

Re-evaluating the Place Attachment Concept and Developing the New Place Relatedness Scale: Evidences from Serbia

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ABSTRACT

The attachment can be directed towards the people (socially based attachment), but also can be based on the physical characteristics of the place or other factors. People in Serbia frequently change place of residence during educational stages or due to important family and life events. It also depends on other factors, such as ethnicity, tradition and environmental concerns. This study aims to re-evaluate the place attachment concept based on the well-established triple person-process-place concept and develop a new place attachment scale and apply. The survey included 1059 respondents. The SPSS was used for EFA relatedness calculations, Independent T-tests, and One-way ANOVA, while R and RStudio were used for CFA analysis. Four groups of factors were identified, leading to the development of a four-dimensional Place Relatedness Scale (4PRS): Family and Home, Social, Community and Everyday Life, Local Environment Bonding, Life Cycle. Certain differences were found between male and female respondents and in regard to other socio-demographic parameters.

Introduction

Currently, the population in developed countries is on the constant move (Gustafson, 2014). Despite all the travel options, there are a certain number of people who remain attached to their place of birth, natural surroundings, the geographical area recognizable and comfortable for them or on the other hand with the social surroundings and all the relevant factors that attract people to a place and contribute to them remaining there.

Place attachment expresses a set of feelings about a geographical location that emotionally binds a person to a

specific place (yard, street, settlement, region) (Carmen Hidalgo & Hernández, 2001; Williams & Vaske, 2003). Such bonds inform us about our identity, they create a sense in our lives and facilitate community and impact activities. Place attachments also have a bearing on rootedness (Carmen Hidalgo & Hernández, 2001) and belonging to a certain geographical area (Diener & Hagen, 2020; Solarević et al., 2020). Some previous research has been based on observing neighborhood or community attachment and it is necessary to conduct more detailed research to define

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those factors that lead to this diversity and identify spatial and social factors that lead or could lead to local identity development (Hernández et al., 2007).

Some localities project a certain indefinable sense of well-being and become places we wish to return. Other environments, especially dramatic landscapes or locations of intense experiences, evoke an almost immediate, intimate and emotional association (Korpela et al., 2001; Manzo, 2005). The individualistic view assumes that attachment is formed to certain locations based on first-hand experiences. The socio-cultural perspective envisages that attachment and is formed through common cultural ideologies of groups and joint interactions with the place, which is important starting point for this research

A few researchers in Serbia have investigated place attachment mainly focused on the daily migrations and permanent migrations (Backović & Spasić, 2014; Petrović et al., 2017). Many people in Serbia change their place of residence after finishing secondary school and going

to college, during employment, after marriage or following some important family decisions. A certain share of the population stay and plan to for the rest of their lives, those who have a family house or own apartment. To date there is a lack of research devoted to defining, measuring or assessing place attachment and applying it to several contexts among population in Serbia. The aim of this study is to introduce and develop a modified concept of place attachment, that is, time residing within in Serbia, based on the well-established triple concept of person-process-place (Scannell & Gifford, 2010) with respective modifications.

This scale is designed to target a particular aspect or dimension of place attachment that is not covered by existing measures, such as Life cycle. It is identified that there is a need for a place attachment scale tailored to a unique context or population and cultural specificity. This context-specific approach is important for a more comprehensive understanding of the phenomenon.

Literature review

The attachment and meaning of a place reflect the connections between a person and the place that have developed through an emotional connection. Place attachment can also be explained as an individual's love for certain aspects of the place. Perceptions of place are constantly changing, depending on social interactions, context and time. Attachment to a place is a connection between a person and a place that develops from the specified conditions of the place and the characteristics of the people. The value of a particular place depends on its ability to meet the needs or goals of the behaviour of an individual or group compared to other place alternatives (Stedman, 2003).

In social science research, there are two general approaches that focus on how people react to the place where they live - quantitative and qualitative (Manzo, 2003). Quantitative research design uses numerical measures of response and may include objective measures (such as heart rate, test results) or self-assessment measures (such as scales describing emotions, visual preferences, and happiness). Qualitative research, on the other hand, is an effort to gain in-depth understanding and explore richer themes, patterns, and meanings of human and social situations.

According to Brown and colleagues (2004) three perspectives are relevant to a discussion of place attachment: biological perspective, the individualistic view and the socio-cultural perspective. Previous research reveals that people feel more comfortable in the type of landscape in which they grew up, can recreate and where they mostly feel at home (Adevi & Grahn, 2011). Older residents often become more attached to their neighbourhood be-

cause their sense of identity is tied to that place (Luo, et al., 2022). The attachments formed in childhood are often stronger than those formed later in life.

Organisms have a tendency to prefer environments that enhance their likelihood of survival and successful reproduction, as their environmental preferences are closely linked to the quality of the environment. Škorić and Kišjuhas (2020) pose a crucial inquiry regarding the extent to which human physical and mental well-being relies on interactions with natural systems and processes. This is particularly relevant due to the fact that humans have traditionally inhabited environments that have not undergone the same level of modification as contemporary environments. Although the social aspect of the world is often highlighted as the main environment in which humans developed, the significance of vegetation, landscapes, the natural world (including plants and animals), weather, scents, sounds, and other factors should not be undervalued.

Riger and Lavrakes (1981) determined two types of attachment employing factor analysis: one type is rootedness or physical attachment and the other is social attachment. Hay (1998) points out that the development of place attachment is regulated by factors such as rooting or heritage and length of stay. Some previous research has been based on observing neighborhood or community attachment (Brown et al., 2003), while others have observed city attachment (Bonnes et al., 1990). Perceptions of place are constantly changing, depending on social interactions, context and time. In cities, for example, changing patterns of social communication can create and undo places, rais-

ing or lowering the attractiveness of places (Cheng et al., 2003; Eisenhauer et al., 2000).

Most scholars present place attachment as a multiple concept that encompasses the connection between an individual and the environment (Altman & Low, 1992; Giuliani, 2003). One of the most well-known models is the three-part model proposed by Scanell and Gilford (2010) which views place attachment as a three-dimensional concept, with the following dimensions: person, psychological process and place. Feelings of connectedness or belonging that began in early childhood tend to become stronger in later years. The attachments formed in childhood, if a person lives in one place, are often stronger than those formed in new environments later in life (Morgan, 2009). Most research on place attachment focuses on the social aspect. Attachment can also rest on the physical characteristics of the place (Fornara et al., 2009). The definition of place dependence, for example, emphasizes the physical characteristics of places as central characteristics for the development of attachment because they provide benefits or resources to support one's objectives. A meaning-mediated model of place attachment (Stedman, 2003) suggests

that people do not relate directly to the physical characteristics of a place, but to the meaning that those characteristics represent.

The study by Altman and Low (1992) elaborates on the connection between social activities and place attachment. Community ties are most often studied to predict attachment to a place (Bonaiuto et al., 2006; Brown et al., 2004; Casakin et al., 2021; Lewicka, 2005; Lewicka, 2010). Sense of security, in addition to community ties, has often been looked at as a predictor of place attachment (Brown et al., 2004; Kelly & Hosking, 2008; Lewicka, 2011).

Hernandez and associates (2007) made a difference between Place Attachment and Place Identity, developing the two-dimensional scale. Williams and colleagues (Williams et al., 1995) identified and evaluated 61 potential place attachment questionnaire items. Later, Williams and Vaske (2003) measured place attachment using 12 items taken from several previous studies that have shown good internal consistency. Raymond and colleagues (2010) measured place identity and place dependence with 11 scale items developed and validated by Williams and Vaske (Williams & Vaske, 2003).

Data and methods

The study covered all regions of Serbia's territory. The questionnaire consists of two parts. The first part measured sociodemographic characteristics (gender, age, place, education, socioeconomic status, ethnicity (Boley et al., 2021) with six additional household-related questions (number of household members, number of members younger than 18, number of members older than 18 (adults), total years spent in their settlement (residence length), total years spent in the same apartment/house, cohabitation with a married/unmarried partner in the same apartment/house). These additional questions have been selected based on a number of previous studies. According to Lewicka (2011), variables that have been included under socio-demographic predictors are residence length, age, social status, education etc., as used by Bonaiuto and colleagues (2006), Brown and colleagues (2004), Casakin and colleagues (2021), Hesari and colleagues (2019), Lewicka (2005), Shamai and Ilatov (2005) and others.

The second part contains 23 items measuring the place attachment, assessed on a five-point Likert scale. The items derived in this study are author's production based on the previous researches (Table 1).

The items were formulated based on the essence and themes found in the literature. They were developed by the qualitative and quantitative insights gained from previous research. The creation of these items was guided by the themes and characteristics observed in the literature, which enabled design of items that are particularly rele-

vant to study's context. The questionnaire incorporates several novel items that have been intentionally developed to introduce new dimensions and perspectives of place attachment and to provide a more comprehensive understanding of place attachment, encompassing various dimensions and perspectives.

The data were collected face-to-face and via Google online forms from November 2021 to June 2022. During this process, 1059 questionnaires were completed. We used exploratory factor analysis to test the potential dimensions of the modified place attachment scale. Confirmatory factor analysis was used to test the measurement scale; place attachment dimensions construct in the proposed model were tested with the maximum likelihood method of structural equation modelling, which evaluates how well a proposed conceptual model with observed indicators and hypothetical constructs explains or fits the collected data (DeVellis, 2017; Raymond et al., 2010; Williams & Vaske, 2003). Observing the load of each item on the construction variables and using the fit index to test the model fit ensured the scale construction validity. The obtained data were processed by Statistical Package for Social Sciences Version 23 – SPSS, which was used for EFA calculus, and for the CFA analysis authors applied R and RStudio (lavaan, semPlot, psych, semTools, GPArotation and MBESS packages). For final analysis Independent T-test and One-way ANOVA authors again used the Statistical Package for Social Sciences Version 23 – SPSS.

Table 1. List of items used in questionnaire

Items	Supporting literature
Most of my family lives here	Casakin et al., 2021; Kyle et al., 2005; Raymond et al., 2010; Scannell & Gifford, 2010
My parents/children/grandchildren live here	Kyle et al., 2005
My relatives live here	Bonaiuto et al., 2006; Kyle et al., 2005; Lewicka, 2005
My home is here	Raymond et al., 2010; Williams & Vaske, 2003;
My work is here	Bonaiuto et al., 2006; Lewicka, 2005
I know almost everyone here	Kyle et al., 2005; Raymond et al., 2010; Scannell & Gifford, 2010; Williams & Vaske, 2003
Almost everyone knows me here	Kyle et al., 2005; Raymond et al., 2010; Williams & Vaske, 2003
I like the local environment	Casakin et al., 2021; Scannell & Gifford, 2010; Schultz, 2001
I feel very comfortable here	Hesari et al., 2019; Kyle et al., 2005; Schultz, 2001; Williams & Vaske, 2003
I like the church in my place	Bonaiuto et al., 2006; Casakin et al., 2021; Lewicka, 2005; Scannell & Gifford, 2010
I went/go to school here	Kyle et al., 2005; Scannell & Gifford, 2010
I grew up here	DeVellis, 2017; Williams & Vaske, 2003;
The places where I buy are suitable for me	Introduced by authors
I raised/am raising a family there	Kyle et al., 2005
I want to die and be buried here	Introduced by authors
I got married or plan to get married here	Introduced by authors
I feel safe here	Brown et al., 2004; Raymond et al., 2010
People take care of me and I take care of them	Kyle et al., 2005; Raymond et al., 2010
Family legacy is very important to me	Kelly & Hosking, 2008; Kyle et al., 2005; Raymond et al., 2010;
My doctor is here	Introduced by authors
I have favorite places to walk and relax here	Schultz, 2001
I love all the seasons in my place	Schultz, 2001
My family has a property here or nearby	Kelly & Hosking, 2008; Kyle et al., 2005; Williams & Vaske, 2003

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Results

In the sample of 1059 respondents, there is a higher number of females in the sample (58.6%) with the majority of all respondents in the 21-30 age category. About the half of the respondents are employed (47.4%) with secondary school de-

gree (54.6%). These results are presented in Table 2. The majority of respondents live in urban settlements, 75.4%. About the two-thirds of respondents declare themselves as Serbian with one-third of respondents stating undeclared.

Table 2. Sociodemographic characteristics of respondents (N=1059)

Gender		Education		Place of residence	
Male	41.4%	(Un)completed Elementary school	2.8%	Urban	75.4%
Female	58.6%	Secondary school	54.6%	Rural	24.6%
Age		Socio-economic status		Ethnicity	
under 20	13.0%	BSc degree	32.7%	Serbian	61.1%
21-30	41.7%	Master degree	7.6%	Hungarian	1.2%
31-40	14.1%	PhD degree	2.3%	Bosniak	1.6%
41-50	16.2%	Pupil/Student	39.1%	Croatian	1.0%
51-64	10.6%	Employed	47.4%	Goranac	1.8%
65+	4.3%	Unemployed	8.2%	Undeclared	32.2%
		Retired	5.3%	Other	1.0%

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**Exploratory factor analysis:
four-dimensional place relatedness scale (4PRS)**

Exploratory factorial analysis (EFA) was performed on the data set of 1059 respondents measuring latent variable on place attachment. The results of EFA (principal component analysis) with Varimax rotation: factor loadings are presented in Table 3. A Kaiser-Meyer-Olkin measure yielded 0.923, and Bartlett’s test of sphericity was 12838.705 (df = 253, $p < 0.000$), showing high significance, so further factor analysis was appropriate. Four factors were extracted explaining at least 59.284% of the total variance. Reliability coefficients (Cronbach’s α) of all relevant variables in the rotated factor matrix ranged from 0.769 to 0.858 (Table 3),

which is above 0.7 threshold. According to the factor loading scores for each item, four components are interpreted as four different place attachment dimensions, which are (Family and Home – FH, Social, Community and Everyday Life – SCEL, Local Environment Bonding – LEB, Life Cycle - LC). Observing that only the third dimension aligns closely with the conventional definition of place attachment, this study reinforces the idea of developing new scale, respectively named four-dimensional place relatedness scale (4PRS). Developed scale extends beyond traditional place attachment and delves into related constructs that influence individuals’ connections with their place of residency.

Table 3. Descriptive statistics for each latent variable and its items

DIMENSIONS AND ITEMS	Mean	Factor loadings	Eigen value	Cronbach's α	McDonald's Omega - ω	Variance explained (%)
Family and Home - FH	3.569		9.012	0.858	0.89	19.024
FH1 Most of my family lives here	3.78	.846				
FH2 My parents/children/grandchildren live here	3.91	.838				
FH3 My relatives live here	2.98	.592				
FH3 My home is here	4.20	.705				
FH4 I grew up here	3.46	.688				
FH5 Family legacy is very important to me	3.39	.383				
FH6 My family has a property here or nearby	3.42	.520				
Social, Community and Everyday Life - SCEL	3.129		2.232	0.825	0.9	15.969
SCEL1 I know almost everyone here	3.24	.528				
SCEL2 Almost everyone knows me here	3.02	.555				
SCEL3 I like the church in my place	3.25	.603				
SCEL4 I went/go to school here	3.47	.584				
SCEL5 The places where I buy are suitable for me	3.22	.562				
SCEL6 My doctor is here	3.05	.646				
Local Environment Bonding - LEB	3.867		1.245	0.839	0.89	14.916
LEB1 I like the local environment	3.64	.777				
LEB2 I feel very comfortable here	3.97	.818				
LEB3 I feel safe here	4.01	.671				
LEB4 People take care of me and I take care of them	3.86	.385				
LEB5 I have favorite places to walk and relax here	3.70	.602				
LEB6 I love all the seasons in my place	3.64	.570				
Life Cycle - LC	3.189		1.146	0.769	0.82	9.375
LC1 I raised/am raising a family there	3.26	.662				
LC2 My work is here	3.47	.712				
LC3 I got married or plan to get married here	3.29	.565				
LC4 I want to die and be buried here	4.01	.381				
Overall Scale Reliability				0.95	0.94	

Source: Authors' reproduction

Measurement model validity for the four-dimensional place relatedness scale (4PRS) – Confirmatory factorial analysis

The latent factors measurement model was estimated to check for innate construct validity and reliability using Confirmatory factorial analysis CFA. Initial model fit indices were showing moderate results and moderate fit indices, which were below or above threshold ($CFI = 0.892$ (>0.95), $TLI = 0.878$ (>0.95), $RMSEA = 0.118$ (<0.08), $SRMR = 0.083$ (<0.08), $df = 253$, $p < 0.000$), thus revealing potential problems associated with the model. Therefore, the modification indices needed to be used. Several items with high residual were excluded: Family and Home – FH (FH2+FH5), Social, Community and Everyday Life – SCEL (SCEL3+SCEL4+SCEL5+SCEL6), Local Environment Bonding - LEB (LEB1+LEB5), Life Cycle - LC (LC2+LC3), thus defining model with a satisfactory fit ($CFI = 0.980$, $TLI = 0.973$, $RMSEA = 0.081$, $SRMR = 0.046$, $df = 78$, $p < 0.000$). Final scale for place attachment factors included four latent factors with 13 relatedness items in total.

Scale reliability was assessed through through the Cronbach's Alpha (α), McDonald's Omega (ω), Composite Reliability (CR) and Average Variance Extracted (AVE) indices, as outlined in Table 3. Values of Cronbach's Alpha (α) and McDonald's Omega (ω) are above 0.7 threshold (Hayes, & Coutts, 2020), thus proving scale reliability. The convergent validity of each dimension was examined by calculating the score of the average variance extracted (AVE) (Fornell and Larcker, 1981). A substantial convergent validity is achieved when all item-to-factor loadings are significant and the AVE score is higher than 0.50 and (CR) is higher than 0.60 within each dimension (Fornell & Larcker, 1981). The results showed that all dimensions had AVE higher than 0.50 and CR higher than 0.60, which indicates good convergent validity: for Family and Home AVE = 0.59, CR = 0.88; for Social, Community and Everyday Life AVE = 0.89, CR = 0.94, for Local Environment Bonding AVE = 0.53, CR = 0.82, for Life Cycle AVE = 0.64, CR = 0.78.

Discriminant validity was then checked by comparing the square root of each average variances extracted (AVEs) with the correlation coefficients for each latent construct. Fornell and Larcker (1981) noted that the discriminant validity is guaranteed when the square root of each AVE is greater than the correlation coefficients estimate.

The square roots of AVE values were all higher than the correlation values of constructs compared to all other constructs; the results confirm that all dimensions have sufficient discriminant validity (Fornell & Larcker, 1981; Zait & Berteau, 2011), which is shown in Table 4. Regarding HTMT, discriminant validity violation is met if the HTMT ratio is close to one (Henseler et al., 2015). Some authors suggest a cut of value of 0.85 (Clark & Watson 1995; Kline 2011), whereas others propose a cut of value of 0.90 (Gold et al., 2001; Teo et al., 2008). Table 4 shows that all values are be-

low 0.85 (values mentioned in italics in brackets), indicating that there were no violations of HTMT0.85. Overall, the results for the measurement model indicate scale reliability and validity.

Table 4. Discriminant validity 4PRS (Fornell-Larcker criterion and HTMT)

	FH	SCEL	LEB	LC
FH	0.77			
SCEL	0.551 (0.709)	0.94		
LEB	0.428 (0.682)	0.465 (0.607)	0.73	
LC	0.46 (0.771)	0.494 (0.682)	0.459 (0.780)	0.8

* Family and Home – FH, Social, Community and Everyday Life – SCEL, Local Environment Bonding – LEB, Life Cycle - LC

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Descriptive statistics on socio-demographic implications on place attachment dimensions

The relatedness of the scale was tested regarding the respondents' gender, age, education, socio-economic status, ethnicity, place of residence, households and duration of living in the current place of residence and current apartment or house in relation to 4PAS scale. Independent T-test showed that males gave a higher value to SCEL factor ($t=2.636$, $p=0.009$). According to the place of residence, rural respondents gave higher value to FH factor ($t=5.011$, $p=0.000$) and SCEL factor ($t=3.671$, $p=0.000$) than urban respondents.

Further differences were identified using One-way ANOVA and Post Hoc LSD Test in regard to age, education, socio-economic status, ethnicity, number of household members and duration of living in the current place of residence and current apartment or house. No statistical significance differences in regard to marital status or household age structure.

High statistical significance differences were shown in the responses of different age groups according to all factors. Respondents in the age group 65+ had the highest value to the FH factor, the lowest values were within age groups 31-40 and 41-50 ($F=4.687$, $p=0.000$). Regarding SCEL factors, similar results were shown. Respondents within age groups <20, 21-30, 31-40 and 41-50 had the lowest values related to the SCEL factor, while age group 51-64 value it moderate and highest value was in the group 65+ ($F=8.994$, $p=0.000$), which is completely consistent with the differences according to LEB factor ($F=4.094$, $p=0.001$). When it comes to the LC factor, there was a gradual upward trend in the responses, from younger cohort having the lowest values to the oldest age cohort having the highest values ($F=29.937$, $p=0.000$).

According to the education, respondents with an incomplete elementary school gave the highest value to FH ($F=2.937$, $p=0.02$) and LEB ($F=3.335$, $p=0.01$) factors and a

gradual decrease with respondents having a doctorate. The analysis showed that socio-economic status is an important component for all four dimensions. Retired respondents gave highest value to the FH factor ($F=4.665$, $p=0.003$) and SCEL factor ($F=10.489$, $p=0.000$), while other categories gave lower values. Unemployed respondents gave lowest value to the LEB factor, while pupils and students had moderate values and highest values were for retired respondents ($F=9.878$, $p=0.000$). For the LC factor ($F=33.420$, $p=0.000$), values gradually shift from pupils and students with the lowest values to retired respondents the highest values.

The analysis revealed some differences between ethnic groups. Croats had the highest value to the SCEL factor ($F=3.682$, $p=0.001$), Bosniaks and “others” lowest, while Serbs had moderate values. Regarding the LEB factor ($F=4.968$, $p=0.000$) and LC factor ($F=2.500$, $p=0.021$), lowest value was for “others”, moderate value for the Undeclared, Goranac, Bosniaks and highest value for the Croats, Hungarians and Serbs.

Discussion

The major objective of this study is to newer-evaluate place attachment concept applied to the population in Serbia, based on the well-established basic triple concept of person-process-place (Scannell & Gifford, 2010) but with some modifications and additions.

Factor analysis identified four groups of factors (Table 3), resulting in the creation of a four-dimensional place relatedness scale (4PRS). The first dimension is called *Family and Home – FH* and it refers to family, relatives and friends bonding, as well as growing up or a sense of belonging in one’s home and family heritage. This dimension can be described as emotional and familial. This dimension is centered around the idea that individuals can form strong emotional connections with a place due to their close ties with family members. It highlights the significance of family relationships in shaping one’s relatedness to a particular location. The presence of family members and the quality of these relationships can contribute to feelings of attachment, relatedness and belonging. Williams & Vaske (2003) noted that it could refer to a symbolic importance of a place as a repository for emotions and relationships that give meaning and purpose to life. Furthermore, this dimension can be explained as a component of self-identity that enhances self-esteem and increases feelings of belonging to one’s place and community.

The second dimension is called *Social, Community and Everyday Life – SCEL* and consists of six components. This dimension refers to social and community bonding, which facilitates everyday life in the community and gives it meaning (school, chosen doctor, church, shops). It reflects the idea that individuals can develop a strong sense of at-

According to the number of household members, the values for the FH factor ($F=10.651$, $p=0.000$) gradually shift from lowest value for respondents within one-member households to highest value for those with many household members. The individuals who resided longest in a place are more likely to have developed significant relationships with other residents as well as with physical attributes of the place. The statistical significance and a certain pattern for all four dimensions (factors) were observed (FH: $F=84.171$, $p=0.000$; SCEL: $F=37.701$, $p=0.000$; LEB: $F=5.448$, $p=0.000$; LC: $F=59.172$, $p=0.000$). The values gradually shifts from lowest given by respondents who have lived less than 5 years in the current place of residence to highest for those with more than 30 years living in their current place of residence. The same situation was also shown regarding the duration of living in the same apartment or house, with high statistical significance for all factors (FH: $F=49.108$, $p=0.000$; SCEL: $F=27.465$, $p=0.000$; LEB: $F=5.342$, $p=0.000$; LC: $F=29.063$, $p=0.000$).

tachment to a place based on their social and community relationships. It highlights the importance of social interactions, connections, and community bonds as key drivers of place attachment. This component underscores the vital role of relationships with neighbors, community members, and social networks in shaping attachment and relatedness. This paper employs the term ‘community’ with a particular emphasis on a systemic model that delineates interactions between residents and their neighborhoods. Individual connections to local social networks (bonds) and interactions with them are strongly related to community attachment according to this systemic model. Within this dimension, the concept of place attachment and relatedness extends to the meaningful aspects of everyday life within the community. It acknowledges that the place itself holds significance because it facilitates and enriches daily experiences. Elements such as schools, healthcare providers (chosen doctor), places of worship (church), and local shops play a crucial role in shaping individuals’ experiences and attachment to the community. Social bonding, or feelings of belonging or membership to a group of people, as well as connections based on shared history, interests, or concerns, was also described by Perkins and Long (2002) and discussed by Alpek and associates (2022).

The third dimension is called *Local Environment Bonding – LEB*; it highlights the importance of connections to the (local) natural environment (parks, trees, air, places to walk and relax, seasons). It emphasizes the affective aspect by acknowledging the emotional bonds individuals form with the local natural environment. Additionally, it highlights the cognitive aspect by recognizing how individuals devel-

op a sense of rootedness and familiarity with the natural elements of their community. Place dependence says that the physical characteristics of a place are important to attachment and relatedness because they provide amenities or resources that help people achieve their goals and feel calm and safe. The places that people find meaningful include built environments like houses and streets as well as nature-based settings just mentioned. This setting is also noted by Raymond and colleagues (2010) who described place attachment in a natural environment context. In some way, this dimension could be explained as nature bonding at the local level. It is possible to classify this point of view using a framework that focuses on physical aspects of the place (resources), as well as the behavioral and cognitive expressions of the relationship that exist. This expression could be shown by staying close to places that provide food, water, shelter, and other resources, but also provide a sense of comfort and security.

The fourth dimension is called *Life Cycle – LC*, represents an additional dimension. The statements related to the life cycle were clearly identified in the analysis. As a result, they identify a fourth dimension, which encompasses all aspects and cycles of life, from work to raising a family to getting married to death. It is possible to include this dimension in other dimensions, but these features are so clearly identified that they really represent a complete life cycle; the mean values clearly show and confirm how important these components are for the respondents. The Life Cycle factor adds a temporal dimension, highlighting that the interplay between other factors can change as individuals move through different life stages.

Understanding the Life Cycle factor has implications for both research and practical applications. For research, it allows for a deeper exploration of how place relatedness

can vary throughout a person's life and how these variations may be linked to specific life events. This factor may contribute to a more nuanced understanding of place attachment dynamics in different life stages. In practical terms, acknowledging the impact of life transitions on place attachment can inform urban planning, community development, and interventions to enhance well-being. For example, recognizing that young adults may have distinct attachment needs compared to retirees could lead to more targeted policies and initiatives.

Williams and Vaske (2003) suggest that future studies should look to other factors, such as social and demographic factors like age, sex, and education level. This work has shown and confirmed that certain demographic variables have a high or significant correlation with certain aspects of place attachment. All of the differences between the responses of people of different ages were statistically significant. Based on their education, people who did not finish elementary school gave FH and LEB factors the most weight. The analysis also showed that socioeconomic status is an important part of all four dimensions and that different ethnic groups place different values on some factors.

Birnbaum and colleagues (2021) noted that rural areas are different in terms of their central functions, demographic trends, economic dynamics, and remoteness which provide a specific basis for place attachment processes. This finding is also shown to be important, considering that rural respondents had higher values on FH and SCEL factors. Place-based identity is becoming more important in regional marketing and development to engage the people who live there which can be a driver for public participation and community engagement or to retain the qualities of a place (Manzo & Perkins, 2006).

Conclusion

Considering that place consists of interconnected physical and human components, a large number of studies on place attachment are justified. This research started by choosing existing and adding new items in order to re-evaluate place attachment concept and develop new scale, incorporating some additional insights. The practice for many people in Serbia is to change of their place of residence regarding the different stages of life cycle. However, it also depends on some other factors, such as ethnicity, tradition or environmental issues. This analysis is based on the 23 data features measuring the place attachment for 1059 respondents assessed on a five-point Likert scale. It clearly singled out four dimensions (*Family and Home – FH*, *Social, Community and Everyday Life – SCEL*, *Local Environment Bonding – LEB*, *Life Cycle – LC*) within a newly created four-dimensional place relatedness scale, called 4PRS.

The fourth dimension, Life Cycle – LC, represents an important additional component to this field of research because it has not been confirmed and validated in previous. This factor encompasses all aspects and cycles of life, from work, raising a family, getting married to death. Also, differences were tested regarding respondents' gender, age, education, socio-economic status, ethnicity, place of residence, households and duration of living in the current place of residence and current apartment or house in relation to 4PRS scale. High or important statistically significant differences were shown in the responses of different groups according to all dimensions (factors).

4PRS scale captures a broader spectrum of place-related experiences and relationships with one's place of residency. Main idea was to provide a more comprehensive understanding of the complex ways individuals connect

with their environment, beyond what is typically encapsulated by the term “place attachment.” Place attachment is inherently multi-dimensional and can encompass various aspects, including emotional, cognitive, and behavioral connections. This new four dimensional scale includes objective rootedness, familiarity, emotional bonding, and life cycle and contribute to a deeper and more nuanced understanding of place attachment and place relatedness, reflecting its complexity.

This research confirmed that the place attachment concept needs to be constantly re-evaluated and tested in different places because people and the places they live change and so do their relationships. Different ways of life affect different parts of the place attachment in specific ways. Considering differences according to the type of settlement and age, future research needs to focus more specifically on place attachment features of rural respondents (about 25% in this study) and those 65+ years.

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