

# Qualitative Research Methods in Spatial Urban Development: A Methodological Investigation of Approaches into Urban Development Based on Centralities in the Context of a Medium-Sized European City

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**Abstract:** Dispersed and peripheral spaces in the urban core are influenced both by the trend towards constant growth as well as social ways of life which are constantly evolving. Following a connotation, these two factors therefore play a crucial role in defining the alternation of urban space—in particular, that of the centers. The main focus of this research article is on the methodology used in the survey and evaluation of “centralities” as well as their developments over the past four decades (1974~2014) in approaches to urban development that has been developed in Graz.<sup>1</sup> The analysis has drawn on the four editions (“evolution”) of approaches to urban development as conceived by the city of Graz in order to examine their verbal characteristics in regard to centralities. At the same time, the analysis does not examine presentations of plans which exist in supplementary forms (e.g., explanatory reports and supplemented plans)—it restricts itself solely to the various plans set out in the STEKs.<sup>2</sup> The highest degree of accuracy has been applied to the notion of “centralis” in approaches to urban development. The goal of the research project was to depict the modulation of the notion of “centrality” in the urban context as a space-forming dimension. Furthermore, it clearly shows the extent to which the notion of the “centre” (in the widest sense of the word) has become distanced from qualitative, spatial development and at the current time of urban development is experiencing a sort of Renaissance. In the field of “urban development”, architectural references in the context of “centrality” have scarcely been researched. This has led to the opening-up of a complex interdisciplinary research field. In order to make the complex architectural determinants of “centrality” more accessible to the participating disciplines, approaches to urban development have been explored in the form of a social and spatial analysis.

**Key words:** Social space analysis, qualitative research methods in urban development processes, classification of city sizes, urban, centre.

## 1. Introduction

The transformation in social ways of life occurring through the different uses of new information and communication technologies, progress in the production of goods and merchandise, and hence

consumption behavior, are in the process of forming new consumption-related urban spatial structures. Consequently, the implementation of new typologies which have emerged both in regard to the physical inventory as well as in their dispersed locations of urban space is leading to a modulation of space. In recent decades, the functional understanding of urbanity has led to a massive spatial alternation. This has led in turn to a “new” way of regarding centralities in dispersed urban space. The notions describing urbanity today are considerably more

<sup>1</sup>Graz is a medium-sized city in Austria, Central Europe.

<sup>2</sup>Stadtentwicklungskonzepte, or STEKs.

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complex due to their uncategorized dimensions. They are more complex both in terms of the wide array of requirements (social ways of life) and of the spatial structure (the expansion of the urban area caused by construction). Dispersed spaces increasingly put urban space under pressure since they lack “centralities”. The progression of motorized individual transport, the eccentric positioning of shopping malls and the planners’ formation of centers in the non-urban environment can be regarded as a characteristic ingredient of dynamic spatial development. They have resulted in the emergence of divergent growth.

## **2. Methodology and Research Issues**

### *2.1 Methodology*

An analysis of social space has been conducted on the basis of two methods: the qualitative analysis of content as well as a gradual categorization of the data.

### *2.2 Research Issues*

Which spatial impact do centralities have on the appearance of the city? Can centrality be managed and controlled with spatial planning approaches, or even rethought if necessary? At the present time, is “the centre” defined by appearances/trends and complex offers in urban space (i.e., by the multiple storage of different requirements)? Are centralized or decentralized locations a problem of definition?

## **3. Performance of Qualitative Research Methods in the Urban Context**

There are relatively few examples of qualitative research methods being used in urban development and/or architecture. On the other hand, however, city planners with an architectural background are probably well aware of qualitative research findings in neighboring urban planning and development disciplines. Both qualitative and quantitative research methods are practical means of developing forms of

cooperation in the interdisciplinary research field of urban development. Here, it is worth highlighting the pent-up demand for formal scientific access on the part of urban development and architecture. The reason for establishing a form of cross-disciplinary research methodology is to intensify basic research into urban development and architecture over the coming years and discuss research findings; this should subsequently contribute to the development of urban spaces.

## **4. Classification of City Size**

In principle, different city sizes have been classified at the outset since the order of precedence of a city’s size has a direct influence on its “centrality”. Hence, cities, for example, have a different supra-regional status than small towns. Different designations of cities lead to different intrinsic values of centrality which also has an impact when seen in terms of space [2].<sup>3</sup>

### *4.1 Meta-cities*

Due to the extent of their metropolitan areas, meta-cities are in a fictitious competition with megacities. They can only be classified in a comparison of metropolitan areas. Urban concentration loses its urban character through the urban sprawl of outlying districts and outskirts, resulting in a spatial reference of the “edge cities”.

The notion of “edge cities” was coined by Washington Post journalist and author Joel Garreau. Garreau defines a new form of urban space which has arisen with the growing edges of the (core) cities. Among other things, the transformation of the urban habitat can be explained by the ever-increasing distances to the major suburbs and emerging types of infrastructure [3].

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<sup>3</sup> Traubmann believes the demarcation to be insignificant—he sees no sense in the exact definition. Yet as will become obvious, this is inevitable in order to take into account the notion of centrality. A historical city classification according to E. Lichtenberger is also excluded.

#### 4.2 Megacities

Megacities differ from the meta-cities as well as the world city in regard to the “lesser” sprawl of its metropolitan areas. At the same time, both megacities and meta-cities are recording increasing numbers of their populations in global terms [4].

#### 4.3 World City

The definition of the world city differs minimally from that of the metropolis, the megacity, the city with over a million inhabitants and also, in certain areas, it differs from that of the global city. These terms often stand for a mutual synonymity [5]. Even so, in regard to centrality, the world city has a separate status in comparison to the above-mentioned major cities because its specificity holds something separate in its spatial dimension. The structure of its cultural-architectural heritage is structured differently (Europe).

#### 4.4 Metropolis

“Different criteria are relevant to classifying a metropolis. They include population size, multifunctionality, central function, innovation potential, migration and urbanity [6].” Metropolises are places with the highest national, international, political, economic, “social”, cultural and

environmental concentrations. Their multiple look depends on city size, spatial density and population size [6]. Since the 1950s, the number of metropolises has grown from a modest 6 to 2,000 in 45 years [7].

#### 4.5 Global City

A global city is characterized by the following structural features as shown in Table 1: headquarters of transnational companies, an important financial centre, site of a fast-growing sector of business-oriented services, seat of international organizations, important hub of transportation lines and traffic routes (major airport or port), centre of industrial production facilities, significant number of inhabitants [8].

#### 4.6 City with Over a Million Inhabitants (Millionaire Cities)

Cities with over a million inhabitants or metropolises are those with the globally highest rates of recorded growth (quantifiable in their dimensions of area size and population, they are a popular subject for research). The global growth rate of cities as well as the sprawl of the agglomerations in cities with over a million inhabitants poses a challenge for planners. The UN (United Nations) has criticized the degree of urbanization and referred to the lack of qualitative spatial developments [9, 10].

**Table 1 Table with city designation and population, in millions.**

	Identification	Population (inhabitant in million)*
A	Meta-cities	20,000,000*
B	Megacities	5,000,000~10,000,000*
C	World cities	1,000,000*
D	Metropolises	1,000,000*
E	Global cities	1,000,000*
F	Millionaire cities	1,000,000*
G	Medium-sized cities	250,000~500,000
H	Major cities	> 100,000
I	Medium cities	> 20,000~100,000
J	Small cities	5,000~20,000

\*also significantly fewer in exceptional cases.<sup>4</sup>

<sup>4</sup> The notion of global cities was coined by the sociologist Saskia Sassen in the 1990s. It describes the current expansion of the previously held definition of a “world city” (by incorporating social developments).

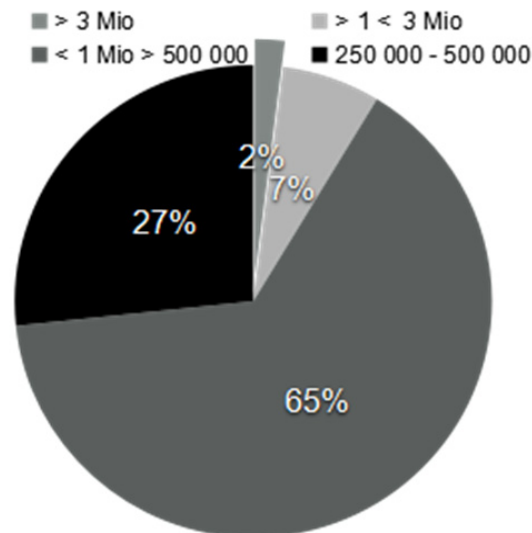


Fig. 1 Distribution and occurrence of European cities.

#### 4.7 Medium-Sized European City—Potential for Diversity and Innovation Processes

Key facts for calculating and arguing for the diversity of European cities in terms of their size:

- Total area of Europe: 4,152,800 km<sup>2</sup>;<sup>5</sup>
- Population of Europe: 740,000,000 million;<sup>6</sup>
- Population of Europe's metropolises and their agglomerations: 144,885,000 million.<sup>7</sup>

A Eurostat survey within the framework of an urban audit (urban audits serve the European Union as a support in the “Review of EU Strategies for Sustainable Development—The New Strategy” 10117/06) covered 300 cities (at European level “EU-27”, as well as 26 cities in Turkey, five in Croatia, six more in Norway, and four in Switzerland)

illustrated in Fig. 1. The evaluation indicates the following distribution (based on the number of inhabitants):

- 6 cities > 3,000,000 million inhabitants;
- 20 cities < 3,000,000 > 1,000,000 inhabitants;
- 194 cities < 1,000,000 > 500,000 inhabitants (calculated value);
- 80 cities between 250,000~500,000 inhabitants.

It was not possible to survey towns and cities with sizes described using the category number of inhabitants < 250,000. To close this gap, a large city audit<sup>8</sup> was created with “< 100,000 and < 250,000” inhabitants (major city, medium-sized cities and small cities).<sup>9</sup>

In quantitative terms, medium-sized European cities are inferior to the “cities with over a million inhabitants” in terms of their population frequency. Even so, they cover a larger spatial area than cities with over a million inhabitants and their agglomerations due to their incidence. Because of their “ideal” size ratio, these urban spaces indicate the greatest possible potential for individual development. The potential lies in the versatility of the urban spatial

<sup>5</sup> European Union analysis in 2012, area in 1,000 km<sup>2</sup>.

<sup>6</sup> Deutsche Stiftung World Population 2011. The 2011 data report is the German translation of the 2011 World Population Data Sheet, Copyright© 2011 Population Reference Bureau, July 2011., p.10; the 2011 Eurostat report 110/2012—28 July 2011 European demography EU27 population: assumes an estimated population value of 502,200,000 million.

<sup>7</sup> Brinkhoff, 2012. The agglomerations of a central city and its neighbouring communities are summed up in continuously built-up areas (with commuters also included, 60 metropolitan areas by October 1, 2012 ). The metropolis of Istanbul was the only non-EU country to be included in the evaluation since it is highly important for the EU area (the number would run to be 157,445,000 million inhabitants if all major cities in Turkey had been included); private estimate.

<sup>8</sup> No data could be evaluated. Status: December 13, 2012.

<sup>9</sup> City types based on the number of inhabitants are taken from Table 2.2 on p. 28 of *Grundriß Allgemeine Geographie: Stadtgeographie* by H Heineberg.

structures and their widespread homogeneous distribution across virtually the whole of Europe. They are the connecting link to shrinking small towns, municipalities and regions, and they create cross-links to the major metropolitan areas (cities with over a million inhabitants).

## **5. City, Growth, Size, Ranking of Degree of Urbanization in Europe**

The longer-term development of urban space is defined by many parameters. To the extent that urban parameters can be defined and forecasts of the worldwide growth of people in cities can be considered probable [9], more people will be living in cities rather than in non-urban structures [4]. 68% of the EU's population already live in urban areas or administrative districts with inhabitants numbering over 100,000 [11]. In this specific European context, medium-sized cities (250,000~500,000) have the greatest possible potential for an individual development of urban space due to their incidence.

## **6. The “Efficiency” of Urban Spaces**

According to Born, the efficiency of spatial modulation can be categorized into the following six groups: (1) spatial planning must be accompanied by quality assurance and continual improvements to the features of the specific location (this refers to the energy supply as well as the provision of adequate opportunities for cultural and social interaction); (2) the safeguarding of concentrated spatial functions of a region with the strengthening of the most effective location; (3) a strengthening of services through an economically balanced spread in order to stabilize the spatial structure (vacancy implies shrinkage); (4) a hierarchically balanced distribution of mobility; (5) the transfer of consistently even coverage of public transport networks over the long term by spatially differentiated effects caused by exogenous; and (6) endogenous influences to a homogeneous form of control in order to create a stable balance of (urban,

dispersed and peripheral) spaces [12]. All these points must be firmly locked into spatial development through a corresponding overall concept and ultimately linked to the centralized, decentralized, vacant, currently used or revitalizing object in order to maintain the requirement of “differentiated centralities” (in their orders of precedence).

Urban development is characterized by a high degree of diversity and complex processes. In recent decades, there has been an explosion in the research community's concentration on urban development processes. Research interests are no longer exclusively limited to architects, spatial planners, sociologists and geographers (the classic disciplines which describe space) but have evolved into a wide variety of different stakeholders (in the private or research sectors). Here, lobbying focuses on the economic, ecological, social, quantitative as well as qualitative aspects of urban development. Merely to quantify urban spaces in regard to their efficiency is scarcely conducive to finding an overall solution. Existing cities are not only efficient in regard to their mobility and their energy performance. From a long-term point of view, cities exhibiting a structure and indeed approach to construction in the context which has evolved in Central Europe are efficient in terms of their social and cultural “sustainability”. This special form of urban spatial centers is worth preserving and protecting because people live in these cities.

## **7. A Methodological Investigation of Approaches towards Urban Development Based on the Example of a Medium-Sized European City**

### *7.1 Delimitation of Data*

The collection of data is singular for each urban development approach. Each individual urban development approach is developed in the context of centrality, although it makes a clear distinction to the overall substantive formulation of the text. The coding follows from the data that can be assigned to the

passages of text which are substantially relevant to centrality.

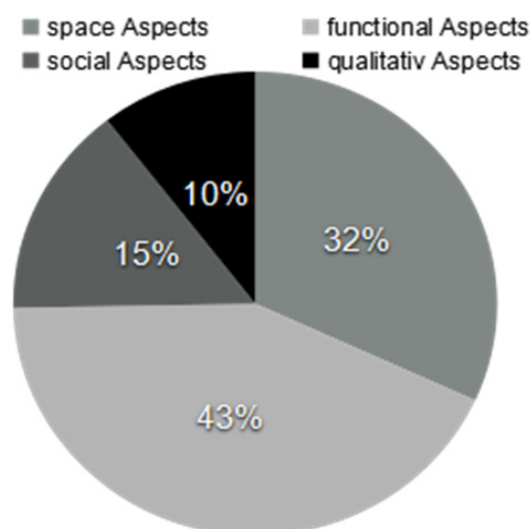
Spatial aspects are split into five sub-categories: structure, scale, boundaries, distances and decentralization. Functional aspects are divided into four sub-categories: verbal formulation, mix of use, location and traffic. Qualitative aspects are divided into four sub-categories: potential spatial qualities, environmental influences, visual perspectives and green component. Social aspects are divided into four categories: public space, human capital, infrastructure and security (Table 2). Relevant data (passages) in this regard were already analyzed in the context of centrality and decentrality. The methodological approach across the meta-level of social space analysis in combination with the qualitative analysis of content proves to be an ideal method: it meets the desire for a suitable method of surveying centralities as a space-forming element.

Social space analysis offers a useful approach since centrality can be represented/captured in the terminology it uses in its research methodology both in spatial and substantive terms [13]. The gradual categorization of data is geared towards Mühlfeld's

six-step process of interpretation with the aim of excluding non-relevant data. [14]: Step 1: collection of approaches to urban development (STEKS), Urban Planning Office of Graz; Step 2: analysis of the STEK based on the terminology for centrality and decentrality; Step 3: characterization of the analysis and exclusion of non-relevant passages; Step 4: logical linkage of analytical data; Step 5: evaluation and conclusion; Step 6: report and interpretation.

### 7.2 Methodological Approach

In a first step, the text passages were selected in order to analyze any passages attributable to centrality. Already in the first urban development approach, it became clear that this would exceed the scope (capacities) of the work, making it impossible to carry out a purposeful study based on "centrality". This is why a further analysis of the texts is limited to the pragmatic study of all "decentralities and centralities" and their similarity to notional "relatives". For example, passages which only indicate a similarity to non-spatially relevant relationships (e.g., the Central Austrian Office for Statistics) have been excluded.



**Fig. 2** Statistical distribution of aspects.

**Table 2** Statistic of distribution of the aspects.

Spatial aspects	Over all	STEK 1	STEK 2	STEK 3	STEK 4
Structure	63	13	14	20	16
Scale	15	1	3	6	5
Boundaries	31	11	6	6	8
Distances	38	11	7	13	7
Decentralization	23	5	7	8	3
Functional aspects					
Verbal formulation	105	11	20	38	36
Mix of use	23	6	5	6	6
Location	58	14	16	19	9
Traffic	43	12	6	11	14
Qualitative aspects					
Potential spatial qualities	19	4	5	6	4
Environmental influences	22	2	7	10	3
Visual perspectives	7	3	1	3	0
Green component	8	0	4	2	2
Social aspects					
Public space	13	4	3	1	5
Human capital	23	4	12	4	5
Infrastructure	28	13	8	3	4
Security	13	6	4	1	2

## 8. Structure, Statistical Distribution and Frequency

### 8.1 Spatial Aspects

With a total incidence of 170 codings, spatial aspects rank second among four main codes. Exceptionally, spatial aspects feature five sub-categories. In the course of analyzing the urban development approaches, the subcategory of “decentrality” has emerged as an essential part of the study, with “decentrality” occupying a characterizing influence on the spatial development.

### 8.2 Functional Aspects

With the numeric frequency of 229 codings within all four main groups, functional aspects represent an overwhelming majority. Functional aspects stigmatize the space and stand leadingly for how the apperception and development of space acts.

### 8.3 Qualitative Aspects

Statistically, the group of qualitative (and quantitative)

aspects has the lowest rate of incidence with 56 codings. This is due to the fact that qualitative characteristics (in the physically structured space) are not adequately measured and are largely subject to “subjective opinion or perception”. Although quantitative aspects should primarily be understood as qualities of spatial structures, green spaces and environmental influences are particularly measurable and therefore quantifiable. As a result, green spaces may be evaluated through the degree of soil sealing and through environmental influences such as “pollutant measurements”.

### 8.4 Social Aspects

From the viewpoint of centrality, the analysis shows that social aspects form an essential part of the urban development approaches. Although inferior in their frequency of incidence both in comparison to the spatial and functional aspects, they are however not accidental in the analogy to the qualitative aspects.

## 9. Brief Summary and Conclusion Regarding the Modulation of “Centrality” in the Various Approaches to Urban Development

Centralities arise as a result of newly imposed systematic requirements in urban space. In the context of urban space, spatial centers arise from these requirements. For example, new types of employment sectors (in the quinary sector) complemented by the no longer stationary components of the World Wide Web form the new services sector (in the quaternary sector) [15]. New considerations of urban spaces follow from this through the structural and systematic requirements of “centralities”. Centrality in the urban context means that the city becomes an urban and social environment. Centrality is not some manifestation of “modernity”. Rather, it is a social form of urban lifestyle which is “tied” to urban space and spatial characteristics. In the past few decades, this has been neglected due to diverging social and social forms of life and gradually become forgotten (the “crisis” of urban space with a concomitantly increasing degree of urbanization).

The following conclusions can be drawn: revealingly, the least notable group consists of the qualitative aspects of urban space. In a quantitative comparison, such aspects are subject to the group of social aspects.

### 9.1 Urban Development Approach 1 (1980)

In the first urban development approach, centrality generally impresses by virtue of its concise wording and thoroughly urbanistic style of thinking. The guiding principles mainly correspond to urban planning approaches and views for space-creating planning and development.

### 9.2 Urban Development Approach 2 (1990)

Analytically, and unlike the first Graz approach to urban development, the second edition of the Graz approaches to urban development has a far more

pronounced emphasis on economic factors. The notion of centrality increasingly has an economic connotation—thereby promoting centrally spatial significance of the site. The urban-spatial articulation of centrality in the first approach to urban development undergoes a completely non-local relationship without urban planning qualities.

### 9.3 Urban Development Approach 3 (2001)

The third Graz approach to urban development features an almost complete transformation of centrality in a shift towards “centers of excellence”. With regard to an EU-wide strategy of economic expansion, the economic emphasis is clearly reflected in the regional consolidation of the location of Graz. This helps to explain the specialization in specific “centers” and their significance in the competition to be the most attractive location. A key reason for this is the accession to European Union and its objectives from the European approaches to spatial development. The change in scale of “centrality” from urban space to the region (integrative cross-regional context) comes at the expense of local spatial references of urban development urban development approaches (development goals).

### 9.4 Urban Development Approach 4 (2013)

Striking about the fourth STEK is that the terminology of “centrality” as used in the previous passages is replaced by that of “urbanity” and/or “location/favored”. With regard to “centrality”, what emerges for the first time is a figurative marginalia of (multi-)functional superimposition of various spatial references. “Creation and formation of centers”: housing, industrial/commercial, shopping malls and railways tend towards the verbal concentration of multifunctional superimposition, due to the neglect of the “theory of centralities in the urban-spatial context” over the past three decades. Spatial expansion caused by too many malls in peripheral and dispersed areas has now resulted in a prevalently disintegrating spatial



structure for urban space (in the status quo). In the fourth version of the Graz approaches to urban development, the prevalence of consumption areas is given a spatial progression bar in regard to the further growth of shopping centers. Decentralization was not mentioned at all.

## 10. Conclusions

As a model for research into urban space, social space has become established as a proven construct in empirical and theoretical analysis for various scientific disciplines. Research into the centre is carried out through a proven methodological study based on social space analysis (which is currently used by 24 disciplines for the exploration for the exploration of spaces) [16]. Experiences in the interdisciplinary research field of social space analysis have shown that the methodology is ideally suited for developing collaboration. The methodology has been applied to make interdisciplinary research into urban design accessible to neighboring disciplines.

Disadvantages arise in regard to the theoretical imbalance of basic knowledge and lead, among other things, to lengthy processes in the case of in-depth research questions. For the present research project, emphasis has been placed on the qualitative analysis of social space along the lines of Kevin Lynch's ideas [17]. Revealingly, qualitative aspects have the lowest frequency and in quantitative terms, are subject to the group of social aspects. For the further development of urban development approaches, greater emphasis should be placed on encouraging a balanced relationship between qualitative and social aspects.

## References

- [1] Brabant, M. 2016. "Urban Decentralization as a Conversion Process for Restoring Structures of Urban Space." *International Journal of Structural and Civil Engineering Research* 5 (4): 337-40.
- [2] Traubmann, W., and Heineberg, H. 1996a. Compendium General Geography: Urban Geography Cited. 3rd ed. Paderborn: Publisher Ferdinand Schöningh.
- [3] Garreau, J. 1992. *Edge City: Life on the New Frontier*. 1st ed. New York: Anchor Books.
- [4] Brabant, M. 2015: "Centrality—within Disperse Urban Space." Ph.D. thesis, Graz University of Technology.
- [5] Heineberg, H., trans. 2006. *Urban Geography*. 3rd updated and extended edition. Paderborn: Publisher Ferdinand Schöningh.
- [6] Oberste, J. 2011. "A Metropolis—Many Cities? The Medieval Paris between Centrality and Diversity." Presented at the Annual International Conference of the Middle Ages, The University of Regensburg, Conference Report Metropolis in the Pre-modern.
- [7] Reif, H. 2006. "Metropolises—History, Terms, Method." Center of Metropolitan Studies (CMS) working paper Series I No. 001-2006.
- [8] Haas, H. D., and Neumaier, S. M. 2012. "Global Cities." Gabler Economical Dictionary. Accessed December 6, 2012. <http://wirtschaftslexikon.gabler.de/Archiv/9176/global-city-v6.html>
- [9] UN-Habitat. 2013. "Prosperity of Cities, Urban and Regional Trends: More than Half of the World Is Now Urban." In *State of the World's Cities 2012/2013*, World Urban Forum Edition.
- [10] Population Reference Bureau. 2011. "World Population Data Sheet." In *The World at 7 Billion*. Washington, D.C.: PRB Publication.
- [11] European Commission. 2012. *Communication from the European Commission, Intelligent Cities and Communities—A European Innovation Partnership*. Brussels: European Commission.
- [12] Born, K. M. 2007. "Immigration in the Peripheral Rural Areas. A Chance?." In *Vacancy of buildings in Villages or Resolution Opportunities through Conversion*, edited by Doris, S., and Henkel, G. 1st ed. Göttingen: Cuvillier, 19-36.
- [13] Riege, M., and Schubert H., eds. 2005. *Social Space Analysis: Basics-Methods-Practice*. 2nd ed. Wiesbaden: VS Publisher for Social Science.
- [14] Mayer, H. O. 2006. *Interview and Written Survey*. 3rd ed. Oldenbourg: Science Publisher Ltd.
- [15] Bobek, H., and Fesel, M. 1978. "The System of Central Spaces in Austria." *Monographs on Urban and Regional Research* 3.
- [16] Günzel, S., ed. 2009. *Space Science*. Suhrkamp: Paperback Science.
- [17] Lynch, K. 1960. *The Image of the City*. Cambridge: MIT-Press.