# Urban Studies in Secondary Education – from Description to Participation

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## Abstract:

Conceptual work within the manifold fields of Urban Studies is of utmost importance for educating the next generation of decisionmakers for future challenges and chances with regards to society and environment. The paper aims at providing some proven examples of creative ideas and activities to heighten the students' awareness in secondary education about these topics and to instigate their curiosity towards the different aspects of urban design in general. The authors strive to enable their students not only to describe their environment (positive and negative aspects of urban development and future planning), but also to take part in changing it and thus securing their own rightful position in the political and creative process. Most work was done at different secondary schools all across Europe connected by the international European programmes of Comenius/Erasmus+, supported by the European Union.

## 1. Introduction

"Erasmus+" (formerly and during our early studies also known as "Comenius") is an international programme financed by the European Commission to enhance cooperation and mutual understanding between schools, students and teachers within the European Union. The paper describes several results from a Comenius school project (2013 – 2015) with five schools from Belgium, Finland, Germany, Lithuania and Poland, assessing the topic "Life in Our Neighbourhood – Life in Our City" by the use of easy geomedia applications, and first results from an Erasmus + cooperation (2016 – 2018) between schools from Belgium, Bulgaria, Finland, Germany and Portugal about "Living in a Smart Environment 2030 – Chances and Challenges".

Both projects focus on the urban environment in the participating cities of the five corresponding partner schools. In one first step students were asked to assess problems and options within their urban surroundings and to create utopias for future urban realities (project work between 2013 and 2015). A second (ongoing) step is meant to bring the students to actually participate in changing their surroundings to not only create a livable environment for the next generation (the one of their own future children in -roughly- 2030) but also to truly participate in societal decisions and, as a result, to empower themselves with respect to political processes (project work between 2016 and 2018). These examples can serve students and teachers in democratic societies all across the globe to find ways to describe their living conditions in an easy and fun way and furthermore to participate in shaping their own future. Several studies have shown the enormous benefit students gather from working with geomedia and spatial orientation (cf. e.g. Sarno [1] for Italian schools). This paper mainly refers to projects undertaken at the Municipal Adolf-Weber-Gymnasium in Munich, Germany, and our partner schools all over the continent to ensure a closed circuit best practice presentation of doable exercises for students in secondary education.

## 2. Describing Urban Realities

Students first need to simply describe their surroundings in order to understand outspoken as well as hidden messages in the urban context. They will have to list advantages and disadvantages of their neighbourhoods, be they sculpted in the landscape around them or just hidden between the lines. The fact that their observations are mainly reduced to their own levels of desires, experience and academic proficiency may not be judged as a somewhat limited or insufficient approach to the topic. On the contrary: These students will be future decisionmakers and the earlier they are confronted with their environmental realities the better they can evaluate problems of the future and create chances for a more sustainable urban setting. Educational science has coined the term "spatial citizenship" for the desired participation of the coming generation within societal and political contexts (see Gryl et al. [2] as one of many examples).

### 2.1. Picturing Locations in Their Neighbourhood

Almost every urban neighbourhood (if not planned to the max) is full of differing architectural styles, infrastructure, and compromises. Typical for older cities are city gaps, where something old has been abandoned and something new has yet to appear. In many cases these places have been occupied by a youthful sub-culture, which aggressively makes a show of their beliefs and desires, e.g. via graffiti (as can be seen in Figure 1). The role of graffiti is undoubtedly important for instance in youth remediation and here includes concerns of not just urban governance but also a certain spatial and aesthetic problematic (Crath [3]), seen from a different perspective when seen from the perspective of young adults. The stories behind the graffiti as mapped by the students serves in the way of "story maps" to connect a limited form of literature with geomedia applications (in this case maps) and urban literacy (see for example Strachan & Mitchell [4]).
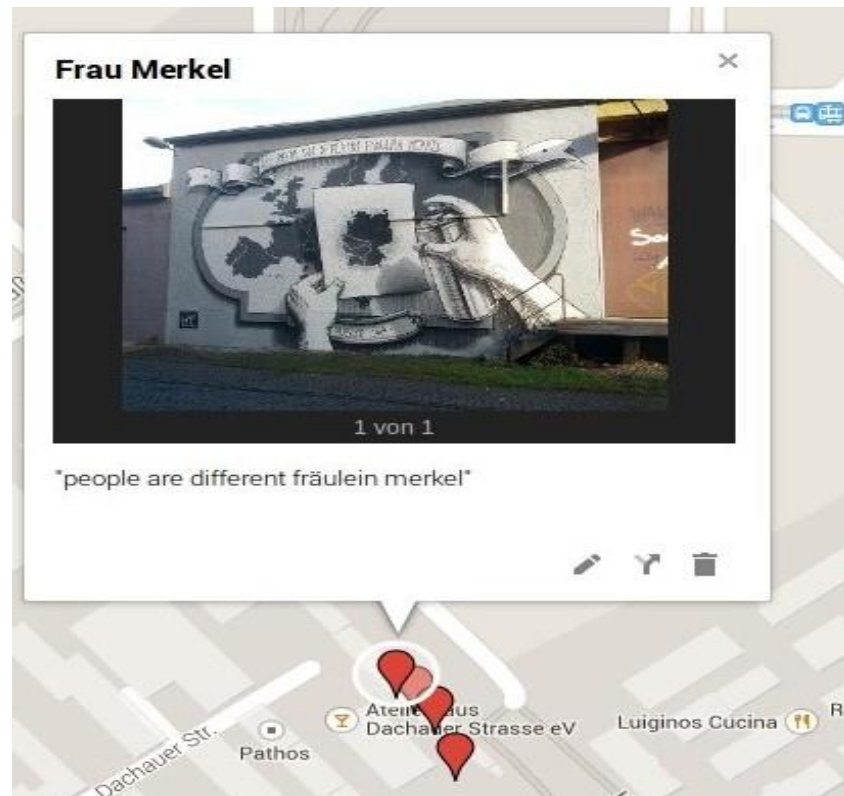
**Figure 1.** *"Story Maps" as effective teaching tools: "People are different Fräulein Merkel";*
*excerpt from a map of Munich-Neuhausen with the localization of street art in Google MyMaps*

*(from Plötz & Barnikel [5])*

During the regular project meetings (taking turns at every participating school) students from the five countries worked together in groups to fulfil different tasks. One task was for example to make the students find places where their neighbourhood was occupied by elements of youth culture. One aspect was the aforementioned search for graffiti. The geoinformation part of the workshop was then to map these graffiti and to attach commentaries. These activities can count towards a first theoretical understanding of the concept of digital maps on the one and of (urban) landscapes on the other hand. The students learn to see their environment as layers, like the layers that make up a classical Geographic Information System (GIS). The environmental data is stored in these layers which they start to create by themselves. The combination of working "in the field" (three dimensions) and then mapping the findings (two dimensions) in the end also counts towards the improvement of spatial competence, even though the limitations of geomedia may not be underestimated, as Höhnle et al. show [6]. In general teachers have to adhere to good practice examples and several outlines of general usage principles, as put down by Donert et al. [7].

### 2.2. Defining Structures of the Surroundings

Apart from taking pictures and listing city gaps, students can classify urban realities in the vicinity of their schools, e.g. by creating easy online maps either with ArcGIS online or Google MyMaps for instance (see Figure 2). The exchange of information even across school borders is an easy task nowadays for digital natives, and the media they command are manifold. In the best of cases, crowd intelligence may become a future result of workshops like the one presented anyway. And there is a bonus:

Fostering the idea of a European cooperation amongst schools within a frame that offers the students opportunities to participate in a mutual project and communicate with each other inside and outside the classroom.
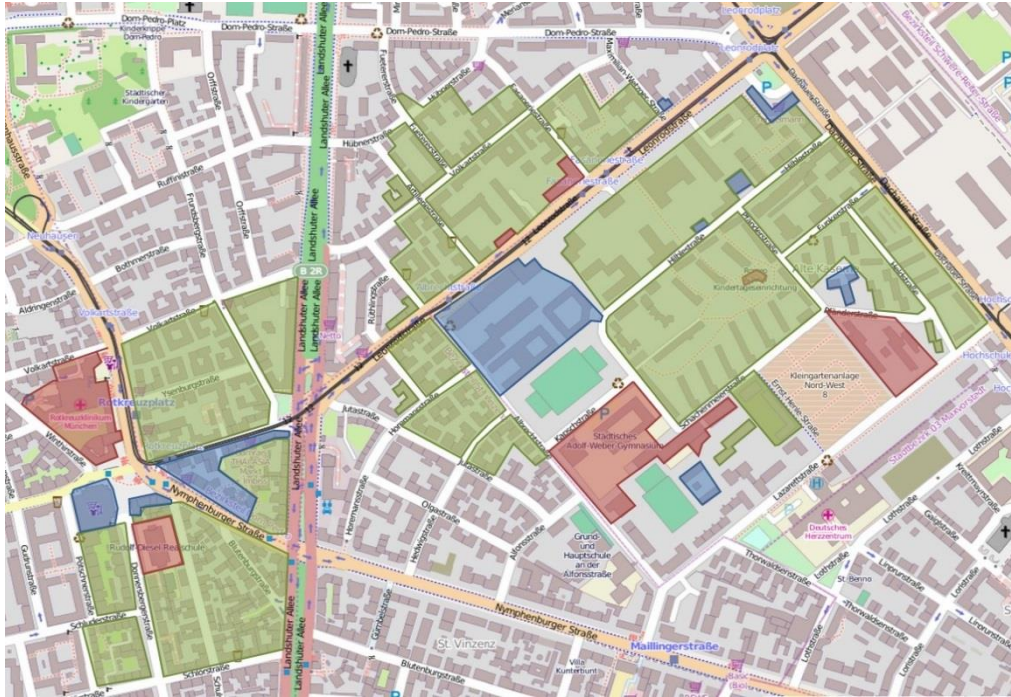


*Figure 2. Mapping realities: Excerpt from a map about the Munich city quarter Neuhausen; simple students' mapping of buildings and their functions with ArcGIS online on the basis of openstreetmap; green: private use, red: public buildings, blue: commercial use (from Barnikel & Plätz [8])*

And, secondly, the work with easy geomedia tools is a fantastic way to quickly build confidence and a sense of cooperation amongst the students. It also teaches them how to perceive given maps and how to manipulate and create maps themselves, a necessary prerequisite when dealing with urban studies from a bird's eye view. Quite a few positive aspects may be seen in this context. The students become more proficient in spatial competence in general, by spatially analyzing their environment, and then by representing it via easy forms of digital mapping. They also learn how to organize and "shape" information by collecting information on the one and by selecting relevant (or subjectively chosen) details on the other hand. In that respect they experience urban space that surrounds them on a new level. This hands-on aspect, valuable in itself, is just the icing on the cake. Future tasks in that respect, no matter if at university level or in a job, will hugely profit from such proficiency, learned and put to use within a truly European project.

To get the students interested in assessing and mapping their urban realities, the question of "well-being" can serve as an eye-opener. Students are asked to assess which areas in their respective neighbourhoods are places of well-being or places they do not like (for whatever reason; see Barnikel & Plätz [8]). Even though the perception of well-being is highly individual and subjective, some general outlines can be seen when asking certain age groups (cf. Blessi et al. [9]). Urban multiculture, seen from perspectives of different age and ethnic groups also fosters understanding between these groups, resulting in better cooperation and communication (see Bennett et al. [10]).

### 2.3. Distilling Desires for Future Use

Then students may define current realities and future desires within their city quarter by mapping current and future features of their neighbourhoods (as depicted in Figure 3). This step is of great importance. It takes the students beyond the simple description of structures that are and takes them into discussing and deciding which structures shall be. The familiarity of their hometown and their city quarter enables them to skillfully decide in this respect and to offer a sustainable solution for an urban reality of the future. It also serves as a first step towards participation, which may eventually lead to a spatial citizenship within our democracies.

During this step students will change from a receptive body of citizens to an acting one, at least in theory. They will have to analyze which parts of the urban structure around them will be sustainable and relevant also for their future and the future of their children ("smart environment") and which are missing but essential for the future. Of course they have to decide also which elements need to be eliminated. They imagine their neighbourhood as a utopia, which timewise is just around the corner. And to reach this goal they have to go beyond the childish dreaming towards a decisionmaking reality within their group: What to keep and what to get rid of.
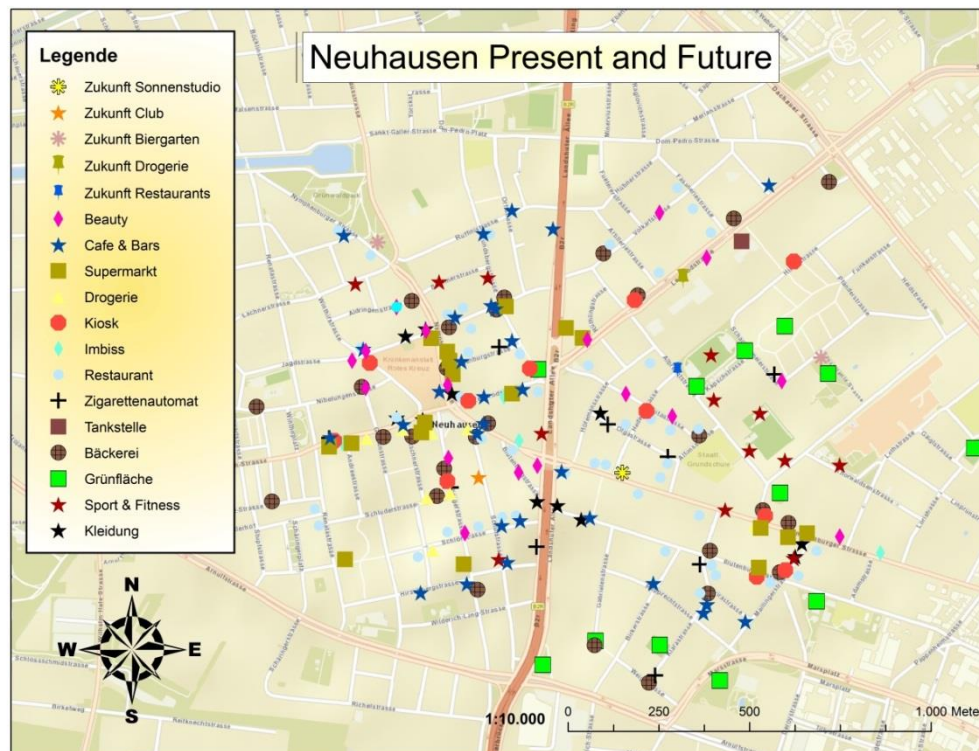


***Figure 3.*** *Well-Being and desires for the future: Excerpt from a map about the Munich city quarter Neuhausen; present and future features ("Zukunft") of the area, mapped with ArcGIS online (from Barnikel, Plätz & Pinzek [11])*

## 3. Imagining the Future of Urban Landscapes

Outside the classical Comenius/Erasmus+ work we realized a seminar for landscape planning. Students at the Municipal Adolf-Weber-Gymnasium in Munich decided upon an approximately one square kilometre large area in the north of Munich to try out their vision of urban planning for the future. The area is located between two lakes, is uninhabited and at the moment only used for agriculture and horticulture. This

location proved convenient for the project, because most students knew it and did not live far from it. Before beginning with the GIS-work, the students first had to build the quarter as an analogue model out of styrofoam blocks. The quarter was divided into twelve parts (twelve members of the seminar) and every student was allotted a certain number of a total of 10.000 inhabitants to care for as well as to include different buildings for the local infrastructure in general (schools, kindergardens, supermarkets, restaurants, public transportation etc.) into his or her part. The model size was approximately 3 x 2 meters in an unused classroom.

The quarter was to become distinctively "young". The main aim was to create an area where young people would love to live and where inhabitants from all over the world would feel at home at once, a necessary preoccupation since several members of the seminar and a lot of students in the school have a migration background. The final version of the map won the Urban Planning Award of the Municipality of Munich in 2013 (Figure 4).
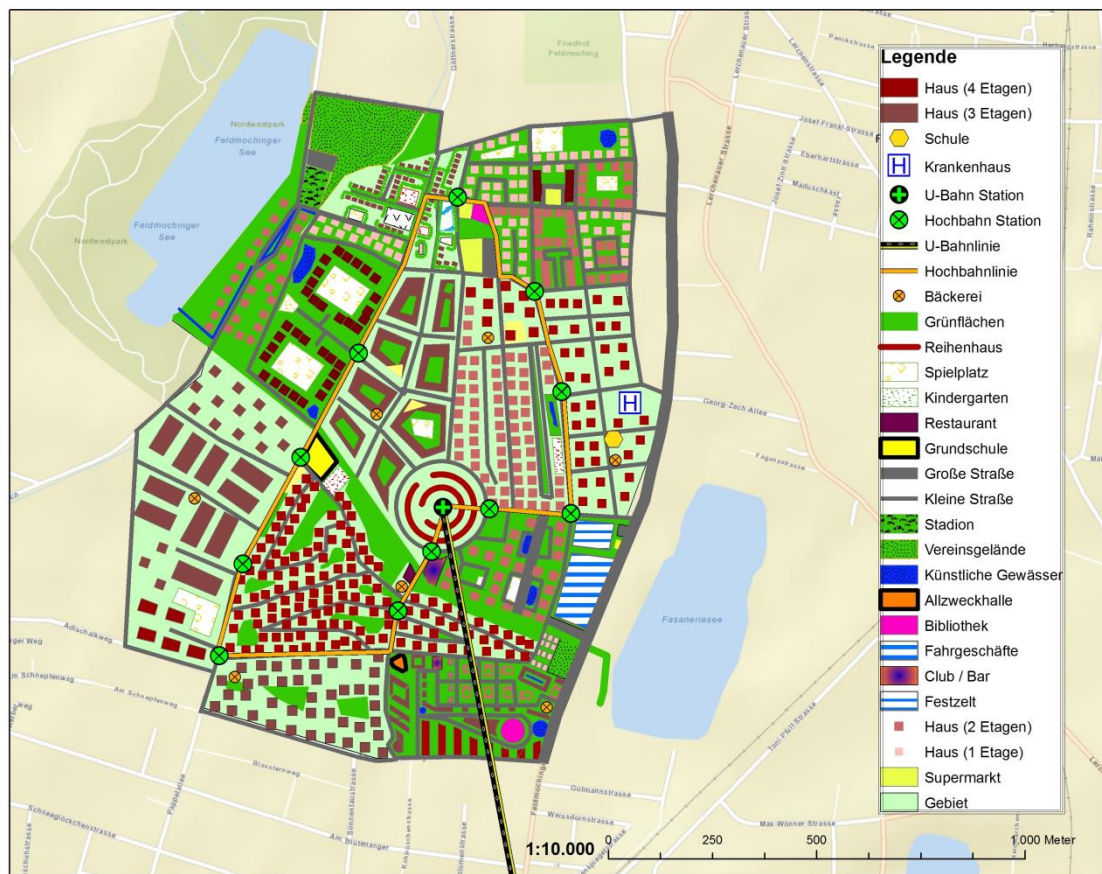


*Figure 4. "Plötzing" – A new city quarter for Munich: ArcGIS 9.3.1 version of the new city quarter in the north of Munich for 10 000 inhabitants with all necessary infrastructure (from Plötz, Pinzek & Barnikel [12])*

The use of these mathematical tools in schools in general proved not too difficult for the students. Several caveats of course have to be considered. The mapping of the city quarter itself was done with a professional version of the ArcGIS software, but for most applications simple digital mapping tools (as mentioned above) are sufficient (see Plötz on that topic [13]). The necessary steps from the use of analogue maps to creating digital maps and thus gaining more understanding with respect to spatial competence can be easily done in a few weeks with students in secondary teaching

(confer Barnikel, Ellbrunner & Vetter [14]). This approach can connect planning and spatial thinking on the one and pragmatic geographic modeling on the other hand, a win-win situation for urban planning and the future of democratic participation (cf. González [15] and Eisl & Koch [16]).

## 4. Shaping the Urban Realities of the Future

As a result of dealing with the living conditions in one's own urban district, the city/hometown and the cities of the partner schools, more openmindedness was fostered in all participating partners within the Comenius and the Erasmus+ projects. The students got to know structures in their cities that were initially unknown to them. Furthermore, the students got to know more about their own living conditions and about the corresponding conditions abroad. This of course has a social component (cf. Galani [17]). By this the understanding of differing reactions on particular living conditions, for example when discussing differences in Europe by and large, can grow and local differences in dealing with certain everyday situations may become more clear and understandable for participating students in the future. This also improves something we desperately need in the future, openness and increasing mobility within the European context of urban planning. The use of digital media as an ubiquitous source of information and communication lies at the centre of conceptual work with young adults. The proficiency of these digital natives, their eagerness to put these media to use and their enthusiasm can be seen as crucial drivers for a more participative role for the upcoming generation (Goodspeed [18]).

But in order to make committed citizens out of our engaged students, one further step is necessary: The step from description towards realization or shaping the urban reality (see McCann [19]). Since this is an ongoing process in our European project at the moment, just a few preliminary results can be shown here. Students decided, in a working meeting in Varna, Bulgaria, to confront their respective mayors in all five participating cities (Sint-Niklaas in Belgium, Varna in Bulgaria, Oulu in Finland, and Munich in Germany and Loulé in Portugal) with their requests and demands for the city of the future.

One main request that was made by students from all countries was the enlargement of green spaces for a more healthy and relaxing atmosphere within urban surroundings. Students, consequently, first had to map green spaces within their city boundaries or neighbourhoods (figure 5). They then assessed the area of these green spaces and differentiated between green spaces that are just existing because nothing else can be construed there (city gaps or just omitted spaces) and green spaces that have been introduced for relaxation and recreation (on the technique itself see Tapia-McClung [20], on the basis of urban green spaces network evaluation and planning see Mougiakou & Photis [21]).

*Figure 5.* *Shaping urban realities: Green spaces in Oulu, Finland, around the Oulun Lyseo School.*
*(Screenshot with Google MyMaps)*

But this was not enough for them, they also wanted to really do something. So they started to create green spaces themselves. Every student or student group is obliged to plant trees by themselves. All newly planted trees will be mapped by some students online on the basis of a Google MyMaps map which is stored in the cloud under Google Drive. So students from all countries can work at the same map at the same time. The trees will be mapped with their Latin names, exact location (coordinates given) and the date of planting along with some short general description. The first tree planted was an Erasmus+ tree in Loulé, Portugal (figure 6). (On the legal problems on the one and the necessity of "greening" landscapes on the other hand see Hardman et al. [22] and Blanchard & Cmiel [23] respectively.)



*Figure 6.* *Guerilla gardening, creating a green urban reality: Planting a medronho tree on Loulé, Portugal (photography: Daniel Fernandes)*

## 5. Conclusions

More than 50% of the world's population live in cities while, at the same time, agricultural and recreational spaces become more limited. To educate students of secondary schools towards a sustainable and livable future within the urban context is a must for educators. Working with simple geomedia tools and motivating the students to see, assess and change their surroundings with open eyes and hearts is easily done and most rewarding.

## Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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