

## EXPLORING UNIVERSITY CAMPUSES AS URBAN DEVELOPMENT BOOSTERS AND DESIGN FLAGSHIPS IN URBAN LANDSCAPES

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**Abstract:** University campuses significantly influence functioning and development of urban landscapes and their quality also affects the quality of surrounding environment. This paper presents not only the issues and dimensions of university campuses, analyses of various approaches to their understanding, but also the methodology of their further study – the methodology of multi-criteria evaluation of the quality of university campuses and their potential, with respect to their future development. The study also focuses on the interpretation of the results from measurements of specific university campuses across Austria as representatives of different perspectives on the overall form of university complexes. The results reveal a comparison between the chosen Austrian campuses and the selected campus within the Slovak Republic.

**Keywords:** green infrastructure, urban development, urban landscapes, sustainability, multi-criteria evaluation, university campus, public space, design

### 1 Introduction

At present, the issue of the quality of public spaces is dealt with by a wide spectrum of the architectural community, which responds to the suggestions of local governments. In an effort to improve the current situation and due to the topicality of the subject, as well as the lack of regulations, unconceptual approaches, inconsistency and unprofessionalism, various manuals and initiatives are conceived to eliminate these negative attributes but also other aspects of "invisibility" of shortcomings in the design process of both public or semi-public spaces (Lukačovič et al., 2016). Due to their hierarchization of individual buildings, university campuses create networks of spaces with a public or semi-public character, which, along with their appearance, quality and overall visual identity, significantly affect the surrounding environment. The publicly accessible area attains a much higher level of justification in the city if it complies with the structure of the city in terms of composition and urban planning and contributes to its (cultural) enrichment (Melková, 2014). As part of the European concept of university campuses, university campuses were designed as satellites of cities close to urban structures in the 1960s and 1980s, and their immediate surroundings were gradually densified by gradual urbanization. Today, they form significant, multi-layered cultivated objects (Čibík et al., 2020) in city centers and significantly influence their operation, but also spatial, social, economic, health or visual functions (Čibík and Štěpánková, 2019). The areas are open, interconnected with the surroundings and not only are they specific and complementary types of public spaces, but they offer their space at various levels, to everyone (Sidorova et al., 2017). Defining the nature of a public space should be a primary consideration for both the designer and the client. It predetermines the direction and the overall form of a specific space and thus commits all co-creators to fulfill a clearly defined goal (Melková, 2014).

The presented research evaluates, assesses, maps and analyzes the quality and appearance of the current state of selected university campuses and describes their relationship and connection to urban structures. Within the analysis stage of the research we apply several processes that are accompanied by polyvalence. One of these processes is subjective criticism based on various evaluation criteria, but other factors also enter into the evaluation process (Moravčíková, 2013). The focus of the research is the correct form, processing and conceptual setting of university campuses. Conceptual thinking is fundamental not only for development of a plan for a constructed environment, but even more so to understand future opportunities and threats. In this respect, perhaps even more than in the past, the creative process has become a process of exploration, research of new

spatial possibilities, and examination of new methodological approaches (Rosemann, 2008). The "Research by design" method, based on such conceptual thinking – thinking by the means of design, mediates various aspects, the result of which precedes the design process, i.e. by verifying the methodology in practice. The subject of previous research has been the elaboration of a suitable methodology for measuring this quality, implementing the methodology tools into practice and carrying out measurements on various types of university campuses. The methodology tries to grasp all static and relatively constant elements of quality (Gehl, 2012) of university campuses (possibility of movement, residence, accessibility, safety, facilities, human criteria and quality perceived by different senses). The methodology consists of several attributes within four areas. Each attribute is accompanied by a detailed description, the purpose of which is to eliminate various discrepancies from the results (Kilnarová et al., 2014), as the evaluation is based on the subjective perception of space (Čibík and Štěpánková, 2019). Therefore, the characteristics of individual criteria within the methodology are simply, clearly and unambiguously formulated. The paper also focuses on the interpretation of results from measurements of selected university campuses within the European cities of Austria (Vienna, Graz, Linz) and Slovakia (Nitra), through the methodology of multi-criteria evaluation of university campuses and their potential. The research took place within the framework of a bilateral program to support cooperation between Austria and Slovakia in the field of higher education, science and research – Action Austria - Slovakia Research Scholarship 2019-2020 at the Technical University of Vienna.

### 2 Theoretical departures

The presented article thematically focuses on the issue of university campuses, as well as the search for their interconnection with urban structures with the intention of preserving the idea of a sustainable multifunctional part of the urbanized space. Blue and green infrastructure (Tóth et al., 2015) in cities is connected to a network of green objects that fill the gaps between existing green elements and the wider landscape that surrounds the city (Benedict and McMahon, 2006). University campuses with public spaces are places where these connections appear regularly. This poses as an added value to the city, in this case regardless of whether the campus is located within the city or the suburbs (Čibík et al., 2020). For the purpose of understanding these connections, it is necessary to describe the individual attributes that form this relationship in detail. The literature review describes the issue of the terms campus and university campus as well as the dimensions of urban spaces. It focuses mainly on approaches to the creation of university campuses and their typology, classification into various concepts and also describes the historical development of university complexes in the context of urban structures.

#### 2.1 Definition of campus and university campus

Campus – a complex consisting of a set of buildings with a common denominator, such as property ownership (an administrative block). Recently, the term campus also appears in connection with the naming of non-school (especially corporate) areas (Šaling et al., 2008). However, this term still predominantly refers to a grouping of buildings belonging to a university, where the common denominator is the university – the rectorate (main building), faculties, dormitories, lecture halls and auditoriums, libraries, laboratories and other buildings, such as administrative buildings. The university campus also consists of recreational areas, parks, water features, gardens and other academic and non-academic facilities. The area of such campus can reach several tens of hectares. It is essential that the campus consists of a network of spaces that support the student community (Johnson, 2012) and strengthen the relationships within it (Winks et al., 2020).

## 2.2 Concepts of university campuses by Šaling et al. (2008), later more developed by Čibik et al. (2020)

- The American concept is represented by a continuous, compact campus, located in the suburbs or outside the city, with the character of an urban satellite and a tendency to gradually expand the campus away from the city center level, often conditioning the urbanization of city structures by building facilities for students.
- The European concept is represented by a set of buildings located in an urban, pre-existing development or a park. These tend to be university-owned buildings dispersed within the city in a disorganized manner, with vaguely defined boundaries of the campus. These are various faculties, libraries, dormitories, workplaces and others.
- The combined concept is a merger of the two above-mentioned concepts, where compact areas are created in the city center or its immediate vicinity. They are often open and connected to urban structures, often characterized as public or semi-public space. Such university campus is mostly the result of gradual urbanization in the proximity of the original satellite university campus (Čibik et al., 2020). Some concepts describe the campus as an irregular or regular formation. According to Irvin (2007), a campus is irregular if its structures are closer in character to a park - an open green area and regular if, on the contrary, it possesses the character of urban development.

## 2.3 Role of university campuses in urban landscapes

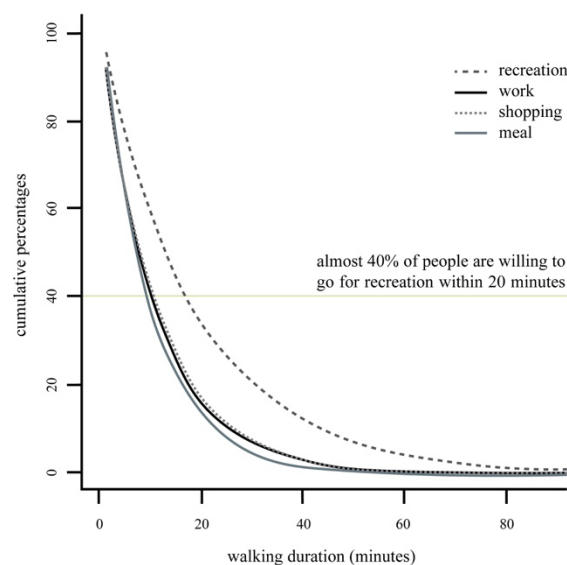
Higher education and continuously increasing job opportunities in the labor market are drawing young people to study at universities. University campuses are a consequence of the gradual expansion of universities. The influx of new students was so substantial that the spatial capacity of historic buildings in city centers simply did not suffice and the system of university buildings changed significantly, especially in the 50s and 80s of the 20th century. The term university campus is derived from the Latin term "campus" which in translation means "field" or "plain". This leads us to a deduction of how the university campuses were once conceived (in the field behind the city) and what is behind their name. Sprawling complexes became urban satellites and were the first institutions to provide education for all social classes in addition to traditional universities for the exclusive private education sector (Glare, 1982). If the individual capacities of the universities still proved insufficient, the free space around them allowed them to expand. With their own urbanization, they have often conditioned the urbanization of the city itself, and together with boarding schools and new faculties, they paved the way to creation of new housing estates for families with children, parks, schools, kindergartens and other services or institutions. University campuses have been an important part of human culture for centuries. In cities, they are often conceived on their borders, where they form a separate unit. At their borders, they create their own ecosystem and their impact on functioning, sustainability, green and blue infrastructure, and the overall appearance of the city is smaller compared to university campuses that are located in urbanized city structures, where they play their role more prominently. A university campus located in the center of urban structures and not on their edge has a greater impact, whether positive or negative, on the functioning, appearance and functions of the city than the university campus which is located on its borders. The university campus situated on the very edge of the resident area can also significantly influence the operation of the city, provided that its quality, size or importance (urban, regional, national) does not lag behind or excels over other services and premises within the city. These are predominantly university cities of usually smaller size, also known as "college cities" within North America.

## 2.4 University campus as a public space

The name "University Campus" in itself characterizes who its premises are intended for. People perceive the premises of the university campus, but often feel reluctant to spending time in it.

They assume that the campus is private, that it belongs to the university and not to everyone, and they do not feel comfortable entering it. Although the boundaries of the university campus must be clearly defined, it is better if they are made up of buildings and open spaces, such as walls or a fence. Within the character of the surrounding development, there is a discussion about semi-public or semi-private space, but as a final result it is always a collective space that should guarantee comfortable use for all groups of the population, regardless of age, social or cultural background and regardless of handicap (Lukačovič et al., 2016). According to Fassi et al. (2016), in addition to education, the campus also fulfills the function of a public space. The diversity of the university's premises represents the possibility of variant use of the campus through several functions. This space can also be used for various activities, such as recreational and relaxation activities. Thanks to its sports grounds, green areas, libraries, cultural spaces and concert halls, the university campus is a place of activities that are intended not only for students and staff of the university, but also for the majority of the city and region. According to graph 1 we can clearly say, that people are willing to go for recreation and the campus in the city center can be a good opportunity how to secure it. The campus can be seen as an example of how this dialogue can develop by bringing the public and the academia together. This is especially true for campuses in smaller cities, as metropolitan institutions (Bender, 1998) often face serious security concerns. On the contrary, school premises in small towns tend to be public, open and attractive and are destined to become typical urban spaces. University campuses can be characterized as public spaces if they fulfill their requirements, especially openness and accessibility (Čibik et al., 2020).

Graph 1: In July 2012, a study was published in the American Journal of Preventive Medicine, elaborated by the Center for Social Epidemiology and Population Health, which maps and evaluates people's walking distances. The graph presents a comparison of the percentage of people with the time they are willing to travel on foot due to activities such as recreation, work, shopping and eating.



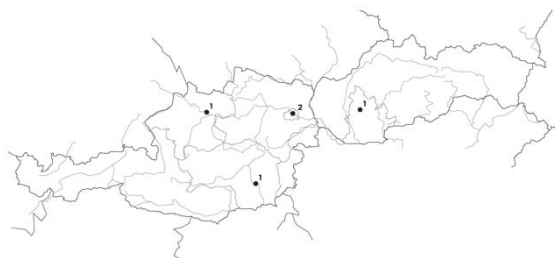
Source: Yang and Diez-Roux (2012), vectorized by authors.

## 3 Research background, materials and methodology

The aim of the presented research was to map the different approaches of Austrian cities to the design of university campuses, to evaluate them through various analyzes and their own methodology, and to process the results of these evaluations. As part of the research, a working database of university campuses was created, referred to as urban university campuses. For the needs of this research, the three largest Austrian cities were selected – Vienna (Vienna), Graz (Styria)

and Linz (Upper Austria). The university campuses of the University of Graz, Johannes Kepler University in Linz – JKU, the University of Vienna and the Vienna University of Economics and Business were selected for the evaluation. These spaces have been selected with regard to their focus, functioning, size and location, in order to ensure sufficient diversity while maintaining the relevance of the examples in the Central European context. The results of all measurements were subsequently compared with the results from the university campus of the Slovak University of Agriculture, where long-term research is underway.

Figure 1: For the needs of this research, campuses of the three largest Austrian cities were selected (Vienna – 2 campuses, Graz, Linz) and one campus located in Nitra, Slovakia.



Source: Čibík and Štěpánková (2020), vectorized by authors.

### 3.1 Research phases

- The preparatory phase: The aim of the preparatory phase was to locate and collect information from the professional literature and related documents in order to obtain the necessary theoretical perspective and orientation in the researched issues. During the data processing, consultations and discussions took place with several experts in the field of urban planning and the concept of public spaces in the form of personal meetings. After expanding the knowledge pool, the research goals were defined in the preparatory phase. The acquired theoretical knowledge accompanied the preparation of the methodology of multicriteria evaluation of university campuses and their potential. Subsequently, university campuses that meet the characteristics of the European or combined concept of university campuses and are similar in their features were selected (see chapter concepts of university campuses).
- The preparatory phase before obtaining results: During this phase it was necessary to locate the universities that were included in the work database within the city and study the available information about the university campus: area, campus plan with description of individual buildings, number of students, number of employees and others. In the case of the university campus, which was larger in size, the discussed area was divided into smaller working areas.
- The phase of obtaining results: Within this phase, selected university campuses were assessed on the basis of the methodology of multicriteria evaluation of university campuses and their potential. The evaluation was based on qualitative research methods, in particular semi-standardized and non-standardized observations and in-depth interviews, the main advantage of which is that they provide much more detailed information than data obtained through other collection methods, such as surveys. In addition to the evaluation through the methodology, the process of obtaining results also includes numerous visits to the area, photographs of the area including individual buildings, and in-depth interviews outside the evaluation with users of the area.

#### The procedures for preparation of results

- Description of the university campus: Basic data and other important information about the university campus, which

accompanies and informs the reader when reading the evaluation of the object. In addition to the data about the authors of the building, the exact address, the parcel number and the date of construction, other data (additional information) that the author collected are also provided. It is also recommended to add information on property relations, type of area and number of units (eg buildings, vegetation).

- Location of the university campus: Graphical representation of the location of the university campus within the city also represents a significant part of the evaluation process, as it brings the reader closer to the evaluation of the type of university campus. According to the typology of university campuses, we distinguish 3 concepts of different approaches to the creation of university campuses (see chapter concepts of university campuses). The graphic also demonstrates the urban structure in the immediate vicinity of the university campus.
- Structure of the architecture and plan of the university campus: A structure that graphically presents the layout of the buildings of the university campus, its inter-pavilion spaces and the overall layout. A map or orientation plan of the university campus with color-coded types of buildings within the campus, location of services, parking lots and other objects of the university.
- The data and information processing phase: Each space was evaluated according to an identical structure on the basis of information obtained by qualitative research methods. In the conclusion, an evaluation scheme was created for each space to help visualize and compare the obtained information. Graphs and other graphic materials describe the current state of the evaluated university campuses in detail and serve as a more detailed interpretation of individual attributes. The obtained data was evaluated on the basis of indicator sets within the evaluation scheme, which enables visual and parametric comparison of individual projects. The provided methodology is sufficient for the needs of evaluation research. The objectification of the obtained results was ensured by a quantitative survey, which includes multicriteria evaluation.

### 3.2 Methodology background

The methodology was developed on the basis of two published practice-verified methodologies. One of them is the publication of the city of Hlohovec, which was elaborated within the scope of strategic policy of the city - "Concept of public spaces in Hlohovec" (Lukačovič et al., 2016). The methodology of public space evaluation was created during the "workshop" led by architect Adam Lukačovič. The second publication is "Methodology for assessing the quality of squares" (Kilnarová et al., 2014). Both methods of evaluating public spaces are based on the methodology of public spaces by Gehl (2013). The methodology of the Danish architect Jan Gehl (2002) is based on three stages: first life, then space and then buildings. This thought process in the stage of the creation of public spaces would ensure the highest standard in the issue of urban development (Salerno, 2011). Both methodologies were elaborated into one comprehensive methodology of evaluation of university campuses, while the hierarchization, division and naming of some of the attributes were altered. Subsequently, it was supplemented with attributes that directly affect the issue of university campuses as well as the needs of its users (student, employee). The basic question that the methodology addresses is how an ideal university campus should look like and how to characterize the criteria that indicate its quality.

### 3.3 Methodology of multi-criteria evaluation of the quality of university campuses and their potential

The multicriteria evaluation of quality requires the presence of a person or group of people who are guided directly in the area. It is based on one's own impressions and experiences, so the evaluation may be subjectively influenced to some extent. It

includes a detailed manual, which aims to eliminate discrepancies in the results of the analysis processed by different persons. In an effort to maintain the possibility of evaluation even for the general public, the criteria were formulated in a way that makes them as clear as possible. The advantage is that due to the time-saving and uniform nature of the results, it is possible to easily compare individual university campuses (Kilnarová et al., 2014). From the point of view of achieving objective and comparable results, it is recommended to perform the analysis of university campuses in favorable weather. Means fine, clear settled weather when the visibility is good.

#### **Evaluation areas (4) with a description of individual attributes (20, each area contains 5 attributes)**

**A – Area (space around a person)** - Within the character of the area, there are discussions whether the space is referred to as public or private, but as a result it is always identified as a collective space, which should guarantee comfortable use for all groups of users.

1. Space for education and information acquisition – Library, cafés, study rooms, studios or similar social spaces, where the student can work (independently or in a group) on assignments and projects or acquire knowledge within a collective.
2. Space for sleep and rest – Hostels, accommodation, student dormitories, student flats, lofts or other accommodation facilities for students and external staff, providing comfortable rest and sleep.
3. Space for meeting, culture and sports – Common rooms, club rooms, television rooms, spaces for leisure activities, music, theater ensembles. Sports grounds, playgrounds, grassy areas with maintained grassland, multifunctional areas.
4. Space for deepening the socio-economic dimension – Cafés, restaurants, music clubs, disco clubs, bars. Essentially, all the attributes that we could showcase in category 3, but unlike them, these also account for profit.
5. Space for food and beverage consumption – Dormitory canteen, fast food, restaurants, brunches, buffets, stalls, but also fireplaces and barbecue gazebos with open fire for grilling.

**B – Area (dynamic and static movement)** - People transport within the city for essential activities, such as work, shopping, services, leisure, or voluntarily. Making this movement more pleasant is possible by increasing the perceptual quality. Safety, freedom, simplicity and sensory richness are the hallmarks of quality movement. Higher levels of interaction with the environment must also be a priority when communicating with the primary traffic function. Cities must primarily allow people to move.

1. The opportunity to walk – One of the basic requirements in a human-friendly area is to allow comfortable movement of pedestrians. An upscale walking movement should be safe and free. The assessment focuses on the size of sidewalks and the quality of their surfaces, but also monitors whether pedestrians experience difficulties overcoming obstacles such as stairs, busy streets or improperly located furniture (such as benches, trash cans, public lighting poles) and parked cars.
2. The opportunity to stand – In addition to comfortable walking, the area should allow people to stop. First of all, this requires enough space, so that standing people do not hinder other pedestrians from moving. Ideal places to stop offer a look out into the space with back cover and various footstones, posts or railings are also suitable as they can be used as a support in the space.
3. The opportunity to sit – In the case of movables intended primarily for sitting (e.g. benches), in addition to its presence, its location is also essential (preferably with a covered back and undisturbed appearance), comfort and suitability of materials used (materials such as metal, concrete or stone are inappropriate on the parts of the bench

that the person touches while sitting). It is pleasant if the layout of the movables offers various seating options for individuals, couples and larger groups, such as students. The ability to sit also improves the presence of walls, columns and stairs – elements that primarily serve a different purpose but offer the possibility to sit on them. This is the so-called secondary seating. The presence of restaurant terraces, which significantly contribute to the social life of the space, is also evaluated.

4. Accessibility – Short distances are the privilege of a compact city. They contribute to the quality and active use of public spaces. The condition remains the prevention of the formation of closed areas or dead-end streets, which impede permeability. Clarity and orientation in space is supported by hierarchization, on which the elementary orientation spaces of city-wide significance are based and create the structure of urban permeability.
5. Parking – Nowadays, every public, semi-public, but also private space requires parking spaces, which are mostly provided by decree. In the case of university campuses, we only follow the decree for accommodation facilities (student dormitories) that provide parking. Part of such an area is the main building of the university, which must offer parking spaces for both employees and students. However, with the modern trend of bike paths and green universities, it is more necessary to address the question of whether there is a sufficient number of bicycle parking stands on the campus. Parking is one of the most discussed attributes of the methodology.

**C – Area (safety)** - The feeling of safety is one of the basic preconditions for quality of life. On the one hand, it is traffic safety. On the other hand, it is social safety. The prerequisite for both is visual clarity of the space and social control.

1. Social security – The feeling of danger in a public space is not only caused by traffic, but also by the fear of crime rate. The very presence of a larger number of people and the associated social control has a comparable effect as the presence of camera systems or patrol officers. It is important that the space is lively throughout the day, even outside working hours. The feeling of security is also supported by the transparency of the space and its sufficient lighting after dark. In the dark, a person feels more threatened and their well-being decreases significantly. If the space is unlit, its user tries to leave it as quickly as possible and tries to find a place with the presence of light. When it comes to lighting, the quality and color shade of the light are also evaluated. If social control is insufficient, signs of vandalism can occur.
2. Traffic safety – Good transport accessibility has an impact on the liveliness of the area, but it also poses many risks. The most significant threat to pedestrians, or cyclists is that of stronger traffic participants. The transport solution should respect the following order of priorities: safety, creation of public space, pedestrians, cyclists, public urban transport, service transport, individual transport and parking.
3. Safety in sports and entertainment – If there are sports grounds or other areas designated for sports on the premises, they must comply with the applicable standards for the construction of such facilities.
4. Healthy environment – People are inclined to spend their free time in nature from the standpoint of a healthy environment. Clean air, noise minimization, pleasant climate, mild olfactory sensations, lightness or wind protection should not be the prerogative of parks. The ecology of the environment must be maximized at each point of the place.
5. Communicativeness – The informative value of public space must be obvious at first view. The use of space is supported by information, orientation in space, sensory and cognitive perceptions.

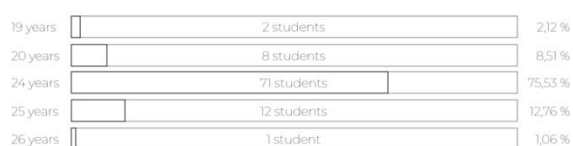
**D – Area (aesthetics of the environment)** - Ergonomic and emotional comfort are prerequisites for the residential quality of the place. Sufficient sensory and cognitive variability of the environment is a measure of attractiveness.

1. Overall visual identity – One perceives most information through the sense of sight. The visual quality of the university campuses therefore significantly influences the impression of the space. From the point of view of urbanism, the closedness of the square and its clear demarcation are evaluated, but also the quality of the architecture. The presence of a significant dominant (e.g. the main building of the university) is positive, as it can be considered a characteristic feature of a specific space and thus facilitate orientation within it. The small stimuli that pedestrians perceive at eye level are no less important. The presence of works of art, the quality of the ground floor details (e.g. bossage, sgraffito, compelling textures), the quality of the materials used in the ground floor and also the design of the urban movables are evaluated. The overall impression can also be negatively affected by clutter, gaps (undeveloped places where houses should stand), a large number of parked cars or aggressive, tasteless advertising.
2. Auditory impression of the environment – Another important sense that people perceive their surroundings through is hearing. It helps to complete the picture of the area, but in some cases (usually because of busy traffic), large noise load can be a limiting factor that prevents a more active use of space. In the case of university campuses, a soundproof environment is important through outdoor learning. Students rather look for places that are isolated from the surroundings.
3. Greenery – One of the most important attributes of the evaluation of university campuses is greenery. There is no doubt about the environmental and ecological efficiency of greenery in connection with its ability to economically regulate water, positively influence climatic conditions or cultivate the environment. We subjectively evaluate greenery on the basis of quantity, but especially the quality of individual woody plants, shrubs, herbaceous vegetation, grasslands and others.
4. Water and water elements – Water is also one of the more relevant attributes within the evaluation of university campuses. Where there is water, there is life. It improves the quality of air and oxygenates the surrounding soil. We subjectively evaluate water and water elements on the basis of quantity, but especially the quality of individual elements.
5. Human criteria – Spaces must be human-friendly and pedestrian-friendly. Excessive development of the area makes it bigger and static, allowing the unchanging elements that are dominant in this environment come to the forefront. In an area designed for life, we consider elements on a smaller scale that are more accessible to people as very positive attributes. The scale of the city or municipality in which the university campus is located must return to human dimensions.

#### 4 Results

A total of 94 evaluators participated in the evaluation – mostly students from the selected universities. 68 (72%) of them were women and 26 (28%) men were in the age range of 19–26 years. All evaluators were acquainted with the methodology of multicriterial evaluation of university campuses and their potential, and the evaluation was accompanied by the author of the methodology. Each space was evaluated according to an identical structure and an evaluation scheme was created for each space in the conclusion. According to graph no. 2 we can clearly say, that the evaluators were mostly older students who know the university campus well and experienced it.

Graph 2: Number of students within different age categories.



Source: Čibík and Štěpánková (2020).

The obtained data were evaluated on the basis of indicator sets within the evaluation scheme, which enables visual and parametric comparison of individual projects. In our opinion, the given methodology is sufficient for the needs of this research. To objectify the obtained results, a quantitative survey was also carried out, which included multicriteria evaluation. We performed the quality assessment on five university campuses within two countries, one of which is designed using the American concept and one meets the characteristics of the combined concept (campus of the Slovak University of Agriculture in Nitra). However, this space was originally designed with the idea of the American concept, and its final form now bears many features of the European concept and meets several criteria for this type of public space. This area was the worst rated campus with a total rating of 50%, while the negative rated criteria were most noticeable in the case of the opportunity to stand, the opportunity to sit, parking and traffic safety. Visual identity, greenery and water features proved to be the most positively evaluated criteria. Unsurprisingly, the best-rated university campus is the Vienna University of Economics and Business, where its compactness, quiet environment and relatively good accessibility within the city structure play a major role in quality. A total of 80% was evaluated, while the most negatively evaluated criteria were water and water elements and space for rest and sleep, which are absent in the area.

#### 4.1 University of Graz

- Location: Universitätspl. 3, 8010 Graz, Austria
- Location within the city: wider center
- Area: 18 ha
- Established in 1585

Score: 66%

Tab. 1: Evaluation sheet with all attributes and their point evaluation, where 5 points is the best and 1 the worst.

#### Evaluation:

##### A – Area (space around a person)

- |  |           |
|--|-----------|
| 1. Space for education and information acquisition | 1 2 3 4 5 |
| 2. Space for sleep and rest                        | 1 2 3 4 5 |
| 3. Space for meeting, culture and sports           | 1 2 3 4 5 |
| 4. Space for deepening the soc-eco. dimension.     | 1 2 3 4 5 |
| 5. Space for food and beverage consumption         | 1 2 3 4 5 |

##### B – Area (dynamic and static movement)

- |                             |           |
|-----------------------------|-----------|
| 1. The opportunity to walk  | 1 2 3 4 5 |
| 2. The opportunity to stand | 1 2 3 4 5 |
| 3. The opportunity to sit   | 1 2 3 4 5 |
| 4. Accessibility            | 1 2 3 4 5 |
| 5. Parking                  | 1 2 3 4 5 |

##### C – Area (safety)

- |                                       |           |
|---------------------------------------|-----------|
| 1. Social security                    | 1 2 3 4 5 |
| 2. Traffic safety                     | 1 2 3 4 5 |
| 3. Safety in sports and entertainment | 1 2 3 4 5 |
| 4. Healthy environment                | 1 2 3 4 5 |
| 5. Communicativeness                  | 1 2 3 4 5 |

##### D – Area (aesthetics of the environment)

- |   |           |
|---|-----------|
| 1. Overall visual identity                | 1 2 3 4 5 |
| 2. Auditory impression of the environment | 1 2 3 4 5 |
| 3. Greenery                               | 1 2 3 4 5 |
| 4. Water and water elements               | 1 2 3 4 5 |
| 5. Human criteria                         | 1 2 3 4 5 |

Source: Čibík and Štěpánková (2020).

The University of Graz, founded in 1585, is the second oldest university in Austria and one of the largest in the country. The current campus of the university was established in 1870. The main building was opened in 1895. From 1897, the first women began studying at the school. After the rise of Nazi power in 1938, many teachers were fired and a third of the students left



the school. Since the 1960s, the university has been experiencing a renewed increase in the number of students. In 2004, the Faculty of Medicine became independent. In 2007, by contrast, the university opened a new faculty of ecological, regional and pedagogical studies.

According to table 1, the best rated category was category A (space around a person). The worst category was D (aesthetics of the environment), which caused mainly a weak evaluation of greenery, where, in addition to quantity, the quality of individual woody plants and water and water elements that are absent in the environment were also evaluated. There was no indoor or outdoor water feature on the premises of the university.

The University Campus of University of Graz is a complex campus situated in the city center with excellent accessibility. Highly rated attributes were a space for meeting, culture and sports, along with a space for sleep and rest. Students, as well as university staff, really have many options for how and where to spend their free time, and in addition to sports facilities directly in the campus, there are many attractive spaces. The evaluators consider the attribute water and water elements to be the main shortcoming, because such an element was absent in the area. Greenery would also make the space more attractive, but it must be said that in the immediate vicinity of the campus there is a city park, which together with the campus creates a valuable space in the center of urbanized structures.

#### 4.2 Johannes Kepler University Linz – JKU

- Location: Altenbergerstraße 69, Linz, Austria
- Location within the city: outskirts of the city
- Area: 24 ha
- Established in 2000 and continues

Score: 77%

Tab. 2: Evaluation sheet with all attributes and their point evaluation, where 5 points is the best and 1 the worst.

##### Evaluation:

##### A – Area (space around a person)

- |  |           |
|--|-----------|
| 1. Space for education and information acquisition | 1 2 3 4 5 |
| 2. Space for sleep and rest                        | 1 2 3 4 5 |
| 3. Space for meeting, culture and sports           | 1 2 3 4 5 |
| 4. Space for deepening the soc-eco. dimension.     | 1 2 3 4 5 |
| 5. Space for food and beverage consumption         | 1 2 3 4 5 |

##### B – Area (dynamic and static movement)

- |                             |           |
|-----------------------------|-----------|
| 1. The opportunity to walk  | 1 2 3 4 5 |
| 2. The opportunity to stand | 1 2 3 4 5 |
| 3. The opportunity to sit   | 1 2 3 4 5 |
| 4. Accessibility            | 1 2 3 4 5 |
| 5. Parking                  | 1 2 3 4 5 |

##### C – Area (safety)

- |                                       |           |
|---------------------------------------|-----------|
| 1. Social security                    | 1 2 3 4 5 |
| 2. Traffic safety                     | 1 2 3 4 5 |
| 3. Safety in sports and entertainment | 1 2 3 4 5 |
| 4. Healthy environment                | 1 2 3 4 5 |
| 5. Communicativeness                  | 1 2 3 4 5 |

##### D – Area (aesthetics of the environment)

- |   |           |
|---|-----------|
| 1. Overall visual identity                | 1 2 3 4 5 |
| 2. Auditory impression of the environment | 1 2 3 4 5 |
| 3. Greenery                               | 1 2 3 4 5 |
| 4. Water and water elements               | 1 2 3 4 5 |
| 5. Human criteria                         | 1 2 3 4 5 |

Source: Čibík and Štěpánková (2020).

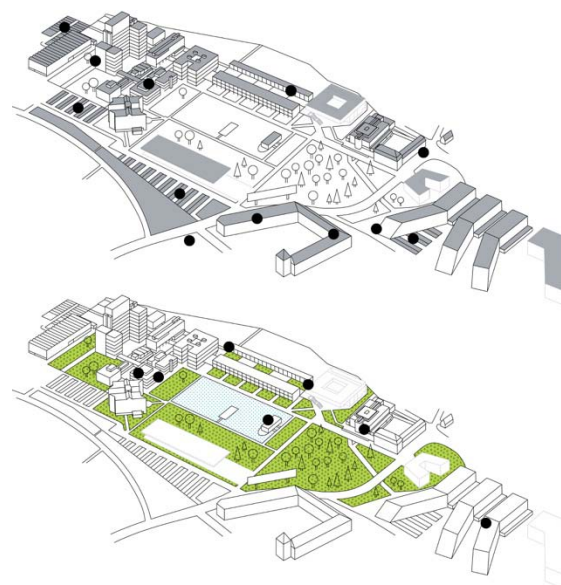
JKU's campus is located in the northeast of Linz in the Auhof area of the St. Magdalena district. The university buildings are placed in 24 ha (240,000 m<sup>2</sup>) park centered around a pond. Unlike traditional Austrian universities which are

designed in the style of disordered buildings throughout the city, JKU is a university in the form of a campus.

The JKU campus is practical for many reasons. The buildings are located in one place, so the students do not waste time transporting around the city. There are spaces in the area where students can relax and meet their classmates and friends. The campus is large, but proactive students organize campus tours for new students. The area acts as a venue for various events.

The best rated category was category B - dynamic and static movement and category C - safety. The worst rated category was D - aesthetics of the environment, which was mainly caused by attribute number 2 (Auditory impression of the environment) which is related to the current construction of other buildings. The university campus of JKU is constantly growing and innovating. New modern buildings not only ensure greater diversity of the environment and new spaces and services for users, but the compactness of the complex. However, the construction process is currently making it difficult for users to stay on campus.

Figure 2: Representation of green spaces, open spaces and community-based services (black dots) compared to buildings, car parks or areas not accessible to the public. Positive example of JKU – Johannes Kepler University campus in Linz (Austria).



Source: JKU Linz and vectorized by Čibík (2019).

The campus in Austria's third largest city consists of a set of high-quality spaces in an urbanized landscape. The area is clear and modern with lots of greenery and water features. The space has a recreational character and a great positive are the recent modern additions, sensitively set in the complex. The area provides quality seating elements, bicycle stands, bicycle depots and also quality interior and exterior architecture. We perceive as a negative the relatively poor accessibility of public transport connected to the city center, because the area is significantly allocated. On the contrary, we perceive the availability by other motor and non-motor vehicles much better and there is also a very sophisticated parking solution.

There are multiple ways to get to JKU. The major question that students ask when entering the campus is: Where can I park? The campus is a car-free zone, but there are parking lots in the vicinity. There are parking lots below the science park area, close to the campus, and one underground car park in their immediate vicinity. In total, there are approximately 1,365 parking spaces, of which about 400 are for short-term parking. The rest is reserved for long-term parkers (JKU Linz, 2020).

### 4.3 University of Vienna

- Location: Universitätsring 1, 1010 Wien, Austria
- Location within the city: wider center
- Area: 11 ha
- Established in 2000

Score: **59%**

Tab. 3: Evaluation sheet with all attributes and their point evaluation, where 5 points is the best and 1 the worst.

#### Evaluation:

##### A – Area (space around a person)

- |  |           |
|--|-----------|
| 1. Space for education and information acquisition | 1 2 3 4 5 |
| 2. Space for sleep and rest                        | 1 2 3 4 5 |
| 3. Space for meeting, culture and sports           | 1 2 3 4 5 |
| 4. Space for deepening the soc-eco. dimension.     | 1 2 3 4 5 |
| 5. Space for food and beverage consumption         | 1 2 3 4 5 |

##### B – Area (dynamic and static movement)

- |                             |           |
|-----------------------------|-----------|
| 1. The opportunity to walk  | 1 2 3 4 5 |
| 2. The opportunity to stand | 1 2 3 4 5 |
| 3. The opportunity to sit   | 1 2 3 4 5 |
| 4. Accessibility            | 1 2 3 4 5 |
| 5. Parking                  | 1 2 3 4 5 |

##### C – Area (safety)

- |                                       |           |
|---------------------------------------|-----------|
| 1. Social security                    | 1 2 3 4 5 |
| 2. Traffic safety                     | 1 2 3 4 5 |
| 3. Safety in sports and entertainment | 1 2 3 4 5 |
| 4. Healthy environment                | 1 2 3 4 5 |
| 5. Communicativeness                  | 1 2 3 4 5 |

##### D – Area (aesthetics of the environment)

- |   |           |
|---|-----------|
| 1. Overall visual identity                | 1 2 3 4 5 |
| 2. Auditory impression of the environment | 1 2 3 4 5 |
| 3. Greenery                               | 1 2 3 4 5 |
| 4. Water and water elements               | 1 2 3 4 5 |
| 5. Human criteria                         | 1 2 3 4 5 |

Source: Čibík and Štěpánková (2020).

The best rated category was category D – aesthetics of the environment. The worst rated were category B - dynamic and static movement and category C - safety.

The university is located next to the main building on the Ringstrasse, near Vienna City Hall, dispersed in 60 other locations and the larger university complexes are nearby (Neues Institutsgebäude, lecture rooms in Althansstrasse, Juridicum etc.) The university also includes a botanical garden, an astronomical observatory, a sports center and a number of research institutes, some outside Vienna (Niederstätter, 2001).

A typical compact campus in a strictly urban environment within the metropolis of Vienna. The Campus of the University of Vienna is characterized by modern infrastructure in a historical setting. It has its historical roots in the 18th century. There are nine rooms of different size (99 m<sup>2</sup> – 442 m<sup>2</sup>), embedded in buildings that are surrounded by the green spaces of 13 courtyards, that can be booked for events – no extra charge for "Campus feeling". The Campus is close to the Main Building and Vienna's historic center and easy to reach by public transport. The campus is accessible and visually attractive, but again there are no water elements and part of the services that define the complexity of university campuses, and these are elements of leisure and non-educational activities, such as sport or cultural activities.

However, outside classroom hours, the University of Vienna community has access to learning and social spaces, including a library, computer and PhD labs, lounges and a cafe. The library offers a wide range of services to support learning and research, from electronic and print resources to computer workstations and bookable collaboration rooms.

### 4.4 Vienna University of Economics and Business

- Location: Welthandelspl. 1, 1020 Wien, Austria
- Location within the city: far from the center
- Area: 13 ha
- Established in 2013

Score: **80%**

Tab. 4: Evaluation sheet with all attributes and their point evaluation, where 5 points is the best and 1 the worst.

#### Evaluation:

##### A – Area (space around a person)

- |  |           |
|--|-----------|
| 1. Space for education and information acquisition | 1 2 3 4 5 |
| 2. Space for sleep and rest                        | 1 2 3 4 5 |
| 3. Space for meeting, culture and sports           | 1 2 3 4 5 |
| 4. Space for deepening the soc-eco. dimension.     | 1 2 3 4 5 |
| 5. Space for food and beverage consumption         | 1 2 3 4 5 |

##### B – Area (dynamic and static movement)

- |                             |           |
|-----------------------------|-----------|
| 1. The opportunity to walk  | 1 2 3 4 5 |
| 2. The opportunity to stand | 1 2 3 4 5 |
| 3. The opportunity to sit   | 1 2 3 4 5 |
| 4. Accessibility            | 1 2 3 4 5 |
| 5. Parking                  | 1 2 3 4 5 |

##### C – Area (safety)

- |                                       |           |
|---------------------------------------|-----------|
| 1. Social security                    | 1 2 3 4 5 |
| 2. Traffic safety                     | 1 2 3 4 5 |
| 3. Safety in sports and entertainment | 1 2 3 4 5 |
| 4. Healthy environment                | 1 2 3 4 5 |
| 5. Communicativeness                  | 1 2 3 4 5 |

##### D – Area (aesthetics of the environment)

- |   |           |
|---|-----------|
| 1. Overall visual identity                | 1 2 3 4 5 |
| 2. Auditory impression of the environment | 1 2 3 4 5 |
| 3. Greenery                               | 1 2 3 4 5 |
| 4. Water and water elements               | 1 2 3 4 5 |
| 5. Human criteria                         | 1 2 3 4 5 |

Source: Čibík and Štěpánková (2020).

Wirtschaftsuniversität Wien (WU) is one of the largest schools of its kind in Europe. It was founded in 1898 and twenty years later renamed to Hochschule für Welthandel. It received its current name in 1975. The school has changed location several times during its existence and today's modern campus was created only after the number of students from many countries – including Slovakia – exceeded twenty thousand and it was necessary to build a new academic background (Kalinová, 2014).

It was created near the Vienna Prater and the fairgrounds on the basis of an urban plan from 2009. At the end of the summer semester in the university town of WU Campus, students relax in areas that resemble a skate park or sit in bars and cafés. Others study inside large-scale classrooms in a modern library, the largest of which has a capacity of 450 people. The university campus has a non-compact surrounding area, behind the campus buildings there are large gaps. The views seem rather disharmonious in connection with the non-compactness of the development. The space itself has many other functions in addition to the main functions, in particular it offers spaces for relaxation. The campus consists of a large pedestrian zone, rest areas and 6 distinct modern buildings, which originated from an international competition.

The best rated category was category B - dynamic and static movement. The worst category was D - aesthetics of the environment, which was mainly caused by the attribute related to water and water elements, which are again absent in the environment. However, there is a corporate campus nearby, which, on the other hand, complements the university campus with larger water bodies in the form of an artificial lake and other forms of water. The corporate campus also has a lot of

greenery and together with the campus of the University of Economics and Business in Vienna form an important space in the city.

The main and an unmissably dominant feature of the WU campus is the large building of the Library and Education Center (LC), which was created according to the project of the British-Iraqi designer – Zaha Hadid (1950 – 2016). As is often the case, it is a rather eccentric architecture in the style of the so-called new futurism of concrete and glass. The buildings include offices, lecture halls, a library, a dining room, a fitness center, cafés and restaurants. Accommodation capacities for students are, however, absent. Which is also the worst rated attribute.

#### 4.5 Slovak University of Agriculture in Nitra

- Location: Trieda Andreja Hlinku 609/2, Nitra
- Location within the city: wider center
- Area: 44 ha
- Established in 1966

Score: **50%**

Tab. 5: Evaluation sheet with all attributes and their point evaluation, where 5 points is the best and 1 the worst.

#### Evaluation:

##### A – Area (space around a person)

- |  |           |
|--|-----------|
| 1. Space for education and information acquisition | 1 2 3 4 5 |
| 2. Space for sleep and rest                        | 1 2 3 4 5 |
| 3. Space for meeting, culture and sports           | 1 2 3 4 5 |
| 4. Space for deepening the soc-eco. dimension.     | 1 2 3 4 5 |
| 5. Space for food and beverage consumption         | 1 2 3 4 5 |

##### B – Area (dynamic and static movement)

- |                             |           |
|-----------------------------|-----------|
| 1. The opportunity to walk  | 1 2 3 4 5 |
| 2. The opportunity to stand | 1 2 3 4 5 |
| 3. The opportunity to sit   | 1 2 3 4 5 |
| 4. Accessibility            | 1 2 3 4 5 |
| 5. Parking                  | 1 2 3 4 5 |

##### C – Area (safety)

- |                                       |           |
|---------------------------------------|-----------|
| 1. Social security                    | 1 2 3 4 5 |
| 2. Traffic safety                     | 1 2 3 4 5 |
| 3. Safety in sports and entertainment | 1 2 3 4 5 |
| 4. Healthy environment                | 1 2 3 4 5 |
| 5. Communicativeness                  | 1 2 3 4 5 |

##### D – Area (aesthetics of the environment)

- |   |           |
|---|-----------|
| 1. Overall visual identity                | 1 2 3 4 5 |
| 2. Auditory impression of the environment | 1 2 3 4 5 |
| 3. Greenery                               | 1 2 3 4 5 |
| 4. Water and water elements               | 1 2 3 4 5 |
| 5. Human criteria                         | 1 2 3 4 5 |

Source: Čibík and Štěpánková (2020).

The campus of the Slovak University of Agriculture in Nitra (SUA) is situated on a flat terrain approximately 250 m from the left bank of the river Nitra. To the northwest of the complex, there is a bridge over the river Nitra, which connects the east-west axis of the city formed by Štúrova Street and Andrej Hlinka Avenue. The area of the campus is delimited from the north by Andrej Hlinka Avenue, which bends to the northeast from the bridge and is bordered on the west by Nábřežie mládeže and by Akademická Street from the east. The Agrokomplex exhibition center border the SUA campus from the south and partly from the east side (Szalay et al., 2013). The SUA campus forms a significant building unit in the urban composition of the city.

The best rated category was category D – aesthetics of the environment. The worst rated was category B – dynamic and static movement. The SUA campus is adjacent to several buildings and complexes of urban as well as suburban significance. The historic residential part of the city center and the university dormitory building – the Mladost' student

dormitory, which was built before the construction of the original University of Agriculture (VŠP) (south of Štúrova Street) sprawl behind river Nitra. On the northeast side, the campus is located near the Agrokomplex exhibition center and on the west side it is adjacent to the building of the Constantine the Philosopher University – it was constructed as the Faculty of Education shortly after the VŠP campus and the Chrenová Street residential area (Szalay et al., 2013).

Figure 3: Structure of the university campus of the Slovak University of Agriculture in Nitra.



Source: Čibík and Štěpánková (2020).

Szalay et al. (2013) in the Proposal for the Declaration of Real Estate as a National Cultural Monument (NKP) state that the campus shape completes the silhouette of the city, either from the views of the city's landmark Nitra Castle or from the eastern parts of the city. The high-rise building of the Rector's Office – pavilion E together with the auditorium curve located on the main east-west axis of the city compositionally follows the high-rise building of the Mladost' student dormitory on the right bank of the river as well as the silhouettes of two dominant historical city landmarks, Piarist Church and Nitra Castle. The original campus of the university stands in the open space surrounded by park greenery, the individual buildings of the complex are loosely located on the plot. The main set of university pavilions is composed perpendicular to the city axis and ends the view away from the city. The other pavilions are located to the east and south of the main block. The northeastern part of the area consists of a botanical garden with a body of water.

After averaging the results, we came to the conclusion that the area does have some negatives, but it also has a huge potential that we can expand on in the future. In the table, which was created by averaging all attributes and their points, we can see that the area has high quality greenery, water features, but also the overall visual identity of the environment. On the other side, the campus lacks communicativeness, better outdoor movables or sidewalks. There are also no restaurants, cafés or other attributes that affect the socio-economic dimension. The campus of the Slovak University of Agriculture in Nitra does not represent the current requirements of visitors who spend time here, but also the people who just pass through it, despite it being a significant spatial and functional dominant of Nitra. Due to the fact that this space is used not only by students, but also by the inhabitants of the city, it is necessary to comprehensively address it in relation to current trends in landscape and general architecture. However, all minor or major interventions need to be addressed with regard to the architectural style created by the author of the original project. The result should be a multifunctional urban component, but also a public space that meets all the requirements of a high quality and functional area. There are many positives we can expand on in the future.



## 5 Conclusion

In today's hectic times and the continuous movement of everything around us, along with the alternation of fashion, art, or opinions, the nature of the environment intended for life dynamically changes. The extent of changes can be observed mainly in the variations of the functional use of architectural objects and their areas. If universities are conceived as campuses and are a part of the city, then they form one of its main elements and can thus help in the development of sustainability. Therefore, it is essential that there are relationships (physical, economic and socio-cultural) between the city and the university campus. The university campus has a positive effect on the development of the city and its connection with urban structures also increases social activities that lead to the development of the economy and the integration of students among the local population. This benefits the development of society. The campus affects the city. If the university campus can become sustainable, so can the city. If the social events of the university are connected with the activities of the local inhabitants and the university community would cooperate with the community of the city, it will also be reflected in its life – the city = a living organism. As a part of the literature review, the article addressed the question of how university campuses can function as a public space in the city. Every functioning public space, specifically a public space in the form of a campus within this work, must offer visitors a package of socio-aesthetic values. Within the partial results of this work, it was proved that university campuses do possess such values and can significantly influence the visual and various other values of the city. Based on the achieved results, we can say that each evaluated university campus provides users with quality space, but not in all cases, this space is also filled with quality services. Austrian campuses focus more on a comprehensive package of all services, in contrast to the campus of the Slovak University of Agriculture, where the appearance of the campus significantly exceeds the quality of services provided. Among all campuses, the campus of the Slovak University of Agriculture in Nitra performed worst in the first three categories (A - space around a person, B - dynamic and static movement, C - safety), but best in category D - aesthetics of the environment, where it significantly exceeds other campuses in several attributes. The evaluation showed us which direction to take in the future development of the areas and what specific attributes to pay more attention to. However, we can clearly say that all evaluated areas significantly affect the surrounding environment with various influences and care for their future development is key in connection with the development of the community where they are located.

## Literature:

1. Benedict, A. – McMahon, E.: *Green Infrastructure Linking Landscapes and Community*. London: London Island Press, 2006. 320 p. ISBN 978-1597267649.
2. Bender, T.: *Scholarship, local life, and the necessity of worldliness*. In Wusten, H. (Ed.), *The urban university and its identity: Roots, location, roles* (17–28). Dordrecht: Kluwer Academic Publishers, 1998. 206 p. ISBN 978-94-011-5184-9.
3. Čibík, M. – Štěpánková, R.: *A Multi-Criteria Assessment of the Open University Campus*. In *Věda mladých 2019 – Science of Youth 2019*. Nitra: Slovak University of Agriculture in Nitra, 2019. pp. 33 – 44. ISBN 978-80-552-2008-6.
4. Čibík, M. – Stiles, R. – Štěpánková, R.: *Univerzitný areál – udržateľná multifunkčná súčasť urbanizovaného priestoru sídla : doctoral dissertation thesis*. Nitra: Slovenská poľnohospodárska univerzita v Nitre, 2020. 78 p. [online]. Available on internet: <[https://issuu.com/home/published/kampus\\_issuu](https://issuu.com/home/published/kampus_issuu)>
5. Čibík, M. – Kuciaková, B. – Štěpánková, R.: *Transformation of the Central Zone Respecting the Rural Values: Case Study Kanianka, Slovakia*. In *Public recreation and landscape protection – with nature hand in hand*. Brno: Mendel University of Agriculture and Forestry, 2020. pp. 543 – 547. ISBN 978-80-7509-716-3.
6. Fassi, D. – Galuzzo, L. – Rogel, L.: *Hidden public spaces: when a university campus becomes a place for communities*. In *Proceedings of DRS 2016, Design Research Society*, 50th Anniversary Conference. Brighton, UK, 2016. pp. 3407 – 3425. ISSN 2398-3132.
7. Gehl, J.: *Public Space and Public Life of Adelaide*. Adelaide: City of Adelaide, 2002. 15 p. ISBN 976-80-2602-080-6.
8. Gehl, J.: *Města pro lidi*. Brno: Nadace Partnerství, 2013. 261 p. ISBN 978-80-2602080-6.
9. Glare, P. G. W.: *Oxford Latin Dictionary*. Oxford: Oxford University Press, 1982. 2150 p. ISBN 978-0198642244.
10. Irvin, K. N.: *The university campus & the urban fabric: mending the university district* : diploma thesis. San Jose: San Jose State University, United States, 2007. 165 p. [online]. Available on internet: <[http://www.sjsu.edu/faculty/weinstein.agrawal/urbp\\_298\\_HonorsReport\\_Irvin.pdf](http://www.sjsu.edu/faculty/weinstein.agrawal/urbp_298_HonorsReport_Irvin.pdf)>
11. JKU LINZ.: *Axonometry of the campus*. In *JKU – ein Campus blüht auf!* Linz: JKU Linz, 2019. [online]. [cit. 2020-03-05]. Available on internet: <<https://www.jku.at/campus/der-jku-campus/campusentwicklung/>>
12. Johnson, C. R.: *Campus landscape vision and site standards*. Knoxville: The University of Tennessee, Knoxville, 2012. 116 p. [online]. Available on internet: <<http://www.masterplan.utk.edu/wpcontent/uploads/sites/33/2015/09/9874638038/43384landscapesitesstandarts.pdf>>
13. Kalinová, B.: *Viedeň má najväčšie univerzitné mestočko v Európe*. In *SME Bratislava*, 2014 [online]. Available on internet: <<https://bratislava.sme.sk/c/7275225/vieden-ma-najvacsie-univerzitne-mestecko-v-europe.html>>
14. Kilnarová, P. – Kopačík, G. – Kuznetcova, E., Zdražilová, J.: *ed. Moje náměstí*. Brno: Akademické nakladatelství CERM, 2014. ISBN 978-80-7204-894-6.
15. Lukačovič, A. et al.: *Verejné priestory*. In *Strategická politika mesta Hlohovec*. Hlohovec: Mesto Hlohovec, 2016. [online]. Available on internet: <<https://www.archinfo.sk/diela/urbanizmus/koncepcia-verejnych-priestorov-hlohovec.html>>
16. Melková, P. et al.: *Manuál tvorby veřejných prostranství hlavního města Prahy*. Praha: IPR/SDM/KVP, 2014. 290 p. ISBN 978-80-87931-11-0.
17. Moravčíková, H.: *Moderná a/alebo totalitné v architektúre 20. storočia na Slovensku*. Bratislava: Vydavateľstvo SLOVART, 2013. 311 p. ISBN 978-80-556-1056-6.
18. Niederstätter, A.: *Österreichische Geschichte 1278-1411. Die Herrschaft Österreich: Fürst und Land im Spätmittelalter*. Wien: Ueberreuter, 2001. 519 p. ISBN 3-8000-3526-X.
19. Rosemann, J.: *Research by design in Urbanism*. In *Research by design*, 2008. 1 p. DOI: 10.3233/978-1-58603-739-0-267
20. Salerno, R.: *Filling in gaps in the urban landscape with a patchwork of open space. A proposal for the dispersed city*. In *Mind the Gap. Landscape for a new era*. EFLA 2011. Talinn: EFLA, 2011. DOI: 10.13140/2.1.3647.6164
21. Szalay, P. – Kapšinská, V. – Haberland, D.: *Návrh na vyhlásenie nehnuteľnosti vecí za národnú kultúrnu pamiatku*. Bratislava – Prešov: SAMO, ÚSTARCH SAV, 2013. 1184 p. ISBN 978-80-89123-07-0.
22. Šaling, S. – Ivanová-Šalingová, M. – Maníková, Z.: *Veľký slovník cudzích slov. 5. revidícia. a doplnené vydanie*. Bratislava – Prešov: SAMO, 2008. 1184 p. ISBN 978-80-89123-07-0.
23. Sidorova, M. et al.: *Jak navrhnout fěrově sdílené město?* Praha: Tiskárna Daniel s.r.o., Heinrich-Böll-Stiftung e.V, 2017. 36 p. ISBN 978-80-906270-6-2.
24. Tóth, A. – Halajová, D. – Halaj, P.: *Green Infrastructure: A Strategic Tool for Climate Change Mitigation in Urban Environments*. In *Journal of International Scientific Publications: Ecology and Safety*, 9. Issue (1), 2015. pp. 132–138. ISSN 2398-3132.
25. Winks, L. – Green, N. – Dyer, S.: *Nurturing innovation and creativity in educational practice: principles for supporting faculty peer learning through campus design*. In *High Educ* 80, 2020. pp. 119–135. [online]. Available on internet: <<https://doi.org/10.1007/s10734-019-00468-3>>
26. Yang, Y. – Diez-Roux, A. V.: *Walking Distance by Trip Purpose and Populations*. In *American Journal of Preventive Medicine*. 43. Issue, 2012 pp. 11–19. DOI: 10.1016/j.amepre.2012.03.015

## Primary Paper Section: A

## Secondary Paper Section: AL, AM