

Article

The Implications of Urbanization for Inhabitants' Relationship to Their Residential Environment

Matthias Buchecker *  and Jacqueline Frick

Swiss Federal Research Institute WSL, Economics and Social Sciences Unit, Zürcherstrasse 111,
CH-8903 Birmensdorf, Switzerland; frick01@gmail.com

* Correspondence: matthias.buecheker@wsl.ch

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Abstract: In the last decades, prosperous regions in Europe have experienced a tremendous rate of urbanization. In spite of considerable research efforts in the last decades, the socio-psychological implications of urbanization are still poorly understood. This paper aims to systematically determine the influence of urbanization on the relationships between inhabitants and their residential environment including their place attachment, place-satisfaction, civic participation, and proximity behavior. To achieve these goals, standardized cross-sectional questionnaires were administered to random samples ($N = 1200$ each) of the residential population in four study areas in Switzerland, which represent rural, peri-urban, suburban, and urban stages of urbanization. Statistical analysis revealed that place attachment was mainly influenced by the inhabitants' good experiences in the place, their sense of local community, their local social contacts, and the level of urbanization. A structural equation model (SEM) further showed that the degree of urbanization of the setting had a direct negative influence on place attachment, while place attachment appeared to be a key moderator of, and a main driver for, place-satisfaction, civic participation, and proximity behavior. A key to reducing negative impacts of urbanization is therefore to offer optimal opportunities for access to appropriate public places

Keywords: urbanization; spatial planning; place attachment; residential satisfaction; life quality; civic participation; leisure behavior; structural equation modelling

1. Introduction

Urbanization is a worldwide megatrend that has drastically changed people–environment interactions in the last decades and is expected to remain one of the main drivers of global change in the future. Whereas in 1900 only 15% of world's population lived in cities, its share reached 50% in 2007 and is predicted to reach between 70% and 80% by 2050 [1]. The term urbanization means the complex process of extension of urban life styles [2] that includes the growth of cities or towns (physical urbanization) as well as the intensification of interrelations and diffusion processes between the urban and the surrounding rural areas (functional and social urbanization) [3]. Urbanization is also expected to result in a change or loss of social pattern language through more restrictive building regulations and thus less options to shape and appropriate the place, as well as a poorer sense of place [4–6]. Urbanization is considered to be a very complex phenomenon with strong potential impacts on the physical and social environment [7].

Already in the late nineteenth and early twentieth centuries, theorists of the Chicago school of urban sociology were concerned with the consequences of increasing urbanization on social processes and people's place-based behaviour [8]. Tönnies [9] hypothesized that urbanization altered the mode of social cohesion: shifting from communal attachment based on natural will to associational attachments based on rational will. Simmel [10] suggested that urbanization of suburban regions would have

negative effects on people's mental health including a diminished relationship to the local environment and a loss of sense of community. Finally, Wirth [11] postulated in his theory on urbanism that three structural conditions of urbanization, settlement size, settlement density, and heterogeneity of the population, eroded people's socio-psychological connection to the residential environment. Other members of the Chicago school, including Park and Burgess [12], resisted this negative view of urbanization by emphasising the on-going role of socialization processes in creating social networks within local communities, irrespective of the character of the place. Rather than structural aspects of urbanization they accordingly expected that length of residence, position in the social structure, and stage of life cycle mainly shaped people's relationship with their local community [13].

In the last decades, and particularly between 1970 and 1990, a number of studies have been conducted to examine the role of urbanization in inhabitants' relationship with their local environment, but the findings have been inconsistent [14]. These inconsistencies can be attributed to differences in national contexts [15,16], but also to different conceptualizations and measurements of the target variable and the relationship to the local community or the environment [17,18]. Whereas some used scales of place attachment [8,19–21], others used the broad Guttman scale of community sentiment, which includes the community's prospect, community pride or opportunity for membership in community organizations [22], and some measured sense of community using a one-item assessment [17]. Only one of these studies [21] used items explicitly measuring spatial aspects, which is an essential component of the local environment when effects of urbanization are considered. Furthermore, the existing studies investigated study areas with different ranges of urbanization degrees, with some mainly including urban communities (e.g., [20]), and others mainly concentrating on rural contexts [8]. Finally, all of these studies used simplified conceptions of urbanization and mainly focused on characteristics of physical urbanization, such as size and density and in few cases also social heterogeneity, with only one that also included functional aspects [8].

To achieve a more profound and robust understanding of the effects of urbanization on people's relationship to their local environment, a) all relevant dimensions of this people's place relationship have to be involved and b) a more comprehensive conceptualization of urbanization needs to be adopted. Place attachment is probably the most widely used and acknowledged concept to describe people's bond to places [23–26]. Recently, Scannell and Gifford [27] suggested a comprehensive, tripartite framework of behaviour-related aspects of place attachment, including social, spatial, and process aspects, that should embrace the existing breadth of definitions of this construct. A very broad conceptualization of people-place relationships is a strength, as this transactional perspective complies with the very nature of this phenomenon [28]. However, incorporating all aspects of people-place relationships in one construct inhibits the understanding of the dynamic interactions between these aspects, which constitute the development of place attachment [29]. The broad conceptualizations in classic scales of place attachment might therefore explain why there is still little knowledge about the dynamic character of place attachment [30].

In our study, we therefore adopted a two-level approach to measure people's relationship to their local environment, combining a classical scale of place attachment with scales measuring constitutive aspects of place attachment such as social ties, residential satisfaction, proximity leisure behaviour, and civic participation. With this approach, we aimed to systematically determine the influence of urbanization on inhabitants' relationships with their residential environment and to reveal the influence of relevant constituting factors of inhabitants' place relationship. The findings provide insights and directions as to how to enhance inhabitants' relationships with their local environment under conditions of on-going urbanization.

1.1. Place Attachment And Urbanization Processes

People's relationship to places have been conceptualised with different constructs, such as sense of place [31,32], place identity [33,34] or place attachment [14,24]. To measure associations between people-place relationships and other societal phenomena such as risk perception [35], attitudes towards

renewable energy projects [26,36] or sustainable behaviour [14,37], established scales of place attachment are most commonly used. Like other people–place relationship concepts, a common understanding or definition of place attachment is missing [21]. Originally, Altman and Low [24] described place attachment as “an integrating concept that emphasises the affective relation to environmental settings”. In recent literature, place attachment is predominantly considered as a multidimensional concept that involves affective and cognitive connections to a place [27]. Analysis of data from very diverse contexts furthermore provides considerable evidence that place attachment has a two-factor structure including place identity and place dependence [38].

Whereas Scannell and Gifford suggest a broad framework of place attachment that includes all dimensions of people–place bonds, recent studies, partly from the same authors, recommend differentiating between distinct subtypes of place attachment such as civic and natural place attachment [37] or traditional and active place attachment [14]. To understand associations between place attachment and other factors, such as urbanization, in a robust way, measurements of the broader concept and of relevant sub-dimensions are needed because the links between these levels are relevant, as recent studies [18,39] have highlighted. Information on one level alone leaves too much unclarity about the interaction process because, as has been stated early in transactional place attachment research, “the same construct may have different manifestations in different times and places” [28]. This is probably a main reason why the dynamics of place attachment are still little understood [26].

Indeed, in spite of considerable research efforts, the findings on the interrelation between urbanization and place attachment have remained inconsistent [14]. Only very few studies have considered the effects of changes in the place on place attachment [21], and only one study specifically investigated the associations between urbanization-related place changes and place attachment as defined from a transactional perspective. In that study, Wirth et al. [21] revealed that the place attachment of inhabitants of a suburban settlement was positively associated with perceived spatial changes related to recent settlement growth. This growth mainly referred to physical urbanization of a suburb of Zürich with a rather bad reputation, which explains why the change was mainly considered to be positive.

A number of older studies have found positive associations between urbanization and place bonds, although using simplified measurements of the concept. Theodori and Luloff [8] revealed, in a study of four, rather rural counties in Pennsylvania, that community attachment was higher in the most urbanised county than in two more rural counties considering urban presence and urban pressure. They explained this inconsistency with Wirth’s theory [11] that most Americans wish to live in small places that are also within easy reach of a larger city, which was best provided by this most urbanised county. Similarly, a large study conducted in 100 counties of North Carolina [22] identified service quality (positive) and density (negative), and to a lower degree heterogeneity (negative), as the main predictors of community sentiment, which is an index containing items related to Wirth’s theory such as malaise, anonymity, impotence, and impersonality. This implies that people in small growth centres, which are moderately urbanised, might find “the best of both worlds”. Even more contrary to Wirth’s theory on the negative urbanization effects of urbanity were the findings of two studies that compared the development model, according to Wirth [11], with an alternative systemic model based on Park and Burgess [12] and focusing on on-going socialization. An earlier study, conducted throughout England [20], had found that the length of residence (dichotomous variable “born in the place”), as one indicator of on-going socialization, was the dominant predictor of community attachment as well as of social ties, whereas the influence of settlement size and settlement density appeared to be rather insignificant. This finding was used to criticize the developmental model for its failure to consider that length of residence was related to urbanization. A quasi replication of this study conducted in 25 communities of Iowa [13] confirmed those findings and additionally revealed that life cycle (>50 years) was a second highly relevant predictor and therefore claimed proof of the systemic model.

There is, however, some empirical evidence supporting Wirth’s theory and the negative effect of urbanization on people’s place bond. Dillman and Treblay [40] reported higher levels of satisfaction of

inhabitants of more rural places summarizing a wide range of empirical research on the relationship between size/density of settlements and generalized feelings of well-being. Similarly, Wasserman [41], in a nationwide US survey, found that size of place, age, and association membership, but not length of residence, were significantly linked to community satisfaction, with satisfaction referring to social relationships, service qualities, and place qualities. In reconsideration of the findings by Kasarda and Janowitz [20], Buttel et al. [42] identified, in a state-wide survey in Wisconsin, size of place (negative) and age (positive) as the strongest predictors of community solidarity (including items on community attachment, place attachment, and social ties) and community satisfaction. Furthermore, a survey study in the suburban metropolitan region of Orange County (California) determined, in three independent regression analyses, city size, city density, and social heterogeneity as significant predictors of community attachment, measured with a single assessment item [17]. Consistent with these findings, an in-depth qualitative research of two Swiss suburban villages disclosed the alienation process promoted by urbanization [43]. The higher commuter rate and residential mobility in the more urbanised village eroded residents' sense of community, whereas the settlement growth affected their individual relationship to the local environment and made them escape in their leisure time to more distant recreation areas. This observation is in agreement with Simmel's hypothesis that mobility and indirect communication increases psychological distance to physically close places [44] and findings by Oishi and Kisling [45] that geographic mobility leads to a greater emphasis on individualistic self-aspects. This suggests that the main research gap is the lack of systematic studies on the relationship between functional as well as social urbanization and place attachment, rather than the still unclear relationship between physical urbanization and place attachment, which probably only plays a secondary role.

In spite of more than 30 years of research on place attachment, the knowledge about other causal influential factors of place attachment is rather limited [14,30]. Numerous studies consistently showed that community ties [18,20,46], expressing local social capital, and length of residence [13,46,47] that reflects people's exposure to local socialization positively influence place attachment. A relevant predictor of place attachment that has also rather consistently been found is people's membership in associations [48]. There is also some evidence about physical predictors, especially access to nature and neighbourhood quality [49], but also perceived control over the residence area, stability of the neighbourhood, and lack of disorder [50]. Rather little is, however, known about the relative role of the presence of cultural heritage; individual spatial experiences (appropriation) in the place, such as outdoor recreation; involvement in the development of the place; or contributions to the development of the place.

1.2. Urbanization And Civic Participation

Civic participation is a constitutive aspect of inhabitants' relationship to their local environment (e.g., [43,51]), but it has not been considered as an aspect of place attachment, even in very comprehensive frameworks, such as that suggested by Scannell and Gifford [27]. Moreover, it is still disputed how place attachment is related to civic participation [14]. Civic participation refers to inhabitants' social, emotional, and financial participation in civic life and involves activities such as voting, volunteerism, association membership, or political and community activism [52,53].

There is a lack of theory on the relationship between social environments and civic participation [54]. Simmel hypothesized that indirect and mediated communication in more urban settings is associated with decreased motivation for action and concrete practices by inhabitants [44]. Like other social theorists, he did not clearly refer to civic participation, while theorists of public participation focus on factors related to individuals rather than on social contexts [54]. According to the modernization theory, a higher political interest and involvement can be expected in urban areas due to higher educational levels and higher exposure to mass media [16]. However, more than political participation, civic participation depends, according to a model by Verba et al. [55], not only on interest but also on individual resources and mobilization.

Empirical research on the relationship between urbanization and civic participation is rather inconclusive and predominantly dates back several decades. In some countries, such as the US, national surveys found a higher psychological involvement in politics and a higher voting turnout in urban centres [56]. Opposite tendencies were, however, observed in other countries, such as Germany, France, Britain, and Japan [16], suggesting that participation behaviour depends on national and regional settings. Oliver [54] provided rather comprehensive and robust empirical evidence on the role of urbanization for civic participation using data from a US national survey. He found that, in metropolitan regions, some forms of civic participation, such as attending community board meetings or contacting local officials, systematically decreased with the increase of the municipality's population size. In contrast, civic participation in rural areas appeared to be generally at a lower level in the smallest settlement size category and showed inconsistent tendencies with the increase of a municipality's population size depending on the form of participation. A negative relationship between urbanization and civic participation was confirmed by an analysis of the European Social Survey that included data from 19 European countries [57]. In this analysis, suburbs, and in particular large cities, appeared to be negative, and country villages, and in particular countryside, to be positive predictors of civic participation, which was measured by the degree of involvement in 12 types of voluntary associations. Similarly, Stadelmann-Steffen and Freitag [58] found, based on the Swiss Volunteering Survey, that living in an urban community, as well as living in an urban canton, was a relevant negative predictor for individual voluntary work. Against these findings, a study by Hooghe and Botterman [59], based on a national survey in Belgium, could not determine a significant relationship between population density or community size and scope or intensity of participation in voluntary organizations. Overall, the evidence for a negative relationship between urbanization and civic participation seems to be stronger than the few contradicting findings that used less comprehensive measures of the two variables and focused on more specific contexts.

Comprehensive considerations that include further potential causal influential factors are more insightful than statistical associations between urbanization and civic participation. Richardson [16] provides such a comprehensive analysis of factors influencing civic participation by analysing data from Japanese studies and demonstrating that the markedly higher civic participation in rural Japan had a plurality of reasons. These include the clear rural community structure that facilitates mobilization; higher density of social interaction that enables social action; stronger interest in tangible implications of electoral outcomes (rather than in abstract politics); closer contact to decision makers; lower social mobility that is associated with higher salience of community loyalty; less pronounced pessimism about political processes that are disseminated by media; and stronger norms favouring active participation. Other studies that have considered the relationship between urbanization and civic participation have only included socio demographic data and consistently highlighted the positive influence of the education level and age [54,57–59]. Further relevant individual predictors appeared to be home ownership [54], fulltime employment (negative), and length of residence [58]. The European Social Survey data that Wallace and Pichler [57] used for their study confirmed the role of the national or cultural context in the level of civic participation. They found substantial differences between countries with high civic participation, such as Sweden, the Netherlands, Norway, Austria, and Denmark, and countries with low civic participation such as Spain, Portugal, Hungary, Poland, and Greece, which Lewicka [18] interpreted as a consequence of the value orientation (tradition vs. post-materialism) in these countries.

The role of place attachment in civic engagement is more frequently hypothesized but highly debated. A number of studies have determined a positive relationship between place attachment and inhabitants' reactions to encroachments on their environment [47,60,61]. A small study in an American county found a significant association between place attachment and involvement in community problem solving [52]. The European Social Survey [57] also disclosed a significant relationship between satisfaction with quality of life, which is considered a good indicator for place attachment, and participation in voluntary associations. Lewicka [18], however, in a large survey study in Polish

and Ukrainian cities, found that inhabitants' neighbourhood ties, rather than their (overall) place attachment, influenced their civic involvement. In a more recent study focused on the psychological influential factors of civic participation, Lewicka [18] revealed that people's local civic activity in Poland could be mainly predicted by their cultural capital, whereas people's place attachment was only relevant if they had strong neighbourhood ties or strong interest in their roots. A qualitative study in Switzerland [43] confirmed this finding by showing that people were only motivated to participate in the development of their municipality if they identified themselves, not only collectively (as part of the village community), but also individually with the place. A meta-analysis of the relationship between sense of community as an "extra-individual connectedness observed in collective lives" and community participation [62] found significant associations between these constructs for both civic and political forms. However, it also revealed that this association only holds true for samples of adult persons and only in some national contexts, such as the US where individualism might be more advanced.

1.3. Research Objectives

In spite of considerable research efforts made in the last decades, the interlinkages between urbanization and inhabitants' relationships with their local environment have remained rather unclear [30]. This is mainly because of the complexity of these two phenomena, but also due to the simplified conceptualizations and measurements that were investigated in most studies. Settlement size is an inappropriate indicator of urbanization, and place attachment is too broad a concept for exploring the social dynamics that urbanization might trigger. A further problem has been the contextual differences, especially on national [57] and regional [58] levels that are blurred by cross-regional studies. In our study, we aim to overcome the shortcomings in the research design of previous studies to gain a clearer understanding of the changes in inhabitants' relationships with their local environment caused by urbanization.

To address this aim, we conceptualise urbanization in the sense of functional rather than physical urbanization and measure place attachment on two levels using a conventional, broad construct and several relevant one-dimensional sub-constructs of place attachment. We therefore adopt a two-level approach to measure people's relationship with their local environment, combining a classical scale of place attachment with scales measuring constitutive aspects of place attachment such as social ties, residential satisfaction, proximity leisure behaviour, and civic participation. With this approach, we systematically determine the influence of urbanization on inhabitants' relationship to their residential environment to reveal the relevant constituting factors that influence inhabitants' place relationship.

Furthermore, we conduct our study in one transect of a metropolitan area rather than in different contexts and measure a maximum of additional social parameters that might explain the dynamics of place attachment related to urbanization. With this approach, we can learn how urbanization changes inhabitants' relationships with their local environment; how it affects their civic engagement in their local environment, which can be seen as part or as a consequence of people's place relationship; and determine which other factors predict these forms of relationship. The findings provide insights and directions to enhance inhabitants' relationship to their local environment under conditions of on-going urbanization and thus provide potentials tools for planners to enhance them.

2. Methods

2.1. Study Area

The research was conducted in four study areas in Switzerland that represent different levels of urbanization. These study areas were selected based on a Swiss municipality typology [63] according to the centre-periphery model [63,64], a typology of spaces with urban characteristics [65], as well as

available statistical data provided by the Swiss Federal Statistic Office. These data allowed the choice of study areas typical for specific urbanization levels.

Three study areas were selected within the metropolitan area of Zürich, which is the economic centre of Switzerland. These were the urban district of Zürich North, the suburban municipality of Rudolfstetten–Friedlisberg, and the peri-urban municipality of Bubikon. The fourth study area was the rural (semi-tourist) region of Obergoms in the southern Swiss Alps (see Figure 1), which was selected to provide a pronounced rural example. These study areas represent a transect from a most rural area to a most urbanised area in Switzerland, which is characterised by a clear gradient in terms of centrality, spatial density, and functional interaction with the centre (see Table 1). According to the typology of spaces with urban characteristics, the three metropolitan study areas are termed “agglomeration core municipality (main core)”, “agglomeration core municipality (side core)”, and “agglomeration belt municipality”. The characteristics of the study areas are briefly shown in Table 1.

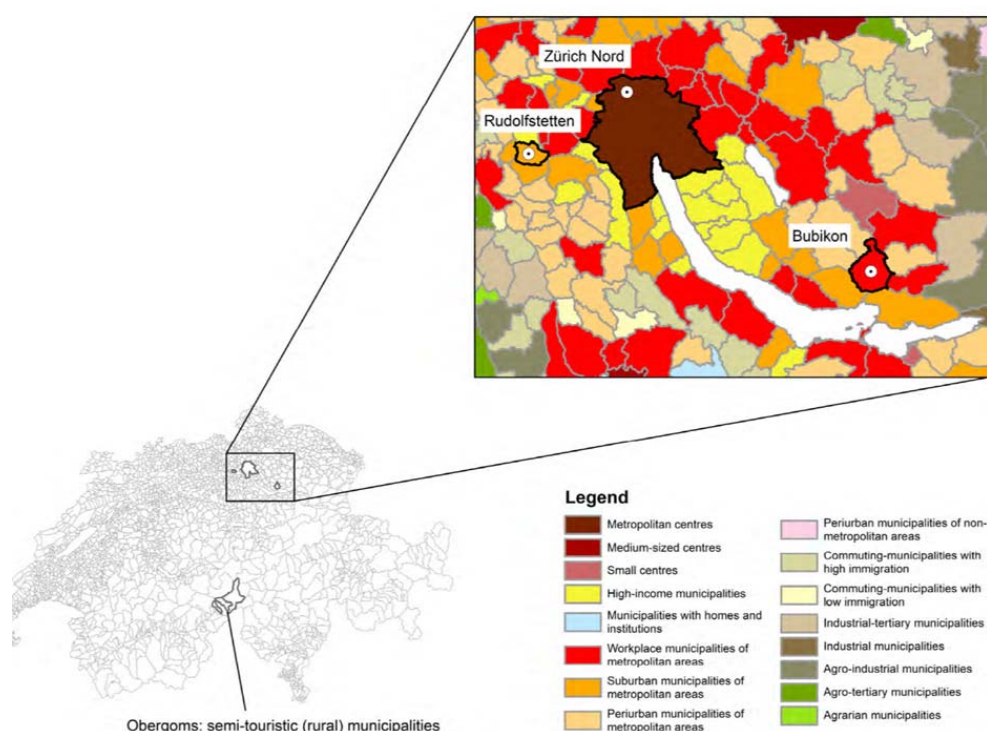
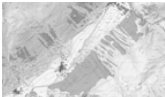


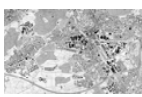


Figure 1. The location of three metropolitan research areas (detailed map depicting the municipality types and Swiss map) and the rural study area (Swiss map).

Table 1. Characteristics of the study areas.

	Obergoms	Bubikon	Rudolfstetten	Zürich Nord
<i>Urbanization level</i>	Rural (region)	Peri-urban	Sub-urban	Urban (district)
<i>Distance from regional centre</i>	70 km	25 km	15 km	5 km
<i>Number of Inhabitants</i>	1384	6856	4316	67945
<i>Population density</i>	49 pers./km ²	623 pers./km ²	959 pers./km ²	5070 pers./km ²
<i>Grown up in city</i>	missing	19.3 %	31.1 %	69.5 %
<i>Share of foreigners</i>	10.7 %	10.1 %	21.5 %	33.9 %
<i>Settlement pattern</i>				

The urban district: Zürich North, includes the three former municipalities, Oerlikon, Seebach, and Affoltern, that were incorporated into the city of Zürich in 1934 and still form distinct administrative

circles with their traditional settlement cores. After a stagnation phase in the late 20th century, all three circles have grown in population size since 2000 and belong to the most dynamic districts of Zürich [66]. The population is younger (15% older than 64 years) and has a lower social status (>25% with lower status) than the average in the city. Most of the inhabitants work within the city—in particular, within the district and in the city centre [66]. The industrial sector was traditionally strong, and Oerlikon was formerly known as the site of the metal industry, i.e., Oerlikon–Bührle. Within the district, about 21% of the employees work in the industrial sector, as compared to less than 8% of Zürich overall, with the rest employed in the service sector [67]. As a consequence of the rapid development, a strong settlement densification has taken place: the proportion of single-family houses was substantially reduced already in the late 1960's (2010: 30% single-family houses), and considerable areas of green spaces have recently been built on. Especially in Oerlikon, the core of the settlement has assumed an inner city character, and the proportion of people affected by noise in the district is above the average of the city due to intense traffic use. To improve the situation, the city of Zürich elaborated a landscape development concept for this district and has launched an initiative “new impulses for Zürich North”. In the last years, the image, especially of Oerlikon, has changed from a centre of industry to a place of modern living including attractive city parks.

The municipality of Rudolfstetten–Friedlisberg is located only slightly outside of the immediate agglomeration zone of Zürich, on a pass above the Limmat valley. Until the late fifties, it consisted of a rather poor village of farmers and local workers [68]. In the decades that followed, and with the provision of transport infrastructure, the population increased dramatically from 1100 in 1960 to 3600 in 1980, and the municipality became a typical suburb of Zürich with high proportions of commuters. After a period of little growth, the population grew by another 20% between 2000 and 2015. In total, 82% of the employed inhabitants commute for work to other municipalities, of which 37% commute to Zürich. Between 1970 and 2000, the number of inhabitants working in the farm sector dropped from 46 to 29 persons, and the number working in the industrial sector halved from 56% to 26%, meaning that the social status of the population increased substantially. Accordingly, the proportion of single family houses increased to nearly 80%. Whereas the main settlement Rudolfstetten adopted the typical spatial features of a suburb, the village of Friedlisberg kept its character of a traditional farmer village. The surroundings of Rudolfstetten are still dominated by agricultural land and forests. The municipality suffers from considerable noise emissions due to private traffic because Rudolfstetten lies alongside an important pass road, and the region behind the pass is also strongly oriented towards Zürich.

The municipality of Bubikon was traditionally a rural town in which industrial production was established very early. As a rural centre, the number of inhabitants grew slowly between 1850 and 1950, from 1600 to 2250 inhabitants before increasing by an average of around 100 persons per year, reaching 7000 persons in 2015. Unlike in Rudolfstetten, the number of people employed in the municipality also increased substantially, with 3100 working places in 2008, of which some 850 were taken by local inhabitants. Bubikon has therefore been assigned to the municipality type “work place municipality”. Nevertheless, 2500 people (72%) of the employed inhabitants commuted in 2000 for work to other municipalities, of which 23% travelled to Zürich. The number of inhabitants working in the agricultural sector decreased between 1970 and 2000, although somewhat less than in Rudolfstetten, from 137 to 99 persons, while the proportion of people working in the industrial sector decreased in the same period from 66% to 27%. The town of Bubikon has retained its historical core, which is surrounded by modern neighbourhoods. Wolfhausen, the second village of the municipality, has a more recent origin and is grouped around industrial areas. The proportion of single-family houses in the municipality (82%) is slightly higher than that in Rudolfstetten. Both villages are surrounded by richly structured agricultural land with a few forest patches and a small lake.

Obergoms is in the upper part of the Goms region, which is located in the uppermost section of the Rhone Valley in the southern Swiss Alps. We focused our study on three municipalities in the Goms region, Obergoms, Graftschaff, and Münster, which are situated in the highest parts of the Goms. These

municipalities traditionally survived on mountain farming, but have developed nature-based tourism in the last decades, with a focus on Nordic skiing. Due to the lack of jobs apart from tourism, the tendency of commuting is also increasing in this remote region, while foreigners with low professional qualifications have moved into the region (35.6% in-commuters in 2000). The proportion of inhabitants commuting outside of the region increased from 30% in 1970 to 62% in 2000. At the same time, the populations in the whole Goms area slightly increased between 1970 and 2010 from 4090 to 4745, while the population in the selected municipalities remained reasonably constant at 1420 inhabitants. In spite of the stagnation, the settlements have been moderately expanded due to second home developments, so the proportion of single-family houses is increasing (2010: 54%). Outside of the settlement, the landscape changes are rather marginal. The traffic noise is, however, to some extent an issue in the summer season due to the popularity of crossing the Alpine passes by car or motorbike.

2.2. Materials and Methods

In each of the three study areas located in the Zürich metropolitan region, a random sample of 1000 persons ranging between the age between 16 and 84 years was selected, to which a standardised questionnaire was administered. For the Obergoms region, the sample size was limited to 500 persons due to the small population size (Table 2).

Table 2. Sizes, return rates, and socio-demographic characteristics of samples representing the four study areas.

	Obergoms (Rural)	Bubikon (Peri-Urban)	Rudolfstetten (Sub-Urban)	Zürich-Nord (Urban)
Sample	500	1000	1000	1000
Return rate	19.9%	38%	39%	32%
Number of respondents	99	380	390	320
Mean age (years)	52	44	49	47
Share of women (%)	64.9	51.5	49.7	51.7
Time of residence (years)	33	9	8	8
Grown up in city	missing	19.3%	31.1%	69.5%

In all four study areas, the random samples were drawn from address data of the inhabitants provided by the local administrations, and nearly identical questionnaires were sent via mail. In the Goms region, where the random sample represented more than one third of the inhabitants, a number of households received several questionnaires, which might explain why the response rate was considerably lower in this study area. This circumstance might also be a cause that the survey in the Obergoms region was less representative in terms of some demographic characteristics such as gender and age (Table 2). This bias was accounted for in the analysis of the data by controlling for demographic characteristics.

The return rate was above average for Swiss surveys, with 38% in the rural commuter commune, 39% in the peri-urban commune, and 32% in the suburban commune. The data were analysed in terms of multivariate statistics. To identify the principal components or factors within the landscape requirements, the perceived satisfaction was multiplied with the perceived importance of the aspects [69].

2.3. Measures

The questionnaire was designed to measure inhabitants' relationship to their local environment and included a wide range of factors that potentially influence this relationship. The questions were

based on the findings of a qualitative study on people's relationship with their local environment in two differently urbanised municipalities [43,70].

Inhabitants' relationship with their local environment was conceptualized using a hierarchical approach. As in most of the recent studies on people–place relationships, place attachment was included as a core concept. This concept is, however, very broad, covering all interactions between people, place, and psychological processes [27] and can, in a certain sense, be considered as a black box [14]. Therefore, we also measured two other levels of people–place relationships. These were relevant sub-concepts of place attachment such as place identity, place dependence, and social bonds; and concepts closely related to place attachment, but representing other people–place relationship aspects, such as civic participation, satisfaction with the home place, and proximity leisure behaviour, which Scannell and Gifford [27] claim is a part of place attachment.

We hypothesized that the level of urbanization would have a negative influence on place attachment, and that place attachment would have a positive influence on the three other place relationship aspects (see Figure 2). This assumption builds, in its comprehensive form, on Georg Simmels' theory on metropolis and mental life [10] in which urbanization reduces individuals' relationship with the local environment and community (i.e., loss of place attachment) due to the increased social and spatial dynamics. As a consequence of this condition, Simmels predicted a loss of satisfaction of emotional needs (i.e., place satisfaction), an increased interest in exotic places (i.e., reduced proximity behaviour), and decreased motives for concrete practices as well as social reserve (i.e., reduced civic participation) [44]. Accordingly, the concept of place identity suggests a mediated effect of urbanization through place attachment, which is closely related to place attachment but better understood in terms of its dynamics [14,26]. The high degree of place dynamics during urbanization erodes most individuals' self-related place meanings and thus reduces their place identity. Depletion of place identity negatively affects individuals' well-being and need satisfaction, degrades their motivation to engage in the place, and drives them to regulate their identity in more distant places [33,34,71].

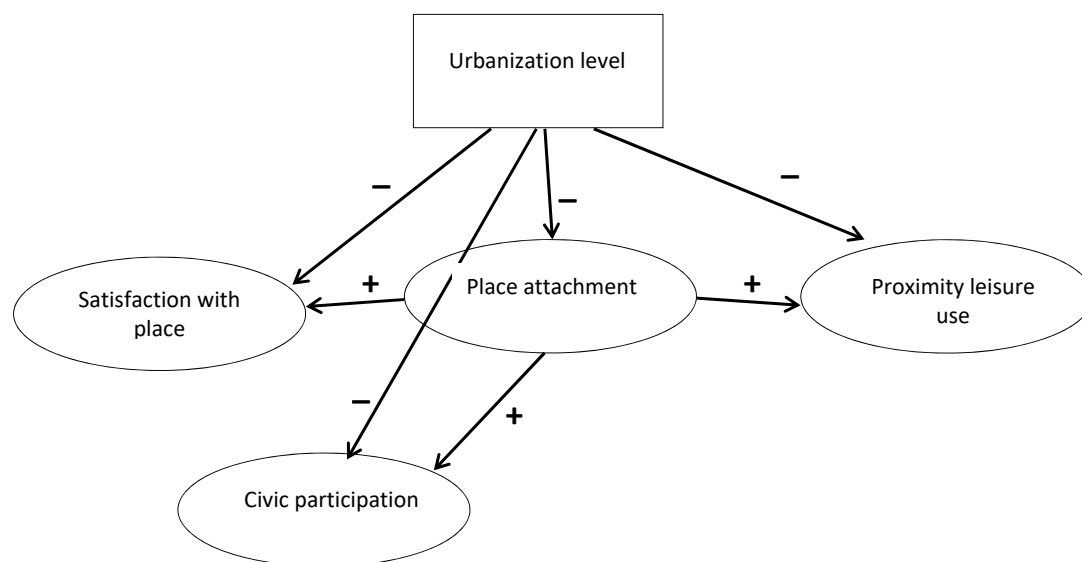


Figure 2. Hypothesized relationships between the place–relationship parameters.

The single aspects of the hypothesized relationships are supported by a number of conceptual and empirical studies. The negative influence of the level of urbanization on place attachment has been suggested by Wirth's seminal work "urbanism as a way of life" [11] and tentatively corroborated by a number of empirical studies presented in Section 1.1. The positive influence of place attachment on civic participation is consistent with the attitude–behaviour consistency theory [72] and the more

recent MODE (motivation and opportunity as determinants) model [73]. The empirical evidence of this relationship is, however, quite limited [14,18,62] and has been demonstrated in Section 1.2.

Place attachment and satisfaction with the place are generally seen as closely related concepts [14] and, in some studies, place satisfaction has even been used to operationalize place attachment (Nur et al., 2010 in [14,17]). Place satisfaction is defined as “a summary judgement of perceived quality of a setting, meeting an individuals’ needs for the physical characteristics of a place, its services, and social dimensions” [32]. In spite of the close association of the two concepts, there are only few studies that have scrutinized the interrelation between them [74]. Some studies show that place attachment, when conceptualized as place identity and place dependence, can significantly predict place satisfaction [75,76], whereas the sub-dimension of social bonding appears to be less clearly associated with place satisfaction [77]. A recent study, using a structure equation model, suggests that place dependence and place attachment have a positive influence on place satisfaction, while social bonding has a negative influence, and place identity appears to be insignificant [74].

In the tripartite place attachment framework by Scannell and Gifford [27], proximity leisure use can be considered as a proximity maintaining behavioural aspect of place attachment. However, Fuhrer and Kaiser [78] found, in a comprehensive empirical study, that a lack of attachment to the private home resulted in urban residents’ higher leisure mobility, which suggests that it can rather be seen as a consequence of place attachment. Buchecker [70] confirmed these findings in a qualitative study of residents’ attachment to the public space in a peri-urban context; if they could not identify themselves individually with places in the proximity of their homes, they tended to escape in their leisure time to more distant recreation areas. A recent empirical study in a Swedish Biosphere Reserve [79] similarly revealed a strong relationship between place attachment and respondents’ level of outdoor recreation participation.

2.4. Operationalization of the Key Concepts

The questionnaire included 47 questions with a standardised answer format covering 14 pages with emphasis given to systematically operationalizing the constructs representing the four aspects of people–place relationships. Place attachment was measured using 9 items selected from two tested scales [38,80]. Satisfaction with the place was quantified with four items measuring satisfaction with the private residence, with the residential environment, with the life in the residential environment, and with life in general (10 point scale). Respondents’ proximity leisure behavior was measured, in accordance with Degenhardt et al. [81], with four items referring to the leisure time spent in the green space around the house, the nearby outdoor recreation areas around the residential environment, the residential region, and outside of the residential region (5 point scale). Civic participation was measured with 12 items recording respondents’ reported activity in twelve forms of political and civic participation (dichotomous variables).

A substantial part of the questionnaire addressed respondents’ satisfaction with (5-point scale), and perceived importance of (10-point scale), 34 environmental quality aspects (conditions, equipment and options), which Buchecker [70] identified as requirements for fulfilling people’s landscape related basic needs. In addition to physical aspects, a specific focus was also given to subjective aspects, such as spatial appropriation, which refers to creating meanings and place making. The questionnaire included 12 items to assess social and spatial changes within the municipality (5-point scale) and six items to assess socio–demographic aspects. The items and scales of the main concepts are shown in Table 3.

Table 3. Items and scales of the main concepts measured in the standardised questionnaires.

	Mean	Range	SD	Cronbach's Alpha
Place attachment		1–5		0.801
I have distinctive emotions towards my municipality/district	3.16	1–5	1.33	
If I would move away, I would miss something	3.39	1–5	1.34	
I could spend my time as well in another place	2.89	1–5	1.27	
A large part of my life is organized around my municipality/district	3.01	1–5	1.36	
I have the feeling that I belong to this place	3.3	1–5	1.25	
This place is like made for me	3.05	1–5	1.18	
Residential quality		0–10		0.720
Satisfaction with your life in the municipality overall	7.64	0–10	1.95	
Satisfaction with your private residence	8.29	0–10	1.79	
Satisfaction with your residential environment	7.40	0–10	2.10	
Satisfaction with your life in general	8.43	0–10	1.59	
Perceived social development				0.742
The municipality developed towards a lively place	3.11	1–5	1.04	
The municipality developed towards a more socially open place	3.23	1–5	0.99	
The municipality developed towards more coherence	3.11	1–5	0.96	
The municipality developed towards a higher life quality	3.17	1–5	0.86	
Perceived spatial development		1–5		0.743
The municipality developed towards a sustainable place	3.03	1–5	0.80	
The scenery of the place has improved	3.23	1–5	1.00	
The municipality developed towards a higher life quality	3.18	1–5	0.85	
The landscape quality has improved	3.09	1–5	0.78	
The municipality has developed positively	3.53	1–5	0.95	
The municipality has developed towards a characteristic place	3.28	1–5	0.99	
Quality of natural elements				0.874
Nature	3.45	1–5	0.914	
Beautiful landscape	3.31	1–5	1.036	
Places to walk without being disturbed	3.22	1–5	1.044	
Privacy	3.26	1–5	0.934	
Tranquillity	2.83	1–5	1.249	
Places left to nature	2.70	1–5	1.203	
Places reminding me of the past	2.36	1–5	1.366	
Spatial appropriation				0.871
I can use my abilities in the place	2.19	1–5	1.117	
I can actualize myself in the place	2.16	1–5	1.078	
I can get involved in the making of the place	2.25	1–5	1.133	
I can act creatively in the place	2.06	1–5	1.077	
I can participate actively in shaping the place	1.66	1–5	1.122	
I can get to know new people in the place	3.32	1–5	1.123	
Proximity leisure behaviour				0.816
Time spent around the residential house	3.46		0.828	
Time spent in the residential municipality	2.41	1–5	1.018	
Time spent outside of the residential region	2.57	1–5	1.009	

Table 3. Cont.

	Mean	Range	SD	Cronbach's Alpha
Civic participation				0.612
Sum civic participation	2.71	0–12	2.873	
Sum political participation	0.56	0–1	0.620	
Participation in an information event	0.49	0–1	0.50	
Participation in a local workshop	0.10	0–1	0.294	
No (civic participation) action	0.74	0–1	0.44	
Social integration				0.750
I know many persons in my municipality (social contacts)	3.36	1–5	1.084	
I am interested what is going on in my municipality	3.45	1–5	1.106	
I have a good overview of what is going on in my municipality	3.09	1–5	1.080	

3. Results

Place Attachment And Urbanization

Analysis of variance (ANOVA) for residents' place attachment, the most narrow aspect of the people–place relationship, revealed a significant decrease in the transect between the rural and the suburban study area, whereas the slight increase observed between the suburban and the urban study area appeared to be not significant (see Table 4). In the suburban and urban study areas, place attachment is thereby perceived as more or less neutral. Interestingly, sense of community, the collective aspect of place attachment, was considerably more positive in all study areas, with the negative gradient in the transect being even more pronounced. In contrast, spatial appropriation, the experiential aspect of place attachment, was found to be more evenly experienced in the four study areas and generally rated rather negatively.

Table 4. Mean values and ANOVA of respondents' place attachment in the four differently urbanized study areas as compared to the values of further place-relationship parameters.

	Rural	Peri-Urban	Sub-Urban	Urban	F-Value
Place attachment	3.78	3.36***	2.96***	3.07	31.5***
Spatial appropriation	3.42	2.90***	2.45***	2.59	46.5***
Social contacts	3.25	2.21***	1.75**	1.85	54.0*** ¹
Sense of community	4.46	3.57***	3.23***	3.19	50.6***

¹ Welch/Games–Howell; ** $p < 0.01$; *** $p < 0.001$.

A stepwise regression using place attachment as the dependent variable highlights that place attachment is determined by factors representing a diversity of constitutive sources (Table 5). “Good experiences in the place”, representing individual appropriation, appears to be the strongest predictor of place attachment but “social contacts”, which is the social component, and “sense of community”, which is the collective component of place attachment also appeared to be essential influential factors. The spatial endowment of the place expressed by “outdoor recreation options” was found to be of similar relevance for place attachment, while “individual traces left in the place”, which represents active participation in shaping the place, appeared to be less influential. The level of urbanization and time of residence, which represent the temporal and contextual components of place attachment, remained as significant factors in the final model of the regression analysis. This occurred although the main influential factors representing aspects more directly constituting place attachment are themselves constituted by these two components. Two factors that describe constitutive aspects of

urbanization, house ownership referring to densification and place of work indicating commuting behaviour, also appeared to be significant predictors of place attachment

Table 5. The main influential factors of place attachment. Findings of a hierarchical regression analysis. Variables excluded in all regression models: age, place knowledge, participation options.

	Model 1	Model 2	Model 3
Time of residence	−0.334***	−0.119**	−0.122**
Urbanization level	−0.192***	−0.089*	−0.075*
Place of work	−0.122**	−0.075*	−0.067*
House ownership	−0.109*	−0.094**	−0.106**
Good experiences in the place		0.295***	0.236***
Social contacts		0.216***	0.200***
Individual traces left in the place		0.112**	0.120**
Sense of community		0.201**	0.177***
Outdoor recreation options			0.185***
R ²	0.171	0.468	0.503

Excluded: age, place knowledge, participation options; *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Satisfaction with the residential place, which is an aspect of the people–place relationship that was expected to be strongly linked to place attachment [14], showed a less consistent value pattern in the urbanization transect than place attachment (Table 6). The most systematic decline of values between the most rural and the most urban study area was found for the domain “satisfaction with the private residence”, which might express the decrease of the affordable flat sizes due to the urbanization-driven land prices. The respective decline in the domain of “satisfaction with the residential environment” is also rather systematic with the values in the rural and peri-urban study areas appearing to be nearly identical, while a significant difference was found between the peri-urban and the suburban study areas. For the domain of “satisfaction with the life in the residential place”, however, there appeared to be no association between the satisfaction ratings and the urbanization level. The highest satisfaction values were found in the peri-urban and urban study areas, which differ significantly from those in the rural and suburban study areas. No significant differences in residents’ satisfaction with their life were found between the study areas.

Table 6. Mean values and ANOVA of respondents’ satisfaction with diverse domains of their life in the four differently urbanized study areas, measured by the leisure time they spent in three area units.

Satisfaction with	Rural	Peri-Urban	Sub-Urban	Urban	F-Value
Private residence	8.86	8.48	8.37	7.83***	12.4***
Residential environment	7.74	7.78	7.26**	7.07	8.1***
Life in the residential place	7.18	8.08 ***	7.20***	7.77***	17.5*** ¹
Life in total	8.77	8.43	8.41	8.32	1.9

¹ Welch/Games–Howell; *** $p < 0.001$; ** $p < 0.01$.

With regard to residents’ proximity leisure activity, which is a behavioural aspect of people–place relationships, a highly systematic pattern of values in the urbanization transect could be determined (Table 7). The values of both the time spent in the home environment and in the time spent outside of the home region indicate a significant decrease of proximity leisure behaviour with an increase in the urbanization level. The gradient of values of the variable “Leisure time spent in the green around the home”, which mainly expresses the spatial densification through urbanization, appears to be less pronounced.

Table 7. Mean values and ANOVA of respondents' leisure proximity behavior in the four differently urbanized study areas, measured by the leisure time they spent in three area units.

Leisure Time Spent in	Rural	Peri-Urban	Sub-Urban	Urban	F-Value
Green areas around the house	3.57	3.48	3.55	3.30***	6.2***
Within the home environment	3.20	3.02	2.84**	2.78	11.6***
Outside the home region	2.31	2.42	2.57	2.83**	11.0*** ¹

¹ Welch/Games–Howell; *** $p < 0.001$; ** $p < 0.01$.

Civic participation, which is a combined social and behavioural aspect of people–place relationships, appeared to decrease consistently in several respects (Table 8). Interestingly, the significant change in overall civic participation, including low-threshold activities, takes place between the rural and the peri-urban context, whereas political forms of participation, such as visiting workshops and information events, mainly decrease between peri-urban and suburban contexts. Perceived social integration, as a precursor of civic participation, displays similarities to both civic and political participation, and similar to civic participation, the mean value decreases between the rural and peri-urban contexts, whereas no differences were found between the suburban and urban context, which is similar to political participation.

Table 8. Mean values and ANOVA of respondents' civic participation in the four differently urbanized study areas compared to their political participation and social integration.

	Rural	Peri-Urban	Sub-Urban	Urban	F-Value
Civic participation	3.74	2.88*	2.67	2.26	7.3***
Political participation	0.44	0.34*	0.24***	0.24	17.0***
Social integration	4.04	3.42***	3.22*	3.21	26.1*** ¹

¹ Welch/Games–Howell; *** $p < 0.001$; * $p < 0.05$.

The dominant influences on civic participation appeared to be the social integration-related items “interest in the place”, “know local affairs”, “know to behave locally”, and “know many people” (Table 9). Further constitutive factors appeared to be “perceived influence options” and, in a negative sense, “trust in authorities”. Urbanization level and place attachment were found to be significant predictors of civic participation only before introducing the constitutive factors into the regression model. Urbanization level, however, remained in the final model, as represented by the housing type, while the demographical factor “education level” contributed more substantially to the explanation of civic participation.

Table 9. The main influential factors of respondents' civic participation. Findings of a hierarchical regression analysis (ns = not significant).

	Model 2	Model 3	Model 5	Model 6	Model 9
Time of residence	−0.275***	−0.264***	−0.216**	−0.106*	ns
Education level	0.202***	0.199***	0.207***	0.222***	0.210***
Urbanization level		−0.089*	ns	ns	ns
Work place			−0.148***	−0.134**	ns
Housing type			0.187***	0.193***	161***
Place attachment				0.129**	ns
Social integration					0.336***
Trust in authorities					−0.134**
Perceived influential options					0.162**
R ²	0.105	0.111	0.154	0.166	0.245

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

In addition to the regressions, a structural equation model was tested and slightly optimized using the software AMOS (analysis of the moment structures). The relationships between urbanization level and the different aspects of people–place relationships estimated by the model are shown in Figure 3 and Table 10. The data highlight two main findings: the urbanization level only has a highly significant influence on place attachment; place attachment, in turn, has a strong significant relationships to the other place relationship aspects and thus can be considered a key mediator of that influence. The strong significant relationship between place attachment and the other place relationship aspects was also confirmed for the single subsamples, except for the sample of the Goms region with the lower sample size limiting the regression analyses (Table A1 in the Appendix A). The fit indicators indicate that the assumed model fits the data ($\text{Chi}^2/\text{df} = 1.37$; $\text{GFI} = 0.981$; $\text{RMSEA} = 0.032$; $p = 0.098$) ([82]: 209–231).

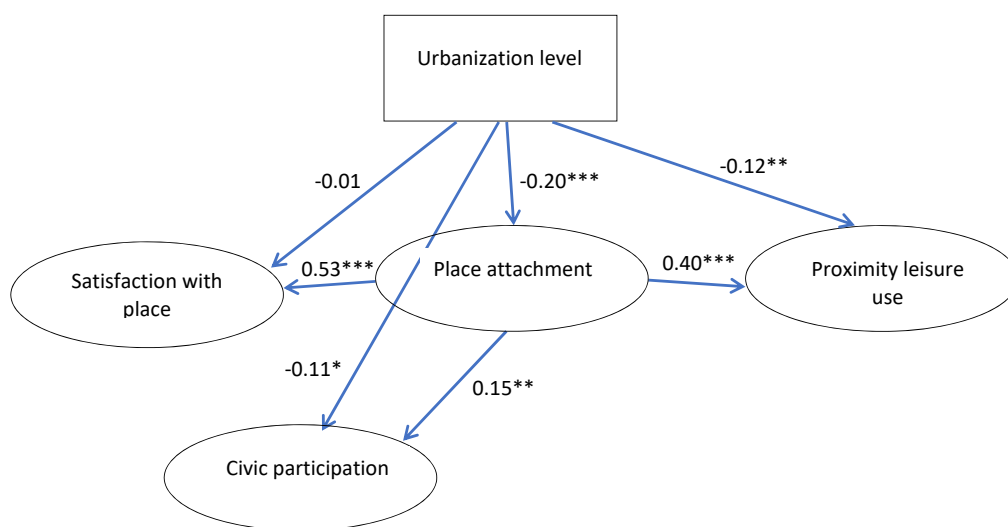


Figure 3. Findings of the structural equation modelling; *** $p < 0.001$; ** $p < 0.01$.

Table 10. Estimates of the relationships between the place-relationship parameters as calculated based on structural equation modelling using AMOS.

			Estimate B	S.E.	C.R.	P	Estimate β
Place attachment	←	Urbanization level	−0.219	0.062	−3.555	***	−0.199
Civic participation	←	Urbanization level	−0.252	0.149	−1.693	0.091	−0.108
Place satisfaction	←	Urbanization level	−0.006	0.042	−0.143	0.886	−0.008
Proximity leisure use	←	Urbanization level	−0.078	0.003	−2.363	0.018	−.121
Civic participation	←	Place attachment	0.348	0.155	2.241	0.025	0.164
Place satisfaction	←	Place attachment	0.344	0.063	5.482	***	0.525
Proximity leisure behavior	←	Place attachment	0.235	0.035	6.662	***	0.401
Feeling like belonging here	←	Place attachment	1				0.867
Place is like made for me	←	Place attachment	1.028	0.080	12.837	***	0.844
Sum civic participation	←	Civic participation	1				0.764
No (civic participation) action	←	Civic participation	−0.141	0.047	−3.010	0.003	−0.720
Satisfaction with life	←	Place satisfaction	1.000				0.419
Satisfaction with residential environment	←	Place satisfaction	2.325	0.361	6.445	***	0.744
Satisfaction with life in the place	←	Place satisfaction	2.005	0.318	6.467	***	0.709
Leisure time spent in the region	←	Proximity leisure behavior	1				0.919
Leisure time spent in the local place	←	Proximity leisure behavior	1.135	0.080	14.156	***	0.939

*** $p < 0.001$.

4. Discussion

Urbanization has been a global phenomenon for decades but its impacts on people–place relationships are still debated. This also has to do with methodological shortcomings of earlier studies on this issue [14], and in particular, with overly narrow definitions of both aspects: urbanization and people–place relationships. This study therefore aimed at analysing the impacts of urbanization on people–place relationships in a comprehensive and systematic way. This has been achieved by a) including all three dimensions of urbanization (spatial, social, and functional) in the measurement of urbanization using a transect of study areas that differ in their urbanization level and b) by including four main aspects of people–place relationships: place attachment, place satisfaction, proximity leisure behaviour, and civic participation. The analysis of the data collected by a comprehensive cross-sectional survey in four Swiss study areas using structural equation modelling provided robust evidence that with increasing urbanization, inhabitants' relationships with their residential environment decrease in terms of all relevant people–place relationship aspects. The findings are in agreement with many earlier, more simply designed studies [17,38–40,70], but contradict the findings of other, sometimes rather poorly designed, studies [13,20,22].

As expected, urbanization appeared to have a substantial direct influence only on place attachment; this parameter was found to play the role of a mediator between urbanization and the other aspects of people–place relationship. This means that urbanization has a significant indirect negative impact on people's place satisfaction, their proximity leisure use, their civic participation, and thus sustainable development. The revealed close association between place attachment and the other place relationship aspects justifies a broad definition of place attachment, which may be better termed as people–place relationship, as suggested by Gifford and Scannell [27]. A strong mediator role of place attachment was similarly found by de Azevedo et al. [83]. In an empirical study conducted in a Portuguese city, they provided robust evidence that place attachment was positively associated with life quality, which was measured as satisfaction with a wide range of place attributes, and self-efficacy. Accordingly, a study in an American context, Kelly [52] identified a positive relationship between place attachment and quality of life satisfaction as well as civic engagement. This substantial role of place attachment in activating residents to shape their environment was also established in a comparative study on environmental sustainability in two English cities by Uzzell et al. [39].

The revealed key role of place attachment as a mediator of urbanization effects is substantiated by the high diversity of relevant predictors of this construct, which were revealed by hierarchical regression analysis. The strong influence of the variables "individual experiences made in the place", "number of social contacts", "sense of community", and "outdoor recreation options" suggests that individual, social, collective, and spatial aspects are constitutive and of similar relevance for respondents' place attachment in the study areas overall. These basic characteristics and dynamics of place attachment have so far been scarcely considered in empirical studies [14,81]. The prominent role of social ties for place attachment has been most often highlighted [18,20,46]. Many studies have also reported the influence of the variable "length of residence" (e.g., [14]) that was also found in this study, but lost its dominant power when variables expressing more concrete aspects of social integration and spatial appropriation were introduced into the regression equation. The role of spatial appropriation (good experiences) and individual control over the place (individual traces) for place attachment have so far been especially underestimated and mentioned only in single studies [5], [50,70,84]. This bottom-up aspect of spatial qualities has also been highlighted in the studies addressing pattern language [4]. The revealed broadness of the construct supports the conceptual framework suggested by Scannell and Gifford [27] in which three dimensions of place attachment, social, spatial, and psychological factors, are suggested.

This broadness furthermore suggests that the two fundamental place attachment types [84], with the "traditional" type mainly basing on a sense of community and the "activity-oriented" type mainly emanating from individual appropriation of the place, seem to coexist in all four contexts. A comparison between the study areas, however, highlighted that the social aspects (social contacts) of

place attachment decreased most substantially with increasing urbanization, whereas the individual aspects decreased more moderately, and the collective aspect (sense of community) remained, also in urban contexts at an elevated level. This corresponds with the findings of Lewicka [84], who observed an increased (individual) activity-related place attachment in more urban contexts. The relationship between the place attachment types is relevant, as several recent studies have found that place attachment only had consequences for people's environmental behaviour if they established their attachment through individual activities rather than social relationships [85]. Moreover, the study by Uzzell et al. [39] and a qualitative study in two Swiss municipalities [43] each highlighted that an individual and a social or collective attachment to the place was required to activate residents to engage in their environment.

Civic participation appeared to be only indirectly influenced by urbanization and, similar to the other place-relationship constructs, is mediated by place attachment although with a markedly lower regression weight. Place attachment thus seems to comprehend all relevant urbanization-related influential factors of civic participation including the negative factors. Nevertheless, the study confirms the negative relationship between urbanization and civic participation found by Wallis and Pichler [57] in a European context and by Stadelmann-Steffen and Freitag [58] in a Swiss context. The findings on the key role of place attachment in this relationship is in agreement with the strong association between satisfaction with the quality of life and civic participation found by Wallace and Pichler [57] and the strong relationship between social ties and civic participation found by Lewicka [18].

There is, however, at least at first sight, some disagreement with the findings of Lewicka [18] regarding the role of cultural capital in civic participation. Lewicka identified, in a Polish context, cultural capital, which is commonly associated with urban qualities, as a key predictor of civic participation. Yet, in this study, people's education level and their interest in the place appeared as main predictors of civic participation. Overall, though, the variables related to social integration, which are highly sensitive to urbanization, were found to play the dominant role in this equation in the Swiss, and possibly also the West European context. Interestingly, "interest in the place" appeared to be associated with social integration rather than the educational level, so that cultural capital is not necessarily in reverse relation to social integration. Nonetheless, the findings support Richardson's [16] subtle insight that the challenging interaction between the typical rural quality of social integration and the typical urban qualities of high education and scepticism towards the authorities seems to be constitutive for civic and in particular political participation. This finding was also reflected in the specific constellation of civic participation in the structural equation model, which suggests that civic participation should not be considered as a part of the construct "people-place relationship" but rather as a construct of its own. Instead, social integration might be used as a further parameter of people-place relationship representing the social component of Gifford and Scannell's [27] tripartite place attachment framework.

The identified need for, or potential of, improving the conceptual framework of the people-place relationship and its sub-constructs probably constitutes the main limitation of this study. In addition to an inclusion of social integration in the framework, there is a particular need to operationalize place attachment more comprehensively by differentiating between tradition and activity-related place attachment [84] and by considering multi-local place attachment [81]. A further limitation of the study refers to the focus on the Swiss-German context and the four typical study areas. To generalize the validity of the findings, future studies should include a larger and culturally more diverse set of study areas, possibly using a cross-national survey.

5. Conclusions

Urbanization appears likely to remain a global megatrend in the future, and a better understanding of the implications of urbanization on residents' place relationship will thus be needed for elaborating strategies for sustainable transition. This study used a comprehensive and systematic approach to improve the understanding of the interactions between urbanization and people-place relationships. It

revealed that urbanization has a negative impact on people–place relationships, with place attachment mediating the negative impact to the other people–place relationship aspects including satisfaction with the place, proximity leisure behaviour, and civic participation. This means that the negative impact of urbanization on people–place relationship can be avoided if strategies can be found to specifically enhance people’s place attachment.

Our findings on the main influential factors of place attachment suggest that this can be purposefully stimulated by improving outdoor recreation quality within or around the settlement, by offering options for residents to participate in shaping their home environment, and, more generally, by increasing residents options to appropriating and actively making their place. In this context, appropriation should not only be considered as an interaction between people and the physical environment but should also include interactions between residents. The findings have highlighted the prominent role of the social component in people’s place attachment and place relationship, which allows the conclusion that highly urbanized places can and should also provide new options of social exchange and integration.

Author Contributions: The M.B. was the leader of the project in which the investigation, on which this manuscript is based, has been conducted. The J.F. designed and conducted the surveys for this investigation as a Postdoc in collaboration with the first author. Unfortunately, the J.F. did not have the time and resources to systematically analyse and publish the data of the survey and no longer works in research. The M.B. conceptualized the planned paper, completely re-analysed the data, and wrote the manuscript. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Estimates of the relationships between the place-relationship parameters calculated for the four subsamples based on structural equation modelling using AMOS.

			Estimate B	S.E.	C.R.	P	Estimate β
Subsample Zürich Nord							
Civic participation	←	Place attachment	0.159	0.028	5.692	***	0.387
Place satisfaction	←	Place attachment	0.164	0.059	2.785	0.005	0.502
Proximity leisure behavior	←	Place attachment	0.239	0.039	6.175	***	0.366
Subsample Rudolfstetten							
Civic participation	←	Place attachment	0.058	0.026	2.234	0.025	0.160
Place satisfaction	←	Place attachment	0.414	0.076	5.433	***	0.604
Proximity leisure behavior	←	Place attachment	-0.179	0.036	5.019	***	0.350
Subsample Bubikon							
Civic participation	←	Place attachment	0.057	0.024	2.365	0.018	0.139
Place satisfaction	←	Place attachment	0.362	0.078	4.632	***	0.633
Proximity leisure behavior	←	Place attachment	0.141	0.034	4.142	***	0.292
Subsample Goms							
Civic participation	←	Place attachment	0.133	0.065	2.060	0.039	0.309
Place satisfaction	←	Place attachment	0.194	0.140	1.385	0.166	0.181
Proximity leisure behavior	←	Place attachment	0.001	0.032	0.019	0.985	0.001

*** $p < 0.001$.

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