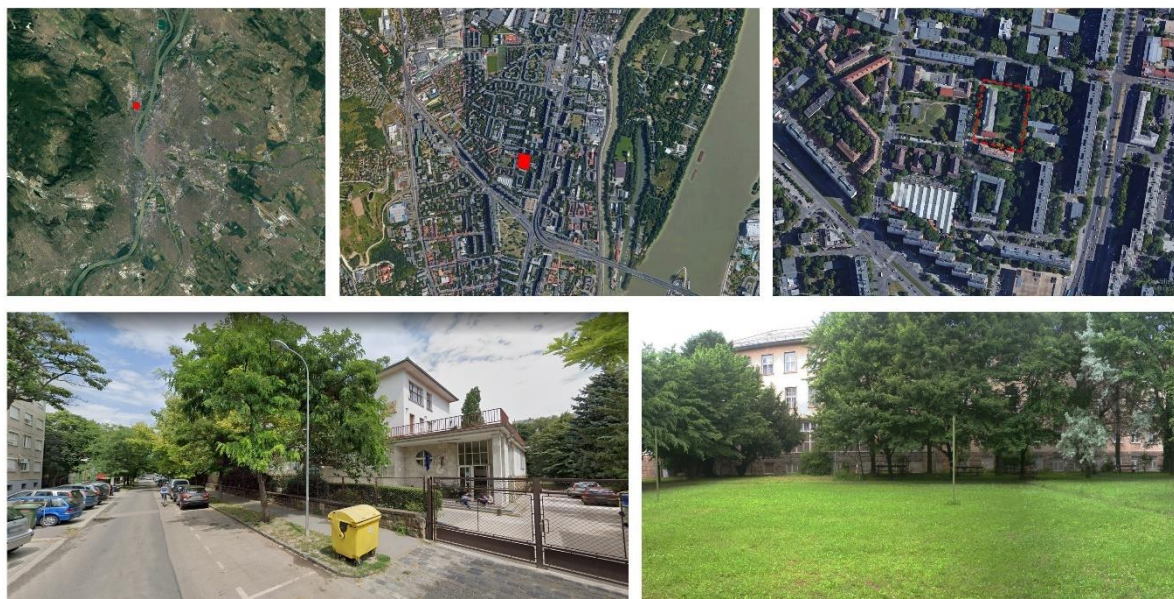


Fig. 2. Location and state of the Vécsey János Dormitory before the Safecity program in 2017

Source: Google Earth and Google Maps application, edited by Anita Reith, June 2020.

However, crime prevention appears as an important topic in the educational program of the dormitory, CPTED is not a method that is known by pedagogists in Hungary. The pilot project aimed to **develop a toolkit** for educational institutes and pedagogists which explores and practices crime prevention through environmental design.

As kultúrAktív Association was the leader of the pilot project, using **participatory and built environmental educational methodologies** were the basic elements of the project. Built environmental education aims to develop and use methods that help children and young people to explore, understand, and actively shape their environment and can be meaningful in participation as it improves civics and participatory skills and this is especially important in case of young people (Reicher, C, Edelhoff, S, Kataikko, P, Uttke, A 2013). However, engagement of young people was a priority in the project, it was important to work closely together with other stakeholders in the dorm like teachers, gardeners, cleaning women, doormen or the maintenance.

As a starting point, a **project team** was formed from the members of kultúrAktív Association (pedagogists and educators, architects and landscape architects, criminologists and psychologists) and from the community of the Vécsey János Dormitory (students and teachers). On six different occasions, from November, 2018 to February, 2019 the project team sought **connections between the dorm's environment and the CPTED principles**.

The project team held eleven events and activities for the community of the dormitory to test developed ideas for introducing CPTED and safety and security to youth. **Experiential educational tools** have been used in all the activities. Experiential education is a hands-on form of learning that begins with concrete experience and continues with reflection on the process to conclude the lessons learnt (Association for Experiential Education 2020, Gass, MA, Gillis, HL, Russell, KC 2012). The developed experiences that the youth could test out can be grouped in three: **exploring, understanding and actively shaping**. Reflection and observation were an important part of the process. It helped the participants to gain knowledge and the project team to develop further the tools and find the weak point of the activities. Feedbacks have been received from the students to understand the effect of the activity on them while teachers give their professional opinion on the pedagogical aspect of the tools.

During the spring term, from February to July in 2019 eleven events were organized in the dormitory with **almost 100 students and the full teacher board being engaged**. The collaboration with the dormitory lasted one and a half years and resulted **tangible and intangible outcomes**. With a participatory design process, three selected sites have been collaboratively renewed with the community of the dormitory. The chain of activities **contained observation and analysis, collaborative goal setting and visioning, and physical transformation** of two indoor and one outdoor spaces in order to improve the quality of the space not only in terms of safety but also the liveability and loveability. One year after the project closure an interview have been taken with the directorate of the dormitory in order to investigate the afterlife of the pilot project and to examine the impact on the dormitory's community and the physical environment (Reith, A 2020).

The intangible outcome of the project was a **methodological booklet for pedagogists** containing different tools on how safety and security and CPTED principles can be introduced for young people in formal educational institutions. The organized events were opportunities to test ideas and tools and to gain feedback from the participants. Based on the **collective evaluation**, the project team has improved the methodology and came up with a toolkit that contains twelve tools **that can be adopted by other educational institutions for youth**. (Reith, A, Szilágyi-Nagy, A, Zöldi, A 2019)

3. RESULTS

3.1. From Safer Spaces to more Liveable and Loveable Environments

The chain of the activities undertaken in the Vécsey János Dormitory manifested in some actual transformations in the dormitory's physical environment. However the project focused on changing the institution's physical environment, **the interventions also made an impact on the local community**. Below a small description is provided to highlight the main findings for each intervention paying special attention to how the actions initiated by the Safecity pilot project affected the liveability and the loveability of the dormitory's environment.

A common area called the **Green Corner** was selected by the students to be improved. The Green Corner is an expansion of the corridor on the second floor. Bedrooms are located on both sides of the corridor for the younger generation. The space was formed to be a study area as the bedrooms only have one or two desks that students have to share. Unfortunately the aging furniture and the rigid design was not welcoming at all for the students to hang out here. Most of the decoration were put out by the teachers and were not reflecting to the community at all.

The community of the dormitory have met several occasions to discuss and identify the weaknesses and the opportunities of the space. **Safety checklist, value mapping and card games** have been introduced to support the collaborative process. Through the participatory design process students mentioned the following priorities: *to create feeling of home, to provide more intimacy, to make the space multifunctional, not only limited to a studying area, to provide more comfortable furniture, to make decoration together, to use more colours in the space, and to create friendly and cosy feeling*.

It is important to highlight that only one afternoon was provided within the pilot project time frame for the physical transformation of the space. *Figure 3* clearly shows that the transformation of the space did not stop after the Safecity project. Furthermore, it is visible that the afterlife of the project was successful and resulted more changes in the space. These changes were **initiated and coordinated by the students** which is even more gratifying and promotes a **higher level of liveability**. Since the transformation of the space, the Green Corner is used actively by more students for more functions. (Reith, A 2020)



Fig. 3. Montage showing the transformation of the Green Corner. The first picture was taken before, the second one after the Safecity project activities. The bottom pictures were taken one year after the Safecity project in 2020.

Source: Anita Reith, June 2020.

Room 99 is a tiny common area that is located between the teachers' rooms and the bedrooms. It is the first room to be reached from the staircase on the first floor. The community of the dorm usually used the term "Joker Room" for it reflecting to the fact that it was used for many different functions. While most of the students did their ironing here, this was the room where the interviews have been held for the new applicants or sometimes this is where the teachers met with the parents. Crafting and tutoring did also happen often here. The room contained many unused things like a non-functioning television or old suitcases filled with old cameras. One student told a story about when she came to the building for the first time, she was directed to this room and left alone, asked to sit and wait. She was terrified, had no idea where to sit and because there was no clock in the room it felt like she have spent hours left there (Szilágyi-Nagy, A 2019).

The collective design methodology was the same here as in the previous example. Collaborative goal setting resulted in **simplifying the functions**, getting rid of the unused and unnecessary objects and **creating a welcoming, comfortable and well-functioning small area**. The physical transformation paired up with the change in the usage and new regulations about the space. Since the Safecity project, Room 99 has a more effective operation and students tend to spend here more time. (Reith, A 2020)



Fig. 4. Montage showing the transformation of Room 99. The top left picture shows the original state, the bottom right is the final state after the project. The other two pictures are showing the collective design process in between.

Source: Anita Reith, June 2020.

The third selected space to be developed was the **garden of the dormitory**. Traditional CPTED principles could apply here as the main suggestions from the students were to increase illumination, improve maintenance and to organize activities and that can give life to the garden. Although the size of the garden could give a lot of opportunities for activities events (sport and other group activities, grill and outdoor learning or to hold official events), unfortunately almost none of the students are using it regularly. The garden would have the great opportunity to serve the need for going away and being alone, but no comfort is provided.

One of the activity held by the Safecity project was an **art competition** with the title of “What does Vécsey mean to you?”. In three different categories (poem, drawing or painting, photo and video) students could hand in creations. The project team and the board of the teachers together evaluated and ranked the students’ works. The winners of the categories received material gifts and the best artwork got the opportunity to be painted on the back wall of the garden. On the event of the **collaborative painting** students and teachers have painted together with the leading of a professional graffiti artist (Szilágyi-Nagy, A 2019).



Fig. 5. Montage showing collective painting in the garden of the Vécsey János Dormitory.

Source: Anita Reith, June 2020.

Post evaluation and the interview with the directorate of the Vécsey János Dormitory showed that not only the transformations initiated by the Safecity project have continued but new projects started with the same attitude to shape the environment of the dorm collaboratively. Students appeared to be more active and positive about their living space. The community of the dorm have **raised new issues and challenges** related to the liveability and the loveability of the dorm's environment like establishing a new yoga corner, or organizing a better maintenance of the bathrooms by the students themselves. Students and teachers also became more **proactive and sensitive towards recognizing their roles and responsibilities** in the living space. Young people of the dorm's community appear to be more keen on **self-organization and collective decision-making**. The director of the dormitory emphasized that the attitude towards renovation and transformation of the environment have been shifted **from problem-based to solution-based**. (Reith, A 2020)

3.2. Adaptability of the Case Study

Application of the developed tools and methods not only in other high school dormitories but also in other educational institutes was a challenge and a desired goal since Safecity program have aimed to popularize CPTED principles in a wide horizon. From the beginning of the project adaptability was an important driving motivation for the project team and therefore the current circumstances of the Hungarian educational system were taken into serious consideration. It was important to provide tools and methods that can be used in a 45-minutes time frame in a simple classroom. **Diversity** was also a key element in the preparation phase in terms of **topics, developed skills, crime prevention aspects, time frame, and the scope of the exercises**. Number of participants and the suggested age group can also vary based on the tool. While some methods fit better to higher grades, others are more interesting for younger age groups.

Due to the above mentioned reasons, the proposed tools and methods not only show how CPTED can be realized in educational environments but also strongly incorporate the **pedagogical point of view**. The methodological booklet released mentions for each tool what skills and knowledge can be gained in young people through the method. The developed toolkit can be separated into three groups based on the phasing of the implementation: exploring, understanding and actively shaping the environment. *Table 1* shows the invented tools and methods as the main result of the pilot project:

Name of the tool	Methodology	Suggested phase	Crime prevention aspect / Developed skills	Scope
Urban Heroes	Getting to know the neighbourhood and create bonding through an exploration game.	Exploring	Gaining local knowledge and attachment to the place	Neighbourhood of the institute
Comfort-zone	Moderator tells activities in private and public spaces. Students move around a circle on the floor that illustrates the comfort zone based on their feelings.	Exploring	Understanding the subjectivity of comfort and the general regulations in space usage. Sensitization by expressing security feelings to each other.	Wider urban environment
Phantom Spaces	Modifying well-know spaces in order to mystify the senses and orientation. Building a track of obstacle and testing courage.	Exploring	Understanding the correlation between security and the quality of the space.	Outdoor and indoor environments of the institute
Tape -test	Installation with tapes. Put out new rules in the space and observe how the community reacts on it.	Exploring	Testing new rules and regulations in the space.	Common areas of the institute
Sculpture Park	Drama pedagogy - students express terms by making living statues.	Understanding	Understanding and discussing general terms like safety, feeling insecure, trust, or control.	Class room or smaller groups of the institute
Me and We	Art competition for students to express how they feel about the community and to build a common vision about the institute. Selected works to be exhibited.	Understanding	Building collective awareness and identity. Developing sense of belonging, ownership and responsibility.	The whole community of the institution

Escape Route	Comparing real safety data and students' mental maps about the neighbourhood.	Understanding	Understanding the difference between the objective safety and the subjective feeling of security	Neighbourhood of the institute
Guilty City	Situational drama in a public open space close to the institute. Student develop a story of a crime and they tape it.	Understanding	Understanding how the quality of the environment effect (attracts or repels) crime.	Neighbourhood of the institute
Value Mapping	Subjective mapping with the community of the institute by using a toolkit developed.	Actively shaping	Collective space analysis from the crime prevention point of view.	Outdoor and indoor environments of the institute
What do you think?	Walking exercise with using a developed checklist for evaluating the space.	Actively shaping	Collective space evaluation from the crime prevention point of view.	Outdoor and indoor environments of the institute
Redesigning	Students make design proposals through playing a card game. Game includes small interventions to make safer and more liveable and loveable spaces.	Actively shaping	To propose CPTED tools for certain spaces and use the principles in practice.	Outdoor and indoor environments of the institute
Step by Step	Designing the implementation of the design. To develop a list of duties, divide roles and responsibilities and make a budget.	Actively shaping	Understanding the steps of implementation and thinking about the maintenance. Forming a project team to solve a problem.	Outdoor and indoor environments of the institute

Table 1. The introduction of the developed toolkit from the methodological booklet produced by the Safecity project team

Source: Based on Reith, A, Szilágyi-Nagy, A, Zöldi, A 2019, Methodological booklet for pedagogists edited by Anita Reith and Anna Szilágyi-Nagy, June 2020

As it can be seen half of the tools are targeting the environment of the institute, while the other half is focused more on the **neighbourhood and the surrounding urban environment**. This gives a message that not only what is inside the territory of the institute happens, but it is also crucial to take a look at the surroundings of the educational institute. Student reach the institute on foot or use public transportation. They meet in front, on the street and they usually smoke the first cigarettes behind the school yard. Educational environments are important nodes of the urban fabric and the connections to the outside needs to be designed as well.

Based on the phasing of the activities the project team have developed tools for exploring, understanding and actively shaping the environment. For the **exploring exercises** excitement, unusual

games, observation and spatial perception were the key words. For **understanding issues related to safety and security** the project team focused on critical thinking, subjectivity and perspective taking, and creative arts, drama, and filming. For **actively shaping the environment** the main principles were communication, community building, democratic decision-making and realization.

4. DISCUSSION

4.1. Crime Prevention Through Environmental Design in Dormitories

In the beginning of the process, a priority list of goals and principles have been developed by the project team. This priority list focuses on how safety and security and the CPTED principles should appear in the educational program of the dormitory. These components have been applied in the presented case study project. The components are the following:

1. The **cohesive community** applies in all directives. In the case of the dormitory, we consider community building to be the most important process, so the goal is to create a program that **strengthens the identity and builds community** in the dormitory.
2. Media and parents have a great influence on what young people fear. It is important to work with situations that are relevant to the students. The **subjective sense of security** must be addressed by all means.
3. We get a more cohesive community through **common experiences** and joint actions. It is important for young people to **recognize their own role** in the community. Therefore, we would like to focus on increasing the knowledge in the students about the operation and management, and the different actors of the institute in order to see it as a system.
4. As a goal, the project will support students to **recognize how they can have an impact on shaping their own environment**, making it safer with simple suggestions. Realization of the design will be an important portion of the project.
5. The goal is to develop and test as many **interactive tools** as possible. These should be exciting but feasible to ensure that the developed methods can be replicated by any other educational institutions.
6. CPTED can be relatively easily incorporated into the educational program of the dorm, however, the goal is to develop **a series of programs that can be adopted by secondary schools as well**.

In order to have a deeper understanding of how CPTED principles can be present and incorporated in this specific situation, the project team have analysed the key elements of CPTED principles to explore the relationships with the dormitory's environment. For demonstrating the key element of CPTED the project team used **the CPTED wheel developed by the Safer Sweden Foundation**. This tool divides crime prevention through environmental design principles in nine different areas: **mix of people, mix of function, maintenance, lighting, good design, the look of the building, information and communication, social control, and fences and edges**. The advantage of the Swedish CPTED wheel is that the principles are adopted to the European context and are easy to understand while keeping the complexity of the topic. The wheel is without a hierarchy which was important to the team they wanted to understand the accents and establish a hierarchy between the principles typically relevant for dormitory environments. *Table 2* contains the main findings of the comparison:

Principle	Meaning in the dormitory	Areas to develop	Relevance and importance in dormitories
Mix of people	Separation and integration of student and teacher spaces; Visitors; Summer usage of the facility	Development of common areas; Possibilities for opening up the building for outsiders; Clear regulations for who and when can enter and what can use in order to decrease conflicts	+
Mix of functions	Multifunctional spaces with clear rules; Better illumination for night use; Summer usage of the facility	Development of common areas to fit to flexible usage; Extending the usage in time and type; Clear functions and rules to conduct the functions in order to decrease conflicts	+
Maintenance	Proper maintenance; Engaging the whole community in the maintenance of the facility; Build a sense of ownership and responsibility	Develop neglected areas; Understanding the roles and the process of maintenance; Community building	+++
Lighting and transparency	Increase visibility to see and to be seen; Increase sense of security	Development of night use; Increasing transparency while keeping intimate nooks	++
Good design	Creating safer, liveable and loveable space; Youth engagement in the design process; Better connection with the surroundings of the facility	Underused spaces to be involved in the usage and unused facilities to be used again or to be removed; Collective decision making about the dorm's environment	++
The look of the building	Strengthening the identity of the building; Good image for outsiders	Strengthening the local identity; Finding the genius loci; Community building	++
Information and communication	Clear rules and regulations for the local community and for visitors; Good and diverse communication between the teachers and the students	Increase communication channels; Clear rules and regulations; Clear decision-making and communication processes	+++
Social control	Enhance collective consciousness; Build sense of belonging and increase attachment to the place and to the community	Community building; Sense of ownership and responsibility for the space; Common areas to have responsible owners and rules; Balance between reporting deviant behaviour and having a coherent and protective community	+++

Fences and edges	Special attention to gates and the reception area; Clear territorial boundaries and separation between functions; Clear regulations for ownership relationships	Development of the reception area; Opening up towards the street while keeping privacy; Clear boundaries inside and outside the building	+++
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Table 2. The relevance of CPTED principle in the environment of the dormitory

Source: Anita Reith and Anna Szilágyi-Nagy, June 2020.

Ownership issues appeared to be a particularly interesting topic in the dormitory. As the student live together in multi-bed rooms where four to eight girls share the space, intimacy is usually limited to their own beds. It can be said that integration of people and functions (mixed people and mixed functions) are already givens. The desired task in dormitories not to increase diversity of usage and users but to simplify functions and place good rules in order to decrease conflict in the shares spaces. That is the reason why CPTED principles related to **territorial boundaries and proper separation between functions** (fences and edges) are highlights of how crime prevention can be applied in dormitories.

However transparency is considered to be one of the most important CPTED principles, students claimed that they need more privacy as intimacy is a rare but highly appreciated value in the dormitory. Of course, teachers would not like students to hide away but they also supported the idea to have a little separation as they understand the need of **intimacy and privacy**.

In all educational environments **rules and communication** have a high importance. The decision-making and operating process should be very clear to all stakeholders in the dorm. Not only establishing good rules are necessary but also the clear communication of them is essential. Smooth and consistent information flow can be a key to solving problems and building a better functioning community.

Maintenance is a key element in dormitories as well. It is crucial for young people to understand see through the system of how the management of the building and its surrounding works. Building a sense of ownership and belonging and strengthening the responsibility for the place can not only help collective maintenance but also increase social control. However, it is also important to mention that in such communities social control is a controversial issue. **Balance needs to be found between reporting deviant behaviour and having a coherent and protective community**. Enhance collective consciousness and community building combined with good rules and consistent direction by the teachers' board can support both.

Despite the fact that the entrance areas and the connected streets of the institute are considered to be heavily used areas that belong closely together with the inside space in the minds of the dorm's community, in most of the cases educational institutes in Hungary are only designed from fence to fence and therefore the connection with the outside areas is not developed well. Gates and entrances are not only important connecting points with the neighbourhood but also important junctions of rules and regulations. **Better connection with the outside surroundings** appeared to be an important principle in order to strengthen the relationship with the local community.

4.2. Challenges and Limitations of the Case Study

Each educational institution faces **different challenges and unique problems** even in the field of crime prevention. The composition of the students is not only different in terms of age groups, but also students come from different social background and with various interests. The physical characteristics of the educational institute is also diverse in terms of the location and the size of the site, the neighbourhood context, the design of the facilities or quality of the green spaces around the

building. Besides the physical, the immaterial resources of the institute are also special to the institute, like the educational and crime prevention program, the social cohesion of the community, the quality of relationships and so on. As CPTED is a method that is **strongly connected to the local circumstances**, it was very important to develop tools that have the flexibility to be adapted for many different situations. Of course, this approach resulted some limitations and challenges to the project.

As dormitories are special formal educational institutes that cannot be handled together with regular high schools, it was important to understand why they are different and what are the common aspects with other educational institutes. However, for the first sight it looked like dormitories can adopt wider range of tools in their educational program, than regular high schools, it turned out that this is only half true. As student arrive to the dormitory after the school when they are already overwhelmed with studying it is much harder to motivate them for further learning. That is the reason why traditional learning methods almost never work here effectively and that was the reason why experiential education so **learning through experience** was the only educational methodology that was suggested and supported by the teachers' board. Throughout the project, the project team also experienced that motivating the student to participate in the programs were sometimes very challenging. The educational program of the dormitory was already very dense but with the Safecity project it became overloaded. An important lesson learned was **more time for the preparation** on how the Safecity project could fit into the dormitory's program could have increased the effectiveness of the program in terms of the numbers of students being engaged in the process. **Motivating young people** to join the events was an extremely important task for the local teachers even through the students enjoyed the activities and workshops very much based on their feedback.

These findings resonate with the feedback of the directorate and dormitory's community. The main criticism was the **limited time frame** of the project and that the **scheduling was too fast and too intensive**. Organic transformations need more time. The teachers' board mentioned that the afterlife of the project was much better because they could spend more time on the preparation of the transformations and the implementations. There was more time to adapt and therefore more students were engaged throughout the process. It is important to **maintain these projects for longer time** in order to integrate well the principles into the community (Reith, A 2020). The maintenance of such projects is critical in a formal education institute as the local community is continuously changing. Many key participants left the dormitory the same year when the project finished. Fortunately, the ones who have stayed were very enthusiastic and lot of new students joined the new initiatives. As Gábor Reith, the director of the Vécsey János Dormitory mentioned, it is not necessarily a leader that needs to be named can continue maintaining the project – it is much better when a **critical mass** of the local community is formed who bring the approach onward (Reith, A 2020). Of course, teachers play a critical role in supporting new initiatives or this critical mass.

Result might differ in other educational institutes therefore it is a need to test the developed methods for other contexts. Being sensitive to the local situations and the local community is an important lesson learnt of the Safecity project case study.

4.3. Contribution to Liveable and Loveable Cities

Urban safety and security are complex, **context-sensitive** issues. In some circumstances one CPTED tool does not apply, while another works well. However, transparency and creating great open spaces is usually a good tool for crime prevention, it can also cause sense of detachment from places and weaken the sense of feeling home. While graffiti on the wall are usually signs of bad maintenance, a graffiti that was designed and implemented by the local community can be an important way of community building and creating sense of ownership. It is important to understand that **CPTED tools can not only increase safety and security, but they also affect the liveability and the loveability of the environment**.

Finding balance between creating safer environment while still increasing the quality of life and sense of place attachment is a great challenge. Providing a model for dormitory environments helped the project team to understand an example on how **CPTED tools can change relevance** in different situations. As Mateja Mihinjac and Gregory Saville suggest for the 3rd Generational CPTED, safety

and security should not be isolated from other important aspects of a liveability and loveability. Rather it needs to be **integrated in a holistic design approach** where CPTED is equally important to other principles. Designers and urban planners should use CPTED tools consciously along with many others in a process where liveability and loveability is the ultimate goal and the prevention of crime is a side effect.

Landscape architecture generally has a multi-disciplinary approach and an exceptional sensitivity to the local circumstances. It can be mentioned that even before the Safecity project there were good examples on how public urban space renewals can incorporate CPTED principles in a holistic way. On the one hand we can mention **traditional good designs** that perform with sensitivity to safety and security (Bikás Park, XI. District, Budapest) or there are projects with **strong participatory focus** to build local identity that can result safer environments (Teleki Square, VIII. District, Budapest). However, some good examples show that landscape architects and urban planners already use CPTED unconsciously, it is important to popularize CPTED tools and methods not only in architectural professions but in many others. CPTED requires a **multi-professional collaboration** where many points of views are shared and incorporated.

Creating good rules are critical not only for safer educational environments but also for liveable and loveable cities. In the Safecity project for the Vécsey János Dormitory, it was important to not only improve the quality of the physical space but also to build a community that can **look after the space and continue the work in the long-term**. The Third Generation CPTED mentions **public health and sustainability** as the key elements of the process and the Safecity project followed the same guidelines. Educational environments have a special role in the urban environment. They are important elements of the urban ecology as they shape the perception of the future generation about the environment.

5. CONCLUSIONS

Safecity project case study is used to exemplify how CPTED can be promoted for young people. Young people not only capable of understanding complex urban issues like crime prevention but also can contribute to create more liveable and loveable environments. Their involvement can offer fresh and innovative ideas in a designing process.

While the model aimed to create safer spaces, the collaborative transformations in the dormitory ended up increasing the overall liveability and loveability of the environments. The Safecity - Safety. City. Community program went beyond and above the expectations of the leader team. It was a great step but only the first one towards creating safer and more liveable and lovable urban environments in Hungary. As the 3rd Generational CPTED suggests safety and security should be integrated in a holistic design approach. Finding the balance between safety and security and liveability and loveability is a crucial thing. However, there is not one recipe for it because situation can vary based on the physical and social circumstances. The local community should always be considered as a key factor to achieve success in long-term.

Understanding that everyone has a role in crime prevention and that each member of the community - including young people - can contribute to create safer and more liveable and loveable environments is an important message of this paper. Young people are the future dwellers of the city which means that it is an extremely important task to make sure that they can recognize and understand values and problems in the city like safety and security of liveability and loveability.

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