

Do pupils attend the nearest elementary school to their homes? Factors in school choice in the urban environment of Liberec, Czechia

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ABSTRACT

Traditionally, the spatial organization of elementary education was based on the concept of school districts. Uneven regional development and population changes contributed to the destabilization of some regional education systems and led to the modification of catchment area boundaries. In the West, the neo-liberal policies of the 1980s led to the decentralization of school systems, allowed schools to focus on specific subjects, and gave parents the possibility to choose schools based on criteria other than school catchment area.

The aim of this paper is to discuss the importance of factors influencing elementary school choice in an urban environment, using the Czech city of Liberec as an example. We will attempt to answer the following research questions: Do pupils from a given catchment area are enrolled at the elementary school closest to their place of residence? What factors influence school choice? How do school choice-related motives differ based on the socioeconomic characteristics of specific areas in an urban space?

This study combines GIS spatial modeling methods with questionnaire surveys conducted in selected schools. The results demonstrate that in choosing schools parents base their decisions on many factors. School location is still one of the most important, even though Czech pupils are no longer required to attend their district school. In our study, attendance of the closest elementary school is influenced by the school's macro-location within the city, that is, mainly by the location of each school in relation to the center and outlying areas of the city.

KEYWORDS

parental school choice; catchment area; urban space; elementary school; Liberec; education

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1. Introduction

For parents, choosing an elementary school for their children is a relatively important act. The results of their decision may in the future shape the thinking and personal development of their child, his or her further educational aspirations and professional career path, and by extension his or her socio-economic status as well (Straková, Simonová 2015). In the mid-twentieth century, free parental school choice was not a common phenomenon. However, since the turn of the millennium most economically developed countries have implemented so-called quasi-market educational policies (Altrichter et al. 2014; Holloway, Pimlott-Wilson 2012). Some studies even indicate that in most European countries more than 50% of 15-year-old pupils receive their education in a school that is forced to compete for students with other schools in the area (Dvořák, Straková 2016).

Czechia, as a post-communist country, has also abandoned the strict system of predefined school districts in the 1990s and has enacted legislation enabling free parental choice (School Act No. 561/2004 Coll.). Pupils, therefore, no longer have to attend the school located in the catchment area of their place of residence. Though, it might be found research studies – while they are predominantly imbedded in rural space – which indicated to a tradition of enrollment pupils to the nearest elementary school (Kučerová et al. 2015b; Hrtoňová, Střelec 2003). The contemplations on choice of an alternative has been coming up in last decades in connection with discussions of quality in education (e.g., Dvořák et al. 2015), social inequalities in education (Nekorjak et al. 2011) or with a lack of capacities at schools in population exposed areas, such as in the hinterland of the largest cities (Ouredníček et al. 2013).

Our study presents particular outcomes of a wider research project. In contemporary phase of the research it doesn't primarily aspired to fill up the deficit in study of the motivations of Central-European parental school choice, as e.g. Straková, Simonová (Straková, Simonová 2015) proceeded. The main goal of our study is to examine more metrical factor. That is whether, despite above-mentioned changes, the schools spatially closest to pupils' places of residence are still chosen prior to the other schools' characteristics.

For this reason, we have decided to study urban space, which, as opposed to the sparser elementary school pattern in rural areas, provides better conditions for choosing between multiple schools without pupils having to make long, complicated commutes to school. In urban space, where a response to innovations is faster, it could be assumed a higher market-orientation of schools and more common non-respecting of the traditional school districts (Jennings 2010; Taylor 2001). The situation in the north Bohemian city of Liberec will be analyzed. In the context

of Czechia, the choice of the study area might be considered as typical/representative case (according to Yin 2003 typology) of middle-size regional city with presence of various residential zones and with ordinary urban school infrastructure (cf. e.g., Bouzarovski et al. 2016).

During the research, namely the following question will be answered: Do pupils in our sample from the studied area attend the elementary school that is located closest to their residence? Subsequently, we will try to find answers to these supplementary questions: What other factors currently motivate parents to choose schools for their children at the start of their educational career? On the basis of what criteria do parents pick a school for their children? Moreover, we anticipate different placing children to schools by parents from different residential environments.

2. Theoretical background related to the school network

The set of schools located in a certain area can be viewed from a systems perspective (e.g., Hampl 2004) as a system of elements that are mutually intertwined, either by direct or indirect connections, and which make up a functional whole coordinated from the outside and serving the needs of external users. School pattern can be organized hierarchically based on different criteria, such as school size (capacity) or a school's regional scope (power). Each school in the system serves and controls its catchment area from which its students come. The nature and scope of these areas differ based on the hierarchical position of each school within the system and depend on the degree to which the outside authority that administers the entire system is decentralized.

Modern compulsory education systems were established in economically developed countries in the eighteenth and nineteenth centuries by the central authorities in power in each country in order to ensure a certain level of education amongst the population (Brown et al. 1997). During the twentieth century a great deal of the competences in managing the school system were transferred to regional and local governments, as well as to schools themselves (Kvalsund 2009). One must differentiate between two levels of school policy. First, there is policy for ensuring the spatial organization of the school system and access to education, which in most developed countries is in the competence of regional governments. Second, there is policy dealing with education itself and fulfilling curriculum requirements, activities, which according to current trends, schools themselves should become more involved in. Central governments have reserved the authority to define the external framework of both of these school policies, including determining optimal school size and forms of management, ensuring that various fundamentals

of pedagogy are met, and establishing curriculum frameworks. The scale at which competencies have been decentralized vary over time and between countries (e.g., Maroy, van Zanten 2009).

Regarding policy relating to the spatial organization of the school system, there are several ways in which a school's authority can be delineated in space. On one hand are older methods that strictly define the school districts that make up a catchment system covering the entire territory of a state. On the other hand, there is the newer idea that schools must compete against each other to attract pupils, and thus must define the scope of their activity for themselves – this approach has much in common with free market principles (or rather quasi-market ones) (Altrichter et al. 2014).

In the case of school districts “by shaping the spatial borders to enroll students to particular schools, it is possible to influence the number of students attending each school” (Bajerski 2015: 43–44). According to advocates of this policy, the school system theoretically has the ability to promote equal educational opportunities. Within the system, schools are hierarchically arranged most frequently based on student capacity and position based on the settlement size category in which the school is located. This factor affects the scope of schools' catchment areas. This fact in practice means that the catchment system is not resistant to inequalities and, in contrast, with its hierarchical arrangement of inequality it determines and causes differentiation in the quality of provided services (Bajerski 2015; Kučerová 2012).

In contrast quasi-market principles and the possibility of parental school choice are supposed to ensure greater efficiency within the system, user-based quality control of education, and the opportunity for schools to determine their place in the hierarchy based on management abilities or public discourse and not exclusively based on geographical (settlement) factors. The shaping of the school network is thus partially transferred to customers (students and their parents), through their choices. However, socioeconomic status (Ball et al. 1995; Holloway, Pimlott-Wilson 2012), as well as cultural capital (Kristen 2005), results in significantly differentiated market behavior of customers. Whereas parents from lower social classes generally send their children to schools close to where they live and transportation costs are a key criterion in their choice, middle-class parents carefully chose schools based on a series of other factors (e.g., acceptance rates of school graduates at other schools, the school's prestige, etc.) (Bajerski 2015; Geppert et al. 2015). For lower-class families, greater school prestige may result in fears about high performance standards expected of pupils and is possibly a factor discouraging the choice of such schools (Warrington 2005).

In Czech, or even in post-socialist space, the similarly oriented studies are still rather rare. Therefore, the preferences in parental choice, which have been

in focus of interest of researchers from Western countries, are not explored enough in post-socialist countries. A Polish study (Bajerski 2015) conducted in several cities indicated a high rate of local district school attendance (over 50%). Nevertheless, during the transition from primary school to lower-secondary school pupils started to commute farther, even though primary schools cannot be considered more accessible than lower-secondary schools in urban space, as they usually are under the roof of one institution. The interpretation might be in two respects. First, the competition between schools with different focuses, including eight- and six-year gymnaziums, has a clear impact (cf. Dvořák, Straková 2016), thus the aspect of quality seems to be significant in post-communist country as well. Second reason is that primary school pupils tend to be protected against ways to long distances (e.g. Trnková et al. 2010) and school choice with emphasis on quality aspects comes even with lower-secondary school choice.

In the results from Western countries, a wider variability of reasons of choice and higher emphasis on image of schools is evident (see e.g., Geppert et al. 2015), compared to partial Czech studies, (e.g., Hrtoňová, Střelec 2003). The post-socialist countries would represent a convenient laboratory for research of a shift from school district system to quasi-market principle and their possible comparison with the states, where the free parental choice was enabled earlier. Recently, several research activities have emerged on the field of sociology and pedagogy, right with the aim to analyzed parents' behavior in the process of elementary school choice on the one side (Simonová 2015; Straková, Simonová 2015; Kašparová, Suralová 2014) and to characterize the mechanism of schools' market orientation on the other side (Dvořák, Straková 2016; Nekorjak et al. 2011; Kučerová et al. 2015a; Bajerski 2015). The issues of social and ethnic exclusion within education and the emphasis on urban environment prevail in the studies.

Urban environments are specific in terms of the spatial organization of the school system in comparison with location schools in rural or middle-size settlements. The first specific feature of such environments is a higher number of students within city limits. This fact results in a greater density of schools and wider offers on the educational market. These conditions enable some schools to have a highly specialized focus (e.g., sports-focused schools) and also enable other non-state schools to function (e.g., private schools). Nevertheless, they also facilitate segregation in the school system (see Warrington 2005). As urban parents have greater school choice than rural parents, they will often choose a school for their children that reflects their socioeconomic status or ethnicity. Thus, schools in different neighborhoods are attended by different users and have different images and prestige levels (Kašparová, Suralová 2014).

Secondly, urban school patterns are created not only by the above-mentioned broader interconnections between state school policy, the interest of individual schools, students, and parents, but also by other factors involved in urban land use and development policy (Basu 2007; Ball, Vincent 2007). For example, the spatial expansion of new residential developments (e.g., apartment building complexes) influences the distribution of schools, as areas with higher population densities should not be without basic public facilities. Nevertheless, there is difference between the concept of socialistic cities and the cities functioning in market economy (Bouzarovski et al. 2016). In the socialistic city such building complex was planned together with the educational services (and now in post-socialist inertia the school is present at the area), whereas private investor in housing estates left planning of public services up to the local authority. School location is also determined by permissible land use and zoning stemming from spatial planning documents, as well as by municipal ownership of buildings suitable for school use (see, e.g., Šimáně 2010).

Our study deals with urban space as well. The intention is to combine both quantitative and qualitative approaches to the issues of school choice and the spatial organization of school districts and schools' catchment areas. First phase of the research, presented in this article, we started with a geoinformatics analysis to find the conditions for spatial organization of schools and commuting preferences of the inhabitants of the studied area (cf. Taylor 2001). The current elementary survey of parents' attitudes to school choice will be completed with deeper, qualitative analyses of the motives behind behavior and the issue of perception in parental choice in future.

3. An overview of the organization of elementary education in Czechia

The School Act (Act No. 561/2004 Coll.) is a piece of legislation that defines the educational system in Czechia, as well as how students are to be enrolled and accepted by schools. Compulsory elementary education is to be completed at elementary schools. In Czechia children must receive nine years of compulsory education, from the ages of 6 to 15. Elementary education consists of two levels of schooling: five years of primary education (grades 1 to 5; ISCED 1) and four years of lower-secondary education (grades 6 to 9; ISCED 2).

Pupils are guaranteed by law acceptance to a school in their district based on their place of permanent residence. Delineating the school districts of particular elementary schools falls under the competence of municipalities. The districts can be delimited on the whole territory of a municipality or in the part of a municipal district, or on the territory of multiple

municipalities. Before 1989, during the communist regime in Czechia, the elementary school district system was strictly adhered to and the possibility of choosing another school outside of one's district was practically impossible (Trnková et al. 2010). According to the current School Act, however, parents are not required to send their children to the district school determined by their municipality of residence. Although they do have freedom of choice, certain limits are imposed upon that freedom. If parents decide to send their children to a different elementary school, the principal of that school decides if the child will be accepted or not based on capacity. The manner in which elementary school principals make such acceptance decisions for children residing outside of the school's district is not established by legislature and such decisions are made solely at the principal's discretion.

Current legislation also confers nearly all decision-making power about the existence or non-existence of a public school in municipalities to local governments. The state only establishes minimum class sizes based on school size, school type, and funding from the Ministry of Education's budget. It is no longer necessary to apply for an exception to operate a school that is attended by less pupils than stipulated by law. Thus, the decision to operate an elementary school falls fully under the jurisdiction of the body that will operate it (a municipality in most cases). As of 2013, after changes in the methodology used for distributing tax revenue from the state budget to municipalities, those with schools have received funding that is less strictly specified to be used for education only. This change reflects the ongoing decentralization of education.

In 2015 there were nearly 4,100 elementary schools in Czechia (Czech Statistical Office 2012). Elementary schools run by municipalities predominate, with 88.7% falling under this category, that is, 3,600 schools. Approximately one-third (34%) of elementary schools in Czechia are located in urban settings and 55% of all elementary school pupils attend an urban school. It is, however, necessary to stress that in our study for the purposes of making international comparisons, those municipalities with more than 10,000 inhabitants were defined as being "urban", even though in Czechia, the Municipalities Act (Act No. 128/2000 Coll.) defines a town as a municipality with more than 3,000 inhabitants.

4. Research Organization and Methodology

Elementary school choice in one urban area was analyzed in several phases. First, the studied area was split into regions based on potential commutes to the closest elementary school, together with delimitation of residential zones. Then, in selected schools, a questionnaire survey of pupils' parents was conducted

with the purpose of discovering the motives behind school choice and for comparing pupils' places of residence with the location of the schools they attended. Our studied area was the city of Liberec, a regional administrative center in northern Bohemia. Liberec has an abundance of city-run elementary schools and a heterogeneous residential zone structure enabling us to make comparisons. With its population (100,000) and area (106.1 km²), Liberec may partially represent the situation in other large cities in Czechia, and serve as a benchmark study for comparison with cities in other countries. Especially those cities which have had the experience of post-socialist transition of inherit service structure (Bouzarovski et al. 2016).

At the beginning of the research it was necessary to compile a database of all elementary schools located in Liberec and define their commuting areas. On the one hand, according to traditional organization of the school system (see the theoretical background chapter) it could be investigated the delimitation of so-called *school districts* by regional/local authority. On the other hand, the schools' *catchment areas* could be defined on the basis of pupils' commuting to particular schools in free school market. (Further we will follow this terminology.)

First, the geographical coordinates of each school were determined based on their address. The precise location of each school was then marked on a map. In order to determine their school districts we tried to get information directly from Liberec city hall. Such materials, however, are available only in the form of lists contained in municipal regulations, and are not available as digital spatial data. On the basis of the lists we attempt to distribute particular addresses into corresponding polygons of school districts with the help of geoinformation technologies and the data were visualized in a map. Nevertheless, the borders of acquired spatial units were often fuzzy and thus the distortion of delimited polygons would be large. Therefore, we conducted a network analysis in GIS of the travel network in the city of Liberec in order to create our own *school distance-based catchment areas* for pupils who walk to the nearest elementary school. The similar methodology was applied by Taylor (Taylor 2001), who also assumed the model situation that pupils attend their nearest school as measured by a straight line from their home, although it does not necessarily reflect the designated areas, nor the accessibility of a school via transport routes. Our network analysis was conducted by counting pixels from

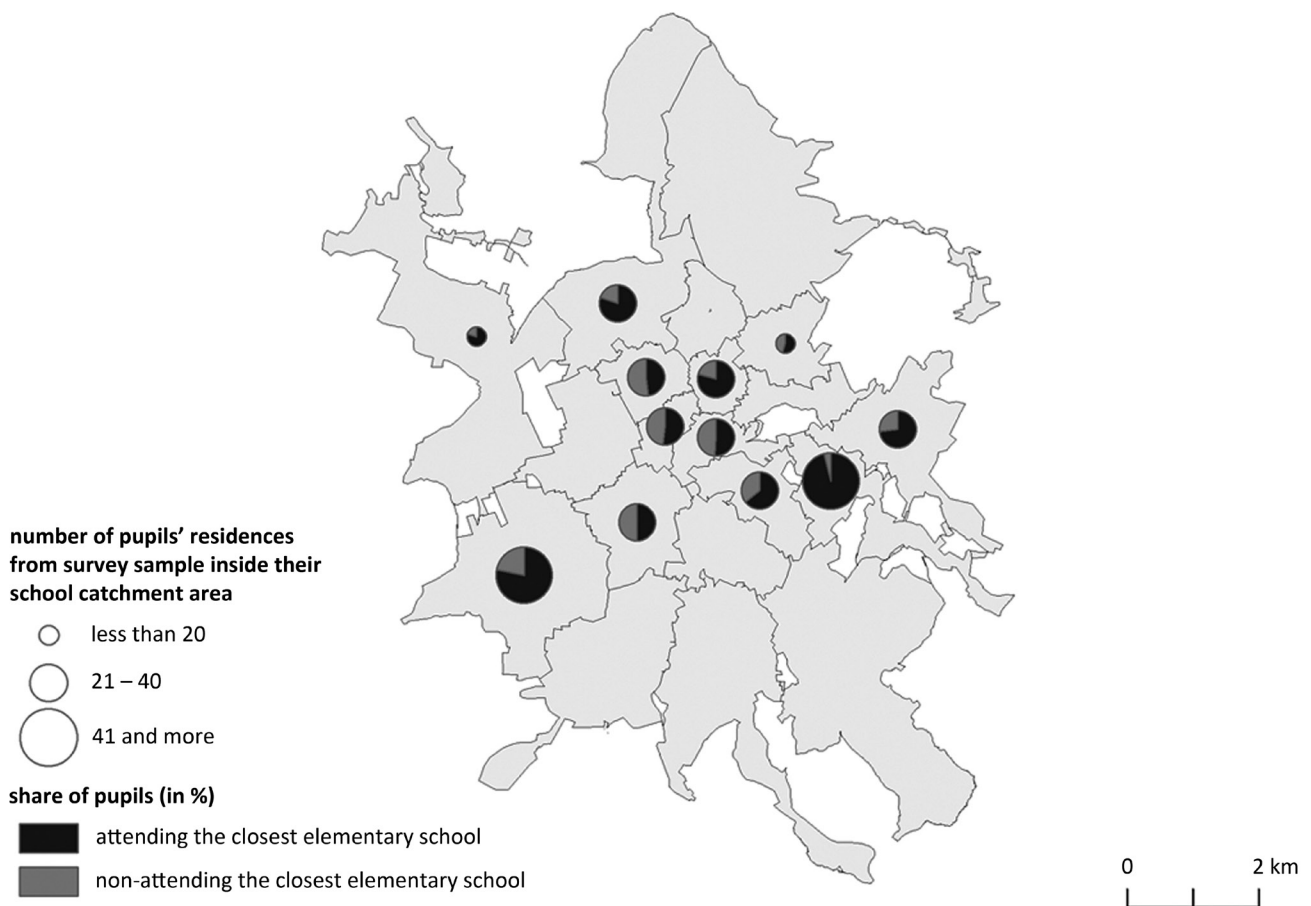


Fig. 1 Boundaries of distance-based elementary school catchment areas in Liberec and percentages of respondents' children attending the closest elementary school in 2015.

Source: P. Meyer based on the his own calculations and the questionnaire survey.

an initial starting point – in this case, from elementary schools. The vectorized travel network was then converted to a raster image and the original line was visualized by a series of connected pixels. The user then, using GIS tools, defined from which initial starting point distance should be calculated (expressed in the number of pixels). The results of the analysis were areas in the form of polygon layers, which delineate the closest accessibility to each school (see Figure 1). The only criterion used to model these areas was distance, and therefore in comparison their boundaries differ from the school districts proposed by city hall. The latter may take into account demographic, transportation, and geomorphological factors as well. For the needs of our analysis, however, distance was a key factor.

One of our hypotheses was that there is a difference in the behavior of parents from various types of residential environments. Therefore, the territory of Liberec was divided into several residential zones. For the needs of this study, they were delineated using a simplified method based on these areas' external morphological characteristics. The socioeconomic and physical characteristics of each residential zone were considered to be interrelated (Butler, Hamnett

2007). In order to describe more accurately the causes of differences in parental behavior, it would be necessary to look beyond regionalization based on morphological characteristics of built-up areas and examine other characteristics (primarily of a socioeconomic nature) (Basu 2007). Residential zones were identified using maps, aerial images, the Register of Census Districts and Buildings, and a field survey. Using geoinformation technologies, we created polygons representing four types of residential zones: the compact historical center, a rental house zone, a single-family house zone, and housing estates consisting of prefabricated buildings (see Figure 2). Single-family house zones were the most clearly identifiable. Single-family houses are detached buildings with at most several above ground stories, usually with a garden. Rental houses are taller and in terms of area are the most frequent residential zone category. Three or more apartments are located in such buildings. Freestanding prefabricated buildings and high-rises were included in this category, as areas featuring such buildings differ morphologically from housing estates consisting of prefabricated buildings. These estates can be defined as large clusters of mostly prefabricated apartment buildings including complexes

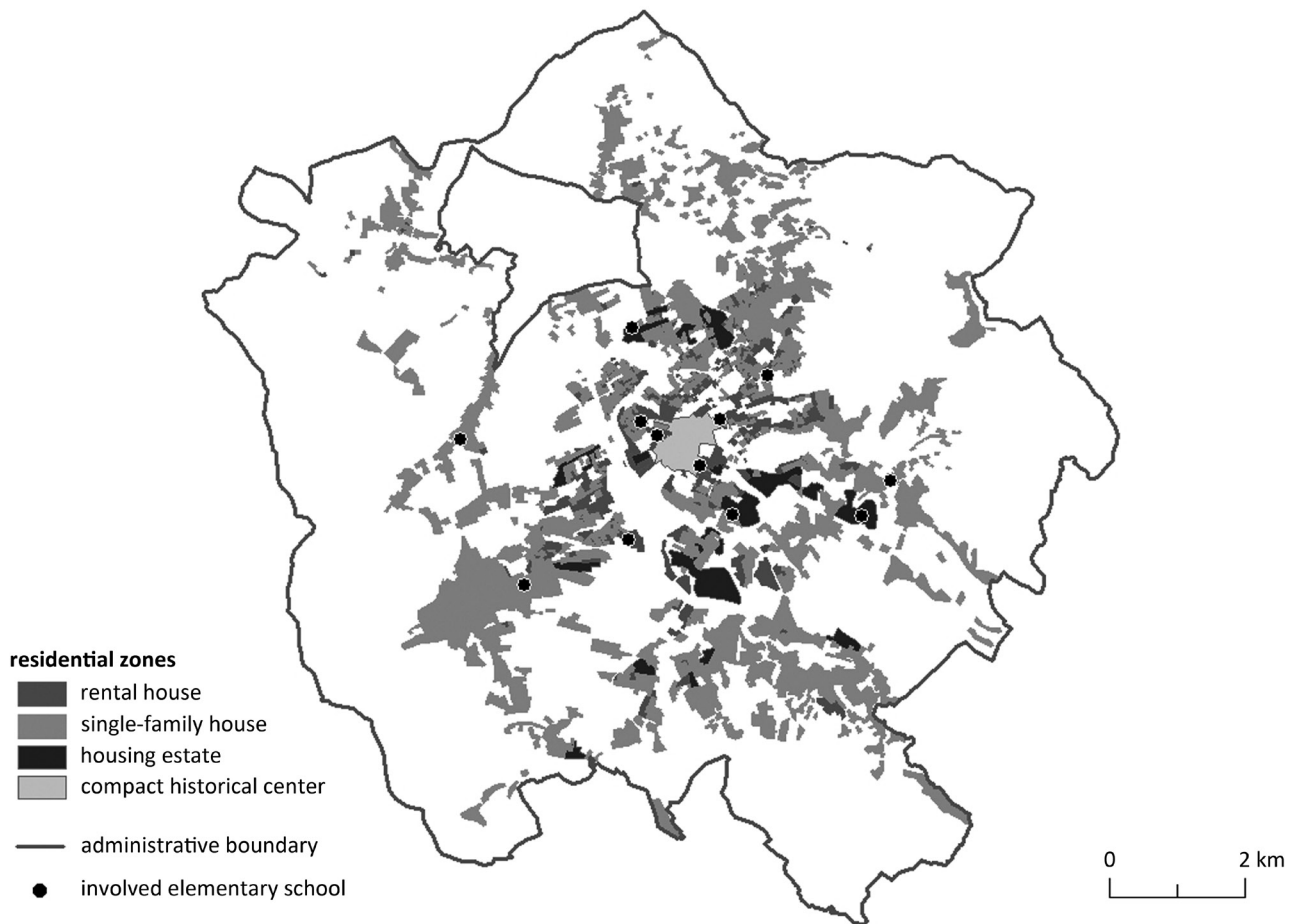


Fig. 2 Boundaries of residential zones and the location of elementary schools involved in the study in Liberec in 2015. Source: P. Meyer on the basis of WMS – orthophotography and field survey.

providing amenities and social infrastructure. These zones have the highest population density of all. The compact historical center is a densely built-up area featuring apartment buildings and buildings with other non-residential functions, laid out in blocks (Navrátilová, Rozmanová 2006).

In these delineated residential zones, the next step was to establish a selection of elementary schools that meet the following criteria: First, they must be city-run public schools so that enrollment procedures are more-or-less the same at each, as opposed to schools run by other institutions (such as private and parochial schools) or other types of schools (special education schools, diagnostic institutes), where other factors determine acceptance. Second, schools from each type of residential zone needed to be represented in order to cover the various characteristics of the local inhabitants of these areas, including their educational aspirations. To ensure that the results are representative, three schools from each type of residential zone should be selected. Simultaneously the schools shouldn't be located too close each other but they should be spread over the whole district of Liberec. The resulting spatial distribution of the selected schools is depicted by the point symbols in Figure 2.

In each selected school, a survey of pupils' parents was conducted. The primary goal was to validate the significance of distance in school choice and identify other aspects and parental preferences in school choice. The survey was conducted among parents of first- and second-grade elementary school pupils during September 2014. Their responses should thus reflect recent experience with school choice. The survey contained two open questions and five closed questions. The questions were focused on investigation of criteria according to which parents choose an elementary school. The survey was not fully anonymous as respondents had to give their address – this requirement was, however, necessary in order to analyze the resulting data in a geographical information system. There was another possibility to obtain the data from lists of pupils with their permanent address which are a part of documentation of each school. Nevertheless, the management in the first contacted school opposed to provision of the data and accentuated anonymity of conveyed information. Therefore, finally we resigned to gain this type of data.

Printed questionnaires were given to pupils and distributed to their parents by school administrators. Of the 1,323 questionnaires distributed, 638 were returned (return rate of 48%), which might be considered like sufficient, regarding to two non-involved mediators (i.e. teacher and pupil) on the way from investigator to informant (i.e. parent). Only in 78% of returned questionnaires (498) the address of pupils was determined. The probable reason could be either a general unwillingness to convey such personal data, that respondent may be identified pursuant to them, or even the reason of respondent's permanent

address outside the corresponding school district. The unknown address – i.e. respondent's location – could influence the results of analysis of attendance the nearest school as well as the analysis of reasons for school choice according to types of residential zones. Therefore, the attendance the nearest school was investigated only from the questionnaires with determined permanent address. To identify factors for school choice in general, all returned questionnaires were used. Though, the inquiry by means of not fully anonymous questionnaires has number of limitations – both general ones (e.g. validity) and specific in relation to school choice (e.g. suppression of the reasons for school choice connected to racial and ethnical intolerance) – it seemed to be an optimal way to retrieve a large number of data for spatial analysis.

Geoinformation technologies were used to digitalize and vectorize survey responses into a spatial database for use with ArcGIS in order to analyze and visualize data. Pupil addresses were transferred to a point layer. By comparing the location of pupils' home addresses and the distance-based catchment areas given above, the number of pupils attending the elementary school closest to their place of residence was identified. Other responses from the survey were entered into the pupil address GIS layer, that is, into an attribute table. Thus, responses could be not only summarized, but they could be spatially assessed as well, for example, by correlating locations within the city.

4.1 Do elementary school pupils attend the school closest to their homes?

The main research task was to determine how significant a role distance can play in elementary school choice. Therefore, we posed the question, do pupils in our sample attend the elementary school that is located closest to their place of permanent residence? We attempted to answer this question by comparing the distance-based catchment areas modelled using network analysis and the location of pupil home addresses determined by the survey.

There are 29 elementary schools in Liberec. Their spatial distribution is similar to the spatial distribution of population density; thus, the elementary school network sufficiently covers the needs of the current population. One-third of schools (10 schools) are located in the rental house zone. The remaining schools are distributed nearly equally (6 or 7 schools) in the three other types of residential zones. At first glance at Figure 1 it is clear that the size of distance-based catchment areas of individual schools differs significantly. Areas located in outlying parts of the city are up to six-times bigger than in the center. These differences are most likely caused by the more spread out nature of the built-up areas in outlying areas of the city in comparison to the densely built-up area in the center with its denser elementary school network. In the center, the average distance

to a school is 400–500 meters, whereas in outlying areas it is more than one kilometer (and can be up to 1,500 or 1,600 meters). Thus, a school's location within the city influences the possibility of choosing another competing school that is located further away from a pupil's home than the catchment-area school. Therefore, inner city inhabitants will most likely be able to choose from more schools for their children without significantly increasing transportation costs. Thus, the spatial distance of schools in the center does not necessarily limit access to schools based on the social and economic status of a pupil's parents. However, due to the fact that it is easier to choose a school in a smaller area, there is frequent segregation and separation of some social and ethnic groups in certain schools (e.g., Kašparová, Souralová 2014; Jennings 2010). In contrast, in outlying areas of the city, due to longer commutes, choosing a school that is not the closest might be difficult for parents, and therefore, they enroll their children in the closest school. Another explanation might be the fact that in terms of socioeconomic status, the inhabitants of single-family house zone and housing estates, which are located in outlying areas of the city, are generally more or less homogenous compared to the city center. The schools in these areas may perhaps better satisfy the preferences of local inhabitants, and there is therefore no need to commute to another school.

Distance-based catchment areas were thus also analyzed in terms of differences in trip distances to the nearest elementary school by residential zone category (single-family-house zones, rental house zones, housing estates, and the compact historical center). The results indicate that here there are also differences in attendance of the nearest school, which in this case may be influenced by both residential density and school distance to residential buildings as well as the socioeconomic status of residents. Differences in median distances were identified. In single-family house zones the median distance pupils must travel to school is 680 m, in housing estates it is 372 m, and in the compact historical center it is 475 m. As we did not make further qualitative inquiries, it cannot be unequivocally demonstrated that the fact that pupils residing in single-family-house zones have longer commutes and in contrast pupils from housing estates attend the closest schools to them is related to their economic status. Significant differences in school choice preferences demonstrably occur among suburban residents. Here, whether due to insufficient capacity of local schools, parents' work commutes to the city center, or school preference based on socioeconomic status (Ouředníček et al. 2013), students generally commute significant distances to school. Suburban areas, however, were not included in our study.

Finally, it is important to keep in mind that the modelled travel network was created based on foot travel, that is, on a type of transportation that is accessible to all. Data taking into account automobile

travel or public transportation would significantly change the results. Therefore, for the purpose of comparison with the actual situation, data obtained from the questionnaire related to the location of each pupil's address was included in the analysis. These data enable the researchers to determine the percentage of places of residence that were located within the modelled distance-based catchment areas. Thus, it was determined how many pupils living within a distance-based catchment area actually attended the school closest to their home and how many did not. The results are depicted in Figure 1. The above-formulated hypotheses drawing from the distance-based catchment areas were essentially validated. Once again a relationship between attendance of the closest school and a school's location within in the city was demonstrated, with a growing value from the center outward. A majority of schools where only 50% of respondents stated that a pupil attends the elementary school closest to his or her home are located in the center or nearby. In contrast, attendance rates of the nearest school for schools locating in outlying areas of Liberec were never under 70%. Here, choosing another school is influenced by longer distances and changes in the environment that a pupil is already used to. Similar result was presented by Taylor (2001), where also parents were more likely to reject their nearest school in the more dense areas.

The fact of the matter is, however, that 22% of respondents did not give their address. As in recent years the issue of school choice has been a relatively controversial topic in the local media in Liberec, it can be assumed that some of the respondents did not give their home address (or did not even hand in the questionnaire) in an attempt to hide the fact that their children attend a school outside of their catchment area. These assumptions would need to be validated in a further study, however.

4.2 Factors influencing school choice

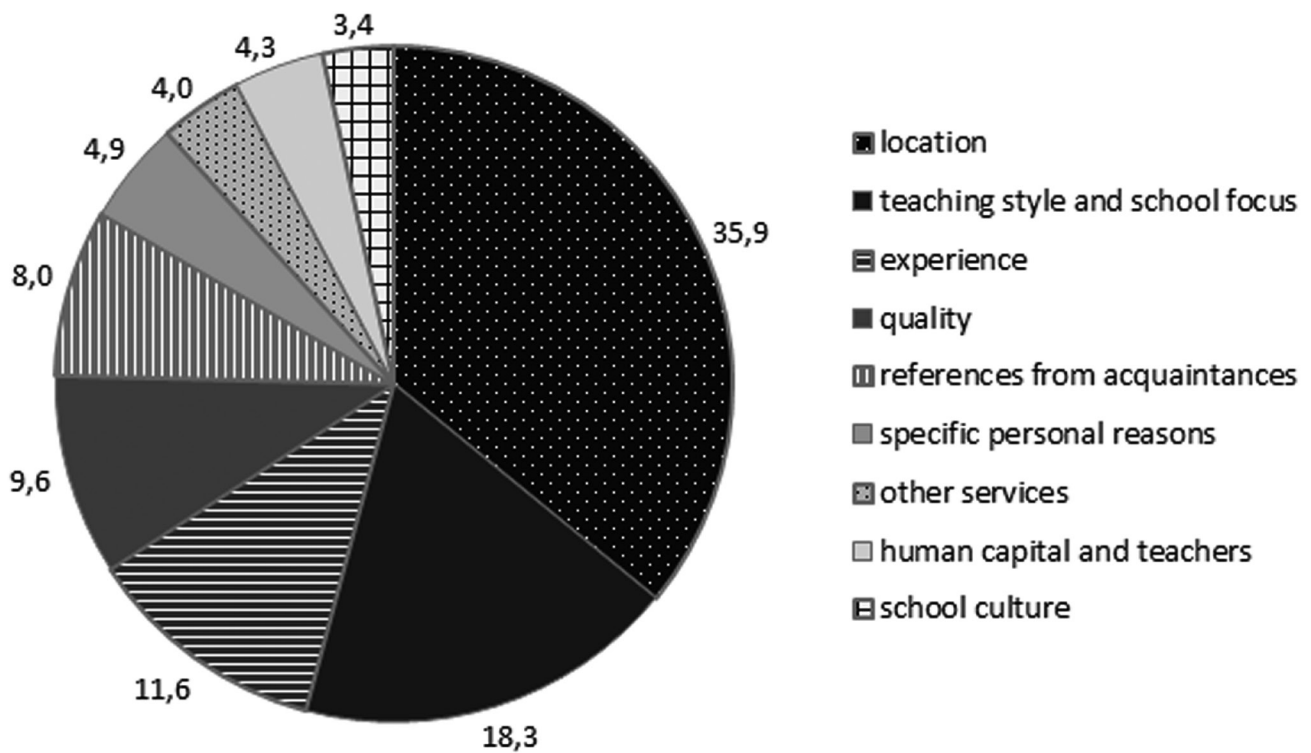
The second research question focused on in this study was: On the basis of what criteria do parents pick a school for their children? As a part of the questionnaire survey conducted at selected elementary schools in different types of residential zones of Liberec, parents were posed an open question about the factors that influenced their choice of elementary school. Responses were correlated with respondents' residential zone type.

As this was an open question, a multitude of response types was recorded. Therefore, in order to analyze the responses it was necessary to first generalize and categorize them. Thus, nine general factors that play an important role in elementary school choice for pupils beginning their compulsory education were identified. An overview of these general categories is given in Table 1; they include the following: location; teaching style and school focus; experience; other services; quality; references; specific

Tab. 1 Categories of factors influencing elementary school choice among the survey sample.

Factors (category)	Specific factors	Factors (category)	Specific factors
Location	in relation to place of residence	Quality	instruction
	within the city		facilities
	in relation to transportation		school reputation
	within a catchment area		acceptance rates
	in relation to workplace	References from acquaintances	references
	in relation to the place of residence of a family member		recommendations
			reviews from friends
	in relation to other institutions (nursery school, doctor's office, etc.)	Specific personal reasons	not accepted at other schools
Experience	with other child	Human capital and teachers	friends in school
	specific school employees		recommendation from doctor
	contacts at the school	School culture	teaching staff
Teaching style and school focus	school focus	School culture	school management
	teaching methods		atmosphere
	classroom size	Other services	communication
			free-time and extracurricular activities

Source: P. Meyer based on the questionnaire survey.



Graph 1 Frequencies of factors influencing elementary school choice in Liberec in 2015 (in %).

Source: P. Meyer based on the questionnaire survey.

personal reasons; human capital and characteristics of teachers; and school culture. Graph 1 depicts the percentages of each category. Most of the given reasons correspond with the findings of a study conducted by Geppert et al. (2015) in Austria. Nonetheless, in some regards there are differences in the percentage of response types.

From the survey results in Liberec it is clear at first sight that the most significant reason behind school choice, even in current times despite the eradication of strictly assigned school districts, is distance to school as well as other *aspects of location*. These types of responses were given by more than one-third of respondents (36%). This finding corresponds with that of other Czech studies (e.g. Hrtoňová, Střelec 2003); however, in the Austrian study by Geppert et al. (2015) the factor of *ease of access* made up only approximately 10% of responses (the study does not mention any other location-based criteria). The cause behind this difference may be the longer tradition of parental choice in Austria. Foremost, Geppert's et al. (2015) study was conducted among respondents in transition from primary to newly established type of lower secondary school, when the short distance to school is not already so important like for parents of children staying at the beginning of school attendance (Trnková 2009). Simultaneously, the question in Austrian study was posed in different way, like closed question with a list of factors and all of them had to be appreciated by respondents.

The second most frequent reason behind elementary school choice given was *teaching style and school focus* (18%). In comparison with these two factors, the other reasons given are of less significance. Approximately one-tenth of responses fall under the categories of *experience with the given school* and *school quality*, followed by 8% of responses giving *references from acquaintances* as a reason. Other factors were given less than 10% of the time. In contrast, the Austrian study indicates a great emphasis on school quality and image; *school reputation, grades, and good impressions from open house visits* were categories included in approximately 10% of responses.

In interpreting the data obtained from the survey conducted in Liberec it is necessary to take into careful consideration the fact that each category includes a heterogeneity of responses, as a result of which factors may take on relatively different significance. Responses that focused on *location* demonstrate an array of different relations between schools and certain places, areas, and travel trajectories. As hypothesized, parents' most-often-cited factor was the location of the elementary school in relation to their home. Another factor was the macro-location of the school within the city, that is, its location in relation to other key places in the life of the respondent, or the relationship between the school's location and its characteristics (the "good vs. bad address" factor). Spatial

accessibility to schools, including temporal aspects of travel, by public transportation or private automobile was important, as was school location in relation to parental work place, or to other institutes (nursery schools, doctor's offices, etc.). Similarly, accessibility of the school by another family member may refer to two different situations: when the respondent wanted to meet with this family member or when this family member had certain obligations to the pupil (such as dropping them off or picking them up).

In conducting a more detailed analysis of this response category it is therefore necessary to correct the statement that the significance of *distance* in school choice takes into account only catchment area distance (the shortest distance to the place of residence). On the contrary, this category includes a variety of significances attributed to school location stemming from families' daily movements through time and space (cf. Temelová et al. 2011; Ellegård 1999).

There is also clear internal differentiation within the set of responses falling under the category of *teaching style and school focus*. The most frequent factor given was school focus. Respondents prefer schools focused either on sports or languages; these findings are in keeping with general trends in Czech society, described, for example, by Dvořák and Straková (2016). Many responses referred to the teaching styles at the school, including the prominence of specific teaching methods (activating methods, group work, project-based learning) or focusing on the needs of individual learners (individualized instruction), specific curricula (e.g., foreign language instruction beginning in first grade), or the comprehensive alternative educational focus of the school (e.g., Montessori schools). Respondents most frequently appreciated small classroom size in connection with the accompanying individualized approach of the teachers to pupils.

Other response types were internally more homogeneous. Reasons behind school choice categorized as *experience* were most often linked to direct experience with a given school by someone in the family – for example, when other children attended the same school, or even when the respondents themselves were graduates – or due to special contacts with people at the school. Related categories include *references from acquaintances*, or indirect experience with the school, and *school culture*, or the impression respondents got from a school when visiting (e.g., during an open-house event) (for more on these factors, see Geppert et al. 2015). Responses falling under the category of *school quality* referred to "high-quality teaching methods" – that is, methods that met the expectations of the respondent (cf. Janík et al. 2013). The quality category also includes responses referring to good school facilities and a school's more broadly received reputation or image, whether purposefully cultivated through marketing or the natural result of comparison with other schools in the city. It could be

also discussed, whether the categories school culture or quality contains explicitly untold but implicitly meant factor of ethnical structure of school as well.

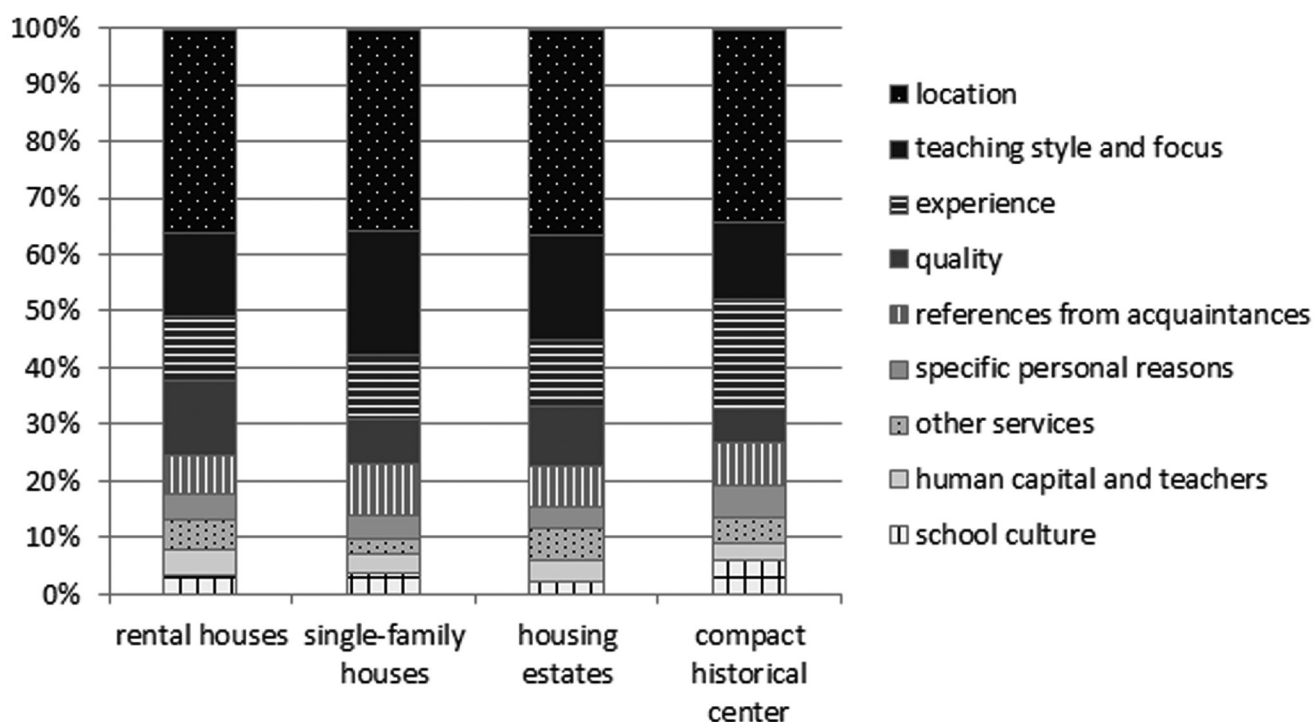
In contrast to many foreign studies, comparing the responses of respondents from various residential zones in Liberec (see Graph 2) did not demonstrate any significant differentiation. It could be expected that respondents from single-family-house zones will be economically better off and when choosing a school they will pay more attention to school quality and image than residents of housing estates and apartment buildings. The survey results, however, indicate that the situation is nearly reversed. A higher percentage of respondents residing in single-family-house zones indicated *teaching style and school focus* as important factors in school choice, due to the survey being conducted at one school featuring elements of alternative education. Nonetheless, the most important factor for respondents from all types of residential zones was *location*. The fact that school choice in Czechia has no elite function for privileged societal groups (cf. Straková, Simonová 2015) may be one explanation, although it is also possible that the methodology behind delineating residential zones and selecting the study sample was faulted. Using other indicators, the survey would first have to clearly identify the socioeconomic status of each respondent and his or her educational aspirations and then determine the motivation behind parental choice in the case of each pupil.

5. Conclusion

The results of a survey of elementary school attendance and parental school choice preferences in the urban environment of Liberec offer up several key conclusions. The attendance the nearest school was measured by means of data from questionnaire survey among parents of first- and second-grade elementary school pupils projected into the model school distance-based catchment areas measured by a straight line from the school to pupils' home.

The percentage of pupils attending the elementary school closest to their place of residence is higher in schools that are located further away from the city center. At the same time, distance-based catchment areas in these outlying parts of the city are several times larger than in the city center. In the urban core, elementary school density is higher and the distance between schools is shorter. Thanks to these facts, parents have greater school choice here and can simultaneously still fulfill their expectations regarding shorter commuting distances. The macro-location of a school within the city can therefore significantly influence the choice of one school over another (cf. Taylor 2001).

The set of preferences that guided elementary school choice among respondents of preliminary questionnaire survey is relatively varied, but nonetheless they can be grouped into categories based on response similarities. These preferences are related



Graph 2 Frequency of factors influencing elementary school choice in Liberec by residential zone type in 2015 (in %).

Source: P. Meyer based on the questionnaire survey.

to both external aspects of the school as well as to internal school or perceived characteristics. Based on the fact that 36% of survey respondents gave *location-based factors* as reasons behind school choice. Parents put greater emphasis on closer schools with shorter commute times or schools with advantageous location within their daily time-space framework. Even what, school location is the most important factor in school choice in all zones of the city, also those with different residential characteristics. These findings are in some respect in opposite to similar, especially foreign studies, which proved different strategies of school choice among parents from various socio-economical environment (e.g., Ball et al. 1995; Holloway, Pimlott-Wilson 2012). It might be caused either by dissimilar behavior of inhabitants in post-socialist city, or by several limits of chosen research methodology, which could be as follows:

First, we investigated number of pupils who (non-) attend the nearest school (see Fig. 1). Nevertheless, with respect to post-socialist inertia of school districts, it could be no less important to study how many pupils follow these school districts which were delimited on the basis of other aspects, not only a metric distance.

Second, the delimitation of particular residential zones within the city was not detailed enough. The other criteria measuring the socio-economical statute of residents should be used for this purpose.

Number of limits could be found in the questionnaire survey as well. To investigate factors of school choice using an open question has the advantage that the respondents could name any idea without being influenced by specified categories. Nevertheless, this seeming freedom might lead to generalization of more specific reasons of school choice under the rather a neutral *location* factor. How was mentioned above, from the articles in the local press is evident that the aspect of choosing a school out of particular school districts substantially discussed issue in Liberec. With respect to non-fully anonymous questionnaire, such circumstances could be concealed. Similarly the controversial issues like race, ethnicity were not mentioned as well. They might be hidden in respondents' choice of factor titled *macro-location within the city*, which also mirrors the aspect of bad and good address.

Finally it is necessary to keep in mind that *location* factor was mentioned only by 36% of respondents. Consequently, two thirds of answers involve different factors from the *location*. The closed question with a list of factors which all of them has to be appreciated by respondents (cf. Geppert et al. 2015) would help to receive more complex public opinion.

More qualitative survey (at least in-depth interviews with parents) in this issue is thus necessary. For full understanding, other factors must be taken into account, including the frameworks of educational policy, the motives of many actors – for example,

school management – and the regional school policy visions of city hall, including the opinions of opposition parties.

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