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Exploring regional differences in students' sense of place across the Czech Republic and Slovakia

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Abstract

The sense of place (SOP) concept has considerable potential in geography education and is recognized as an effective tool for developing sustainability competencies. This article aims to address the following research questions: 1) To what extent do Czech and Slovak students identify with their region, and which factors are associated with this identity? 2) Which types of places do students feel the most connected to, and what are the reasons for this connection? We employed both qualitative and quantitative methods for data collection and analysis. An online questionnaire with both open- and closed-ended questions was distributed to all lower secondary schools in the Czech Republic and Slovakia. The questionnaire was completed by 8,653 students from these schools. Responses were analyzed using both statistical and content analysis. The results indicate that students' identity with their region decreases with age, that boys exhibit a stronger identity than girls, and that significant differences exist in students' identity across different regions. Students' preferred places most often fall within the categories of home, city, and natural environment. The reasons for students' SOP are multidimensional. Research into students' SOP may contribute to more effective integration of the concept into education, thereby fostering the development of sustainability competencies.

Keywords: Sense of place, regional identity, student, geography education, sustainability competencies

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1. Introduction

In contemporary society, and therefore in the educational process as well, themes related to sustainable development are increasingly emphasized – see, for instance, Education for Sustainable Development Goals: Learning Objectives (UNESCO, 2017) or The OECD Learning Compass 2030 (OECD, 2019). Educating environmentally literate individuals who take responsibility for their actions toward the environment, grounded in a respect for the planet's needs (NPI, 2024), is thus one of the priorities of modern education. Geography, both as a scientific discipline and as a school subject, plays an irreplaceable role in this process. This fact is reflected in many didactic-geographical concepts. For example, the German Geographical Society (DGFG, 2021, p. 8) states: “Geography is the leading subject of Education for Sustainable Development.”

Similarly, the British Geographical Association (2009, p. 5) notes: “Geography underpins a lifelong conversation about the earth as the home of humankind.” Geography also holds a crucial role in this process within the Czech context. According to the new Czech curriculum, one of geography's primary goals is to

cultivate students' regional identity, thereby strengthening their awareness of the need for sustainable and responsible behavior in the environment where they operate (NPI, 2024). Geography fosters an understanding of the complex world, addresses contemporary issues and global challenges, develops digital literacy, and motivates students toward active citizenship (Bendl & Rubáš, 2023). It also enhances environmental literacy and cultivates the key competency for citizenship and sustainability. One specific approach through which geography can contribute to the development of this literacy and competence is by shaping and advancing students' SOP.

Published research indicates that a child's experience with a place influences the relationship an individual has with that place as an adult (Sebba, 1991). A positive attitude toward the environment is linked to memories of experiences that the individual recalls. Newer studies also confirm that the bond formed with a landscape during childhood plays a crucial role in this process of environmental identification (Silko, 2010). Over a lifetime, a positive relationship with a place can develop into broader scales (Massey, 1991 writes about “global SOP”). This

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relationship can positively affect individuals' environmental awareness (Lee & Chiang, 2016), pro-environmental attitudes (De Dominicis et al., 2017), and pro-environmental behavior (Rioux, 2011). Therefore, integrating children's SOP into education is essential (Lim & Barton, 2010). Therefore, research focusing on children's places, their specific perceptions of these places, and their relationships to them is needed.

The concept of SOP has predominantly been studied in research focusing on adult populations, and it can generally be stated that children are underrepresented in the SOP literature (Hewitt et al., 2020). Few studies specifically address students' relationships with their region, particular places within it, and the reasons for the popularity of these places (Shamai, 1991; Derr, 2002; Lim & Barton, 2010; Wee et al., 2013; Jeziorski & Therriault, 2018). To help fill this research gap, we conducted a study aimed at answering the following research questions:

1. To what extent do Czech and Slovak students identify with their region, and which factors are associated with this identity?
2. Which types of places do students feel the most connected to, and what are the reasons for this connection?

Empirical research into children's SOP can contribute to the more effective implementation of the concept in geography education. This, in turn, could lead to students developing a stronger relationship with places across various scales, thereby contributing to the development of their geographical and environmental literacy as well as their competence in sustainability.

2. Conceptual background

This chapter describes the concepts on which our research is based. The framework of this research is presented in Figure 1. This model illustrates the relationship between SOP and sustainability competencies, highlighting the research process and educational recommendations. An examination of the factors influencing SOP and the underlying reasons for SOP leads to recommendations for enhancing place-based education strategies. These strategies, in turn, foster SOP, ultimately promoting sustainability competencies.

2.1 SOP – what is it?

A prerequisite for understanding the concept of SOP is grasping the concept of place itself, which is occasionally conflated with the concept of space in literature. As Taylor (2005) explains, space is the physical dimension in which things exist, whereas place is a given space imbued with specific meaning. In the words of Cresswell (2004, p. 7): 'a meaningful location'. Place and space are key concepts in geography education (Geographical Association, 2009), and place is one of the central concepts in geographical studies (Haustrup et al., 1992). Research on place originates from humanistic geography. Among its leading figures are Y. F. Tuan and E. Relph, who have studied the concept of place in greater depth (Relph, 1976; Tuan, 1977). These works were pivotal in developing the concept of SOP, with the term being one of the first used by Lynch (1960). For Relph (1976), SOP refers to a sense of identity with the character of places, which can evolve into a profound connection with places as fundamental elements of human existence and individual identity.

There are numerous definitions of this concept that emphasize the emotional bonds formed between people and their environment (Relph, 1976), a multi-person perspective (Hoelscher, 2003), or the scale of the place (Massey, 1991; Shamai, 1991; Foote & Azaryahu, 2009). Additional perspectives from which the concept of SOP can be examined are inspired by anthropological and psychological approaches. Altman and Low (1992) state that SOP primarily concerns emotional attachment, but it also includes cognitive and practical attachments. Similarly, according to

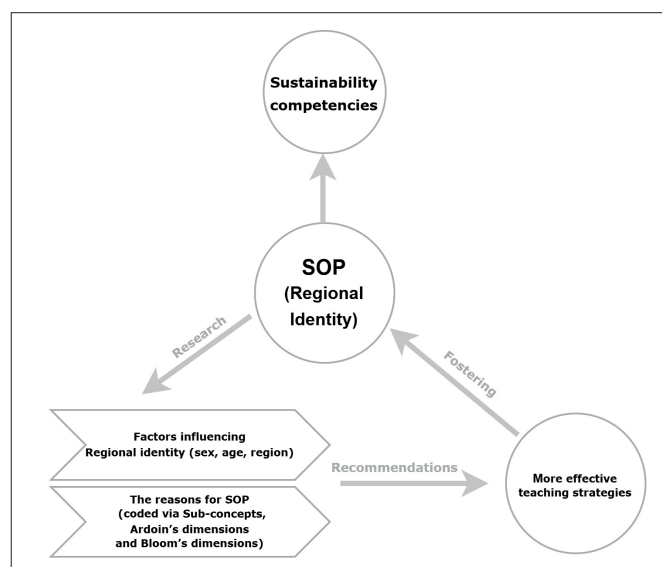


Fig. 1: The research model contextualizing the individual concepts described in Chapter 2

Source: Authors' conceptualization

Stedman (2002), SOP encompasses a person's overall relationship to a place as a set of knowledge, attitudes, and identities rooted in human senses. Semken and Freeman (2008) add that SOP includes cognitive and affective domains, and potentially the psychomotor domain when specific kinesthetic activities are associated with a particular place. Similarly, Jorgensen and Stedman (2006, p. 316) emphasize that place reflects "cognitive, affective and conative domains of human-environment relationships." Influenced by the educational theories of psychologist Bloom (1956), Li and Shein (2023) identify three domains of SOP research: cognitive, socio-emotional, and behavioral. Other authors (Williams & Vaske, 2003; Kudryavtsev et al., 2012b) divide SOP into measurable sub-concepts such as place attachment, place dependence, place identity, and place meaning. For example, Brandenburg and Carroll (1995) define SOP as a combination of place meanings and attachments held by an individual or group. For our purposes, based on the above, we define SOP as follows:

"SOP is a multidimensional relationship to place (which can have various scales: local, regional, national, global) that arises by observing, experiencing, living, imagining, and dreaming of a person, who attaches meanings to her/his environment and thus converts the abstract space into a unique place filled with meanings. SOP consists of affective (emotional bonds), cognitive (knowledge, thinking), and psychomotor (behavior, action) domains. When conceptualizing SOP, the most commonly used are sub-concepts like place attachment, place identity, place dependence, and place meaning." (Rubáš et al., 2024, p. 39).

Although the concept of SOP clearly has an interdisciplinary nature, it is often viewed through the lens of a particular discipline. It is the subject of research in various fields (see, for example, the review by Farnum et al., 2005). In addition to geography (Measham, 2007), it is an important concept for psychology, including environmental psychology (Proshansky et al., 1983), anthropology (Altman & Low, 1992), sociology (Brehm et al., 2006), architecture (Hashemnezhad et al., 2013), and philosophy. The concept has also been implemented in environmental education, which focuses on the development of responsible citizens whose behavior and actions will contribute to a sustainable future. Environmental educators have thus focused on restoring relationships with places and involving students in their local environment. For example, the educational concept of place-based education has been developed, which uses all aspects of the local environment as a context for teaching (Sobel, 2004).

2.2 Scale of SOP

The local scale of places predominates in the research of SOP in the field of primary and secondary geography and environmental education (Rubáš et al., 2024). Research primarily focuses on neighborhoods (Gillespie, 2010) and communities (Ardoin et al., 2014), places where field-based education takes place (Goralnik et al., 2021), or specific cities or urban environments (Kim & Lee, 2019). Only a few studies investigate the region of students (Dann & Schroeder, 2015). Spatiality is one of the aspects through which we can examine and approach the concept of SOP (Shamai, 1991), allowing for the distinction of local, regional, national, and global scales of places. For the purposes of our study, we chose the regional scale of SOP, as it is most appropriate to work with in the educational process (NPI, 2024).

2.2.1 Regional SOP, regional identity

In conceptualizing SOP, authors (e.g., Brandenburg & Carroll, 1995; Williams & Vaske, 2003) define several sub-concepts, including place meaning, place dependence, and place identity. When we consider a place that is not spatially limited, viewed as our region (a region to which we have an emotional connection), the concept of regional identity can be used to describe regional SOP (place identity). This is one possible conceptual starting point for SOP. Therefore, for the purposes of this research, we operationalized the regional scale of SOP through the concept of regional identity. This identity is an integral part of each individual's identity. Authors point out that in the Western world, we are moving toward individualization, and personal identity is gaining increasing importance compared to social belonging (Beck & Beck-Gernsheim, 2001). High mobility, information technologies, and similar factors may contribute to feelings of uprootedness in individuals, who then use space more like tourists. However, the process of globalization paradoxically may lead people to strengthen their identity with geographically smaller regions, which are emotionally connected to them, regions that share a more homogeneous history, landscape, and lifestyle (Salazar, 1996). Paasi (2003) points out that in this process, regional identity may gain significance. Paasi (1986) himself connects the concept of place with an individual's life history, while a region is linked to the collective history of a territory. He also emphasizes that, in addition to the regional identity of its inhabitants, the region itself also acquires a certain identity – this gives rise to the identity or image of a region. The identity of the region refers to the components of population, culture, and nature that make one region distinct from another. According to the author, the regional identity of the inhabitants (regional consciousness) and the identity of the region are two distinct dimensions of regional identity, between which there is a 'fundamental distinction' (p. 132). Ross (2005) highlights the importance of local social relationships for children in a globalized society.

Research on regional identity primarily focuses on the adult population, with regional identity among students being less frequently explored. Asún et al. (2018) provide an overview of the literature on the operationalization of regional identity and themselves view it as a multidimensional structure consisting of three dimensions: Awareness of Regional Belonging, Identification with the Regional Territory, and Identification with the Regional Culture and History.

2.3 Conceptual framework of SOP research

Another perspective through which the concept of SOP can be examined is its conceptual foundations, which provide a starting point for exploring the reasons for the popularity of places among students. In research within primary and secondary geography and environmental education, the most frequently used sub-concepts are place attachment, place meaning, place identity, and place dependence. However, authors also employ other conceptual

frameworks, such as the cognitive, socio-emotional, and behavioral dimensions of SOP (Li & Shein, 2023) or Ardoin's dimensions of SOP (Sedawi et al., 2021). These frameworks, which we will describe in more detail below, form the theoretical basis for our second research question, which focuses on the reasons for the popularity of students' places.

2.3.1 Sub-concepts of place dependence, place identity, and place meaning

According to Brandenburg and Carroll (1995), the concept of SOP consists of place attachment (which, according to Proshansky et al., 1983, comprises place dependence and place identity) and place meaning.

Place dependence is defined by Williams and Vaske (2003, p. 831) as "the importance of a place in providing features and conditions that support specific goals or desired activities." A place thus provides an appropriate environment for performing a particular desired activity. This concept can also be described as a certain potential that a place offers to satisfy an individual's needs, such as their favorite activities (Vaske & Kobrin, 2001). Place identity is defined by Williams and Vaske (2003, p. 831) as "the symbolic importance of a place as a repository for emotions and relationships that give meaning and purpose to life." Places help people understand who they are. It is thus an emotional bond to a place (Proshansky et al., 1983). Place meaning is understood in the literature as the symbolic meaning attributed to a place by an individual (Kudryavtsev et al., 2012b). According to Relph (2006), place meanings can be rooted in physical objects or activities. Place meaning is a multidimensional construct that can reflect an individual's environment, social interactions, culture, aesthetic perspectives (Ardoin, 2006), as well as the history of places. This means that different people assign different meanings to different places.

2.3.2 Ardoin's dimensions of SOP

According to Ardoin et al. (2012) and Ardoin (2006), SOP comprises biophysical, sociocultural, political-economic, and psychological dimensions. The biophysical dimension encompasses the specific characteristics of a given landscape and its particular sites, including the plant and animal species present within the ecosystem and their interactions. It describes how certain objective properties of the environment influence people's connections to their living surroundings. The sociocultural dimension pertains to the community associated with a specific place. This dimension is linked to the social meanings shaped by family and friends surrounding an individual in that location. It also considers cultural elements, customs, and traditions related to the place. The political-economic dimension includes aspects such as employment opportunities, financial considerations, and political preferences tied to a specific location. The psychological dimension relates to an individual's subjective experience of a place. It involves processes shaping a person's sense of identity in connection to a location and addresses the intrinsic characteristics of an individual's relationship with the place, such as feelings of comfort or a sense of belonging to a particular area (Ardoin et al., 2012).

2.3.3 Cognitive, socio-emotional, behavioral dimensions of SOP

Another conceptual basis in the research of SOP is the framework of dimensions proposed by Bloom (1956), encompassing socio-emotional, cognitive, and behavioral dimensions (Li & Shein, 2023). These dimensions of the SOP concept are acknowledged by other scholars as well. For instance, Altman and Low (1992) state that SOP describes a sense of attachment to places, which includes emotional attachment, cognitive attachment, and practical attachment. In a similar vein, Stedman (2002) perceives SOP as encompassing a person's overall relationship with a place, comprising knowledge, attitudes, and identity based on meanings

created by the individual. Semken and Freeman (2008) further clarify that SOP includes cognitive and emotional domains, as well as the psychomotor domain, particularly when certain kinesthetic activities of an individual are connected to or localized within a specific place. Additionally, Jorgensen and Stedman (2006) describe a place as reflecting cognitive, emotional, and conative dimensions. Likewise, Lim and Barton (2010) characterize SOP as “as a person's cognitive, affective, and embodied understandings of a place that are cultivated through a living ecological relationship with the place” (p. 329).

2.4 Place-based education, SOP, and sustainability

Semken and Freeman (2008) demonstrate that SOP could be used as a valid and teachable learning outcome for place-based education. The application of the SOP concept to education was further elaborated by, for example, Kudryavtsev et al. (2012a). According to Semken et al. (2017, p. 542), place-based education is “a situated, context-rich, transdisciplinary teaching and learning modality distinguished by its unequivocal relationship to place.” Place-based education, which includes the development of SOP and a connection to students' regions, can thus be an effective tool for fostering sustainability competencies.

The need for an internal identification with places is discussed in the description of the competence Promoting nature within the area of Embodying sustainability values in the document GreenComp: The European sustainability competence framework (Bianchi et al., 2022). A developed relationship with the region and its places predicts accelerating local-level actions, which is one of the priority action areas of Education for Sustainable Development (UNESCO, 2020). Research on the relationship with the region is closely related to Sustainable Development Goal (SDG) 11: Sustainable cities and communities (United Nations, 2023). The development of SOP within place-based education leads to enhancing the quality of education and thus directly contributes to fulfilling SDG 4: Quality education.

Focusing the research on a deeper examination of students' SOP enables a richer understanding of their preferred places – both in terms of the types of places and the reasons for their preferences. At the same time, it offers valuable insights into the degree of their identification with the region. Based on these findings, concrete didactic recommendations can be formulated that will significantly enhance place-based education and support the development of sustainability competencies.

3. Methods

3.1 Research questions and hypotheses

The article is guided by two primary research questions:

- RQ1: To what extent do Czech and Slovak students identify with their region, and which factors are associated with this identity?
- RQ2: Which types of places do students feel the most connected to, and what are the reasons for this connection?

The first research question, addressed using quantitative data analysis, was specified through the following sub-questions:

- RQ1a: How does the age of Czech and Slovak students influence the degree of their identity with their region?
- RQ1b: What is the difference in regional identity between Czech and Slovak girls and boys?
- RQ1c: In which region do students exhibit the lowest degree of identity with their region?
- RQ1d: What is the difference in regional identity between Czech and Slovak students who have lived in their region since birth and those who have relocated?

Based on the findings of related research conducted with a representative sample of respondents (Činčera et al., 2022), the following hypotheses were formulated:

- H1: Students' identification with their region decreases with age.
- H2: Boys exhibit a stronger identification with their region than girls.
- H3: Students in the Karlovy Vary and Ústí regions exhibit the lowest levels of identity with their region.

Činčera et al. (2022) investigated students' SOP (place attachment) in grades 6–9 at Czech lower secondary schools ($n = 29,660$) using a different measurement tool. They found that 6th-grade students (typically aged 11–12) exhibit higher place attachment than 8th- and 9th-grade students (typically aged 13–16). Furthermore, they observed that boys in grades 8–9 report higher place attachment than girls of the same age. According to the authors, the lowest levels of place attachment were found among students in the Karlovy Vary and Ústí regions. This may be attributable to post-war migratory changes and the particular characteristics of these border areas (tourism, cross-border labor mobility, and economic dependence on neighboring regions of Germany).

3.2 Research sample

The study was conducted in the Czech Republic and Slovakia, which allowed us to examine regional differences in students' identification with their region across two countries that share a common historical past but became independent states after 1993. The research respondents (the target population) consisted of lower secondary school students in the Czech Republic and Slovakia. The sample included 8,653 students (4,673 in the Czech Republic and 3,980 in Slovakia), representing 1.1% of the target population in the Czech Republic (Czech Statistical Office, 2022) and 1.8% of the target population in Slovakia (Statistical Office of the Slovak Republic, 2022). The sample was obtained through repeated email invitations sent to the principals of all lower secondary schools in these countries. The participating students completed an online questionnaire. The sample included both girls and boys from all age categories of the target population, representing all regions of the Czech Republic and Slovakia (Tabs. 1 and 2).

3.3 Data collection and analysis

Data were collected through an online survey of lower secondary school students (ISCED level 2) in the Czech Republic and Slovakia, conducted in 2022. The questionnaire included

Czech Republic		Slovakia	
Region	n	Region	n
South Bohemia Region	257	Banská Bystrica Region	343
South Moravia Region	333	Bratislava Region	455
Karlovy Vary Region	296	Košice Region	572
Hradec Králové Region	246	Nitra Region	224
Liberec Region	257	Prešov Region	828
Moravia-Silesia Region	821	Trenčín Region	531
Olomouc Region	229	Trnava Region	389
Pardubice Region	245	Žilina Region	638
Plzeň Region	279		
Prague	283		
Central Bohemia Region	430		
Ústí Region	356		
Vysočina Region	236		
Zlín Region	405		
TOTAL	4,673	TOTAL	3,980

Tab. 1: Structure of respondents by region of residence
Source: Authors' elaboration

		Czech Republic		Slovakia		Total	
		n	%	n	%	n	%
Sex	Girls	2,385	51.0	2,067	51.9	4,452	51.5
	Boys	2,288	49.0	1,913	48.1	4,201	48.5
Age	< 12	183	3.9	816	20.5	999	11.5
	12	950	20.3	915	23.0	1,865	21.6
	13	1,098	23.5	950	23.9	2,048	23.7
	14	1,328	28.4	842	21.2	2,170	25.1
	14 <	1,114	23.8	457	11.5	1,571	18.2
In one's place of residence	Has lived there since birth	3,069	65.7	2,896	72.8	5,965	68.9
	Moved from the nearby area	1,153	24.7	831	20.9	1,984	22.9
	Moved from another region	451	9.7	253	6.4	704	8.1

Tab. 2: Structure of respondents by sex, age, and stay in the place of residence

Source: Authors' elaboration

not only items aimed at gathering additional information about the respondents (age, sex, length of residence in the place of residence, region of residence) but also both closed and open-ended questions, which were used to seek answers to the sub-research questions. Their formulation was discussed with experts in sociology surveys before the questionnaire was distributed.

RQ1 focuses on SOP in terms of place identity, where the place refers to the student's region (regional identity). In this case, the concept of SOP operates on a local to regional scale. The tool used to assess students' regional identity was inspired by the RIS-2 instrument (Asún et al., 2018). This tool comprises three dimensions: the Awareness of Regional Belonging dimension, the Identification with the Regional Territory dimension, and the Identification with the Regional Culture dimension. Each of these dimensions is represented in the questionnaire used for this study by three or four questions (the original items, which we translated into Czech and Slovak, are shown in Fig. 2). The reliability of the tool and its individual dimensions was tested using Cronbach's alpha method (Cronbach, 1951), with the values presented in Table 3. Data analysis was conducted using IBM SPSS Statistics 27 software. The questionnaire items assessing students' identity with their region were rated using a 5-point Likert scale: 1 = strongly disagree, 2 = somewhat disagree, 3 = undecided, 4 = somewhat agree, 5 = strongly agree. We then performed a confirmatory factor analysis of the tool (Fig. 2), compared students' identity based on their sex (Fig. 3; Tab. 4), including a correlation matrix (Tab. 5), conducted an international comparison as well as a comparison within regions (Tabs. 6 and 7; Fig. 4), and compared regional identity based on the length of residence in the region (Tab. 8). The following statistical analyses were employed: Pearson's correlation analysis, confirmatory factor analysis, t-test, ANOVA, and Tukey's post-hoc test.

The answer to RQ2 was investigated based on open-ended questions: "Which specific place in your region do you feel the closest connection to? And why this particular place?" The students' responses were initially analyzed using inductive content analysis. Eight main categories of students' favorite places emerged from the responses (Tab. 9). The categorization of types of places was inspired by Freeman et al. (2023). Subsequently, all of the students' favorite places were assigned to one of these categories. The frequency of each category was quantified

and expressed using descriptive statistical methods (Figs. 5, 6 and 7). The reasons for students' attachment to their favorite places were evaluated through deductive content analysis. We sought to determine whether the reasons identified in students' responses align with all of the major conceptual foundations of SOP in the field of primary and secondary education, as identified through a systematic literature review (Rubáš et al., 2024): 1. place meaning, place identity, place dependence; 2. biophysical, sociocultural, psychological dimensions; 3. cognitive, socio-emotional, and behavioral dimensions (Fig. 8).

4. Results

4.1 Students' identity with their region and the factors associated with this identity

Students' identity with their region was assessed using an adapted version of the RIS-2 tool (Asún et al., 2018), where we first verified whether its three-dimensional structure holds: the Awareness of Regional Belonging dimension – BEL, Identification with the Regional Territory dimension – TER, and Identification with the Regional Culture and History dimension – CUL. Confirmatory factor analysis confirms the structure of the tool (Fig. 2). Together with the tool's reliability and the reliability of its individual dimensions (Tab. 3), we can assert that the tool is valid for use.

Figure 3 shows that students' identity with their region in all three dimensions decreases with age, and that boys exhibit a stronger identity than girls in most age categories. The statistical analysis of these relationships is presented in Tables 4 and 5. Based on this, we can conclude that regional identity decreases weakly but significantly with age in all three dimensions in both the Czech Republic and Slovakia. Furthermore, boys achieve significantly higher levels of identity with their region than girls. The correlation matrix further indicates that the individual dimensions of regional identity are positively and (moderately) strongly correlated with each other.

Table 6 and Figure 4 show that students' identity with their region differs across countries (Slovak students exhibit significantly higher levels of identity than Czech students) as well as between individual regions. The highest regional identity scores

	α – Czech Republic	α – Slovakia	α – Czech Republic + Slovakia
RIS-2	0.87	0.87	0.87
dimension BEL	0.68	0.68	0.69
dimension TER	0.73	0.71	0.72
dimension CUL	0.74	0.75	0.75

Tab. 3: Reliability of the tool used and its individual dimensions (Cronbach's α)

Source: Authors' research and calculations

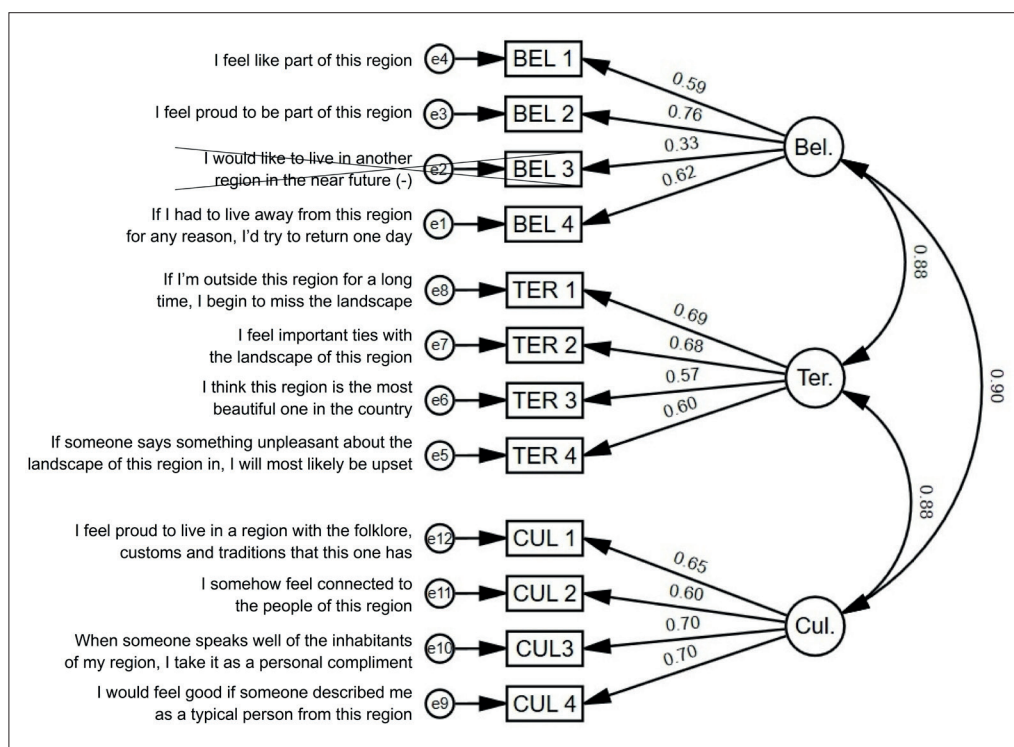


Fig. 2: Confirmatory factor analysis of the tool used (the Czech Republic + Slovakia combined). Model Fit: GFI = .968, AGFI = .951, CFI = .951, TLI = .936, RMSEA = .06, SRMR = .0321. The BEL dimension originally contained four items; however, item BEL 3 was ultimately removed due to low factor loading and to increase reliability. The Model Fit did not change significantly with this modification
Source: Authors' research and calculations

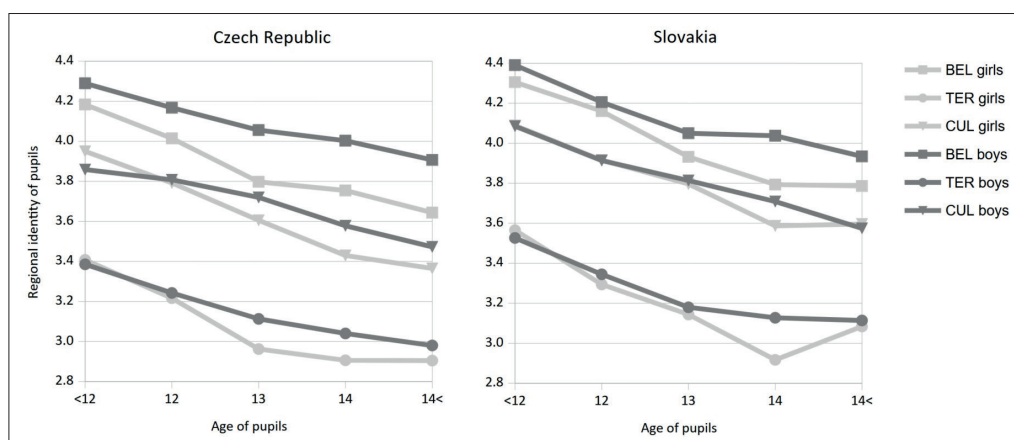


Fig. 3: The dependence of regional identity on age for girls and boys

Source: Authors' research and calculations

	M _{Girls}	SD	M _{Boys}	SD	t	p	d
Czech Republic							
Dimension BEL	3.81	0.84	4.03	0.82	- 9.17	< 0.001	- 0.27
Dimension TER	3.00	0.91	3.09	0.84	- 3.34	< 0.001	- 0.10
Dimension CUL	3.55	0.84	3.64	0.87	- 3.40	< 0.001	- 0.10
Slovakia							
Dimension BEL	4.02	0.84	4.13	0.83	- 4.35	< 0.001	- 0.14
Dimension TER	3.21	0.90	3.27	0.92	- 1.81	0.07	- 0.06
Dimension CUL	3.82	0.84	3.84	0.85	- 0.74	0.46	- 0.02
Czech Republic + Slovakia							
Dimension BEL	3.91	0.85	4.08	0.82	- 9.56	< 0.001	- 0.21
Dimension TER	3.10	0.91	3.17	0.93	- 3.59	< 0.001	- 0.08
Dimension CUL	3.68	0.85	3.73	0.87	- 2.86	0.002	- 0.06

Tab. 4: Comparison of students' identity with their region based on their sex (t-test)

Notes: M = mean; SD = standard deviation; t = test statistic; p = p-value; d = Cohen's d

Source: Authors' research and calculations

	Age	Dimension BEL	Dimension TER
Czech Republic			
Dimension BEL	– 0.14**		
Dimension TER	– 0.12**	0.62**	
Dimension CUL	– 0.18**	0.64**	0.64**
Slovakia			
Dimension BEL	– 0.20**		
Dimension TER	– 0.18**	0.64**	
Dimension CUL	– 0.20**	0.69**	0.66**
Czech Republic + Slovakia			
Dimension BEL	– 0.19**		
Dimension TER	– 0.17**	0.63**	
Dimension CUL	– 0.21**	0.66**	0.66**

Tab. 5: Correlation matrix. Note: ** $p < 0.01$
Source: Authors' research and calculations

	$M_{\text{Czech Rep.}}$	SD	M_{Slovakia}	SD	t	p	d
Dimension BEL	3.92	0.84	4.07	0.84	– 8.58	< 0.001	– 0.19
Dimension TER	3.05	0.93	3.24	0.91	– 9.61	< 0.001	– 0.21
Dimension CUL	3.60	0.86	3.83	0.85	– 12.64	< 0.001	– 0.27

Tab. 6: International comparison of students' identity with their region (t-test). Notes: M = mean; SD = standard deviation; t = test statistic; p = p-value; d = Cohen's d
Source: Authors' research and calculations

are observed in the Prešov Region (3.92) and Košice Region (3.76), while the lowest scores are found in the Ústí Region (3.22) and Karlovy Vary Region (3.36). Table 7 demonstrates that students in the Ústí Region exhibit significantly lower levels of identity with their region compared to students in most other regions.

Table 8 shows that students who have lived in the region for a longer period exhibit a stronger identity with their region (this holds true across all three dimensions).

4.2 Types of students' favorite places

Students' favorite places were categorized into 8 main categories (Tab. 9). The representation of these categories was then quantified (Fig. 5). In total, students listed 7,575 places (3,979 in the Czech Republic and 3,596 in Slovakia). The results clearly show that the most common favorite places fall under the category of home, part of the home, residence, and the residence of a close person. Students frequently mentioned their own home, sometimes specifying particular parts of it. Other times, they mentioned the entire city/village where they were born, live, and have family. This category also includes the home/residence of a close person – often grandparents' homes. The second most popular category was cities, towns, and their parts. As with the previous category, students mentioned both general terms ('city') and specific terms ('Brno'). The third most common category was the natural environment. This was represented by both general terms ('nature') and specific ones ('Teplické rocks'). We also included parks and forest parks in this category. Other categories included places of sports, cultural, and social events, as well as shops or food establishments.

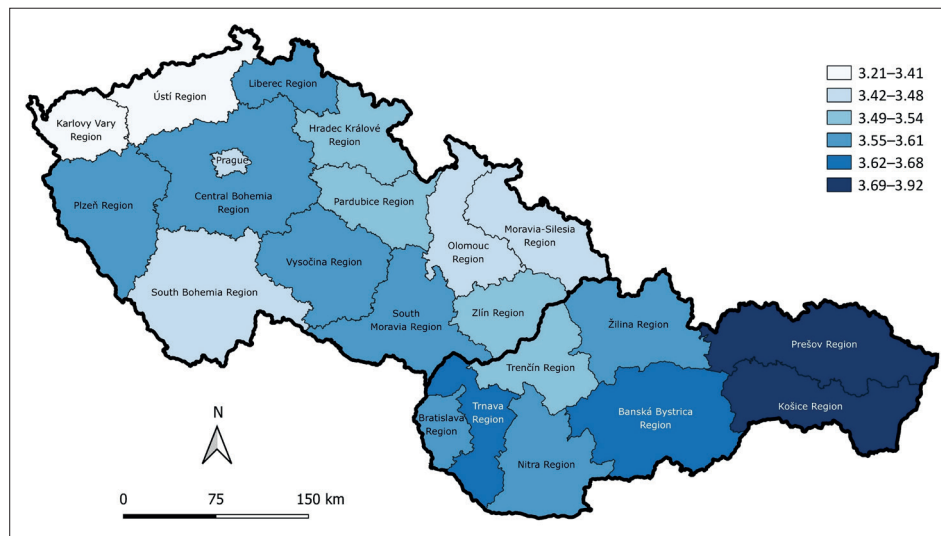


Fig. 4: Lower secondary school students' identity with their region in the regions of the Czech Republic and Slovakia (from 1 = lowest identity to 5 = highest identity). Source: Authors' elaboration based on Asún et al. (2018)

Region	1	2	3	4	5	6	7	8	9	10	11
Ústí Region	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	0.216	<0.001	0.191
Karlovy Vary Region	0.265	0.532	<0.001	0.963	<0.001	0.877	0.059	0.530	1.000	0.520	1.000
Košice Region	0.526	0.135	x	0.044	0.027	<0.001	0.604	0.011	<0.001	0.146	<0.001
Prešov Region	<0.001	<0.001	0.027	<0.001	x	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Region	12	13	14	15	16	17	18	19	20	21	22
Ústí Region	0.002	<0.001	0.153	<0.001	<0.001	<0.001	0.014	<0.001	0.006	0.608	x
Karlovy Vary Region	0.930	0.543	1.000	0.580	0.732	0.731	0.998	0.172	1.000	x	0.608
Košice Region	0.015	0.287	<0.001	0.002	0.063	<0.001	0.004	0.429	<0.001	<0.001	<0.001
Prešov Region	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Tab. 7: Tukey post-hoc test for regions with the lowest (Ústí Region; Karlovy Vary Region) and highest (Prešov Region; Košice Region) average levels of students' identity with their region. Notes: 1) Banská Bystrica Region, 2) Bratislava Region, 3) Košice Region, 4) Nitra Region, 5) Prešov Region, 6) Trenčín Region, 7) Trnava Region, 8) Žilina Region, 9) South Bohemia Region, 10) South Moravia Region, 11) Olomouc Region, 12) Pardubice Region, 13) Plzeň Region, 14) Prague, 15) Central Bohemia Region, 16) Vysočina Region, 17) Zlín Region, 18) Hradec Králové Region, 19) Liberec Region, 20) Moravia-Silesia Region, 21) Karlovy Vary Region, 22) Ústí Region. The p-values are presented in the table.
Source: Authors' research and calculations

	F	p	η^2
Czech Republic			
Dimension BEL	44.09	< 0.001	0.019
Dimension TER	24.60	< 0.001	0.010
Dimension CUL	16.61	< 0.001	0.007
Tukey post-hoc test:			
Dimension BEL: all differences are statistically significant at $p < 0.001$			
Dimension TER: all differences are statistically significant at $p < 0.001$, except for 2:3 ($p = 0.02$)			
Dimension CUL: 1:2 ($p = 0.002$), 1:3 ($p < 0.001$), 2:3 ($p = 0.029$)			
Slovakia			
Dimension BEL	51.10	< 0.001	0.025
Dimension TER	23.05	< 0.001	0.011
Dimension CUL	37.89	< 0.001	0.019
Tukey post-hoc test:			
Dimension BEL: all differences are statistically significant at $p < 0.001$			
Dimension TER: all differences are statistically significant at $p < 0.001$, except for 2:3 ($p = 0.02$)			
Dimension CUL: all differences are statistically significant at $p < 0.001$			
Czech Republic + Slovakia			
Dimension BEL	101.12	< 0.001	0.023
Dimension TER	54.52	< 0.001	0.012
Dimension CUL	58.24	< 0.001	0.013
Tukey post-hoc test:			
Dimension BEL: all differences are statistically significant at $p < 0.001$			
Dimension TER: all differences are statistically significant at $p < 0.001$			
Dimension CUL: all differences are statistically significant at $p < 0.001$			

Tab. 8: Students' identity with their region depending on the length of residence in their region

Notes: Student groups: 1 = I have lived here since birth; 2 = I moved here from a nearby area; 3 = I moved here from another region (ANOVA), F = test statistic; p = p -value; η^2 = effect size

Source: Authors' research and calculations

Students often mentioned various playgrounds where they engage in their favorite sports or meet friends. They also form close connections with places associated with cultural and social events. This category also included locations of other services, such as shops and food establishments. The last four categories were less frequently represented (altogether making up about a tenth of all places). Cultural and technical monuments: Students often mentioned landmarks that symbolized their city or region. This category was also connected with the student's personal interests or a certain respect for history. Students also listed the entire region, surrounding landscape, or even the whole country as their favorite place (regional to national scale). Less than 3% of students indicated that their favorite place was their school. The reasons often given were friends and good teachers. The final category of students' favorite places included places of religious significance. These were relatively rarely mentioned (in fewer than 1% of cases), but we included them in our categorization, especially since such places are often considered in international research. Students associate these places with spiritual significance, and they are often churches, cemeteries, or crosses.

A more detailed analysis of students' favorite places, taking into account sex and age structure, is shown in Figures 6 and 7. From Figure 6, it is evident, among other things, that girls have more favorite places in the 'natural environment' category, both in the Czech Republic and Slovakia. Figure 7 shows, among other things, that the average number of favorite places in the 'home' category decreases with age in both countries.

4.3 Reasons for students' favorite places

The reasons for students' preference for places were identified across all categories of the most common conceptual foundations of SOP (Fig. 8), which include:

Favorite places of students	Examples of students' responses
Home; residence; residence of a close person	My room; My bed; My hometown; Frýdek, I was born there; Home, because my parents are there; Podhorní Újezd – my grandmother and grandfather lived there; My place of residence; Residence, because I have my family and friends here; Home, because it's the place where I have grown up since I was little...
City; part of the city; village	City; Brno, because it is the largest city in the region; I like the center of Prague, because it is beautiful; Karlovy Vary is a beautiful city; Square. Probably because it looks nice there, but I'm not sure why. I just like it; Ostrava Kunčice Station is my favorite place for some unknown reason; Zelená Street, because it's often peaceful there and the people are friendly...
Natural environment	Nature; Forest; Rocks; Every beautiful place in our nature that is not marred by insensitive human actions; Teplické Rocks; The High Tatras, because they conceal beautiful nature; A 100-year-old oak tree, I have many memories associated with it; The Low Tatras National Park. There is an abundance of greenery, and nature is not overly damaged there, which I like because nature should be protected...
Places for sports, cultural, and social events; dining; shops; other services	Football field; Tennis courts; Hockey arena; The field, I go there with my friends; Skalka – I go there to barbecue with my friends; Kulturpark, there are many cultural events; Amphitheatre, because of the annual folk festivals; Konibar Restaurant, because they have everything and cook well; Korzo, because there are good shops there...
Cultural and technical monuments	Charles Bridge; Lubovniansky Castle, because it is our pride; The Milan Rastislav Štefánik Memorial, I have a connection to it, because he was a great person from my region; Our castle, it represents the entire Považská Bystrica; To various castles and monuments. I enjoy visiting them; Castle, because I can feel the history from it; Bratislava Castle, because it is a piece of our interesting past; St. George's Rotunda. It is a cultural monument; The whole place also has historical significance...
The whole region; the whole landscape	Slovakia; Poland; Ukraine; I like this region, and I don't want to leave it for a long time; I like my region, I enjoy everything about it, and it fills me with a positive aura; Benešov region; Beroun District; Ústí nad Labem Region; Liberec Region; the entire Liptov; Central Bohemia; South Moravia, it's beautiful here...
School	Probably to the school, because I will be going here until the 9 th grade, and I've been attending for a long time, so I've developed a connection to it, which I will probably remember for a long time; School – because there are people I like and I feel at home there; School, because there are very good teachers and people here, and there is a small chance that something bad could happen here; Definitely to my school. It's a place I enjoy going to, where I have a good time, and if I had to leave the region, I wouldn't want to, mostly because of this place, which is an inseparable part of my life...
Place of religious significance	Way of the cross; Church, because I am a Christian; The church in Ohradany, because I go there often and I was baptized there, and it's beautiful; Church, because I feel the best in it; Church, because we worship the Lord God; Cemetery, I often go there with my friends because it's quiet there...

Tab. 9: Students' favorite places in the Czech Republic and Slovakia ($n = 7,575$)

Source: Authors' elaboration

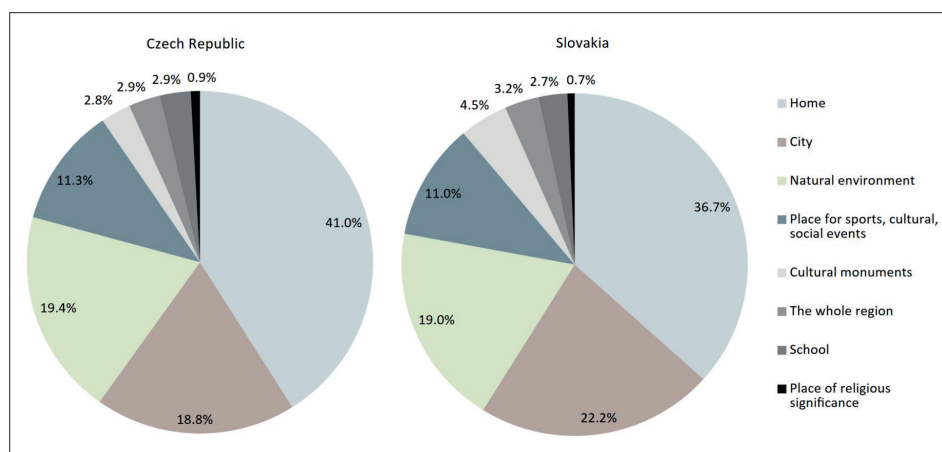


Fig. 5: Types of favorite places of students in the Czech Republic ($n = 3,979$) and Slovakia ($n = 3,596$)

Source: Authors' elaboration

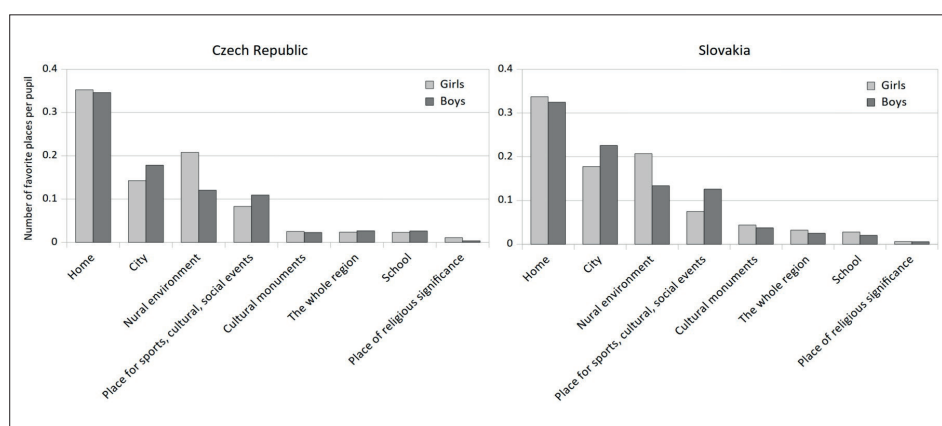


Fig. 6: Types of favorite places of students based on their sex

Source: Authors' elaboration

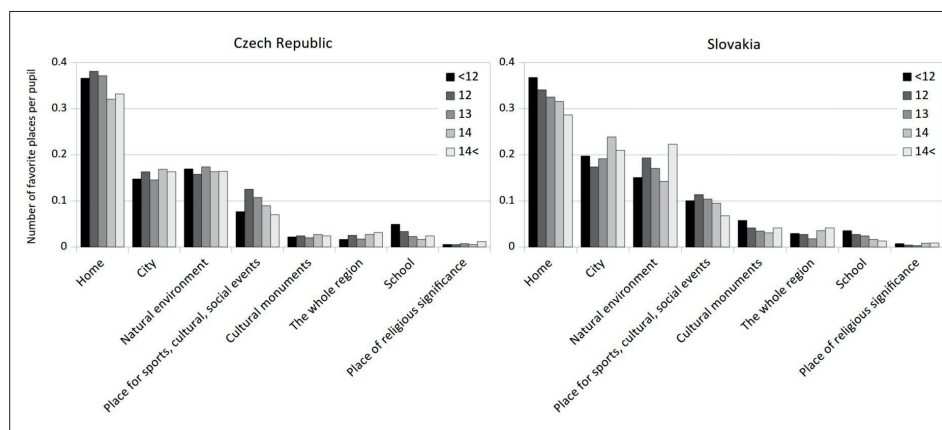


Fig. 7: Types of favorite places of students based on their age structure

Source: Authors' elaboration

4.3.1 Sub-concepts of place dependence, place identity, and place meaning

Place dependence: Places can offer students opportunities to fulfill their needs and can provide certain benefits. Students often mentioned various playgrounds, sports halls, stadiums, etc., which allow them to engage in their favorite sport. It could also include shopping centers that offer children various possibilities. **Place identity:** Students can internally identify with a place, which becomes part of their identity. Often, such a place is home, seen as a refuge or a safe place. These places are frequently strongly associated with family and memories. **Place meaning:** The meaning

of a place can be defined by its unique significance, which makes it special. Often, this significance is reflected in the identity of the entire town, region, or even country.

4.3.2 Ardoin's dimensions of SOP

Psychological dimension: The reasons for the meaning of a place in this dimension often overlap with place identity. Places are connected to human emotional expressions, which students often cannot fully describe rationally. They find peace in a place and associate it with faith, for example. **Biophysical dimension:**



Fig. 8: Reasons for the popularity of students' places. In brackets: B – boy; G – girl; number – age of the student
Source: Authors' elaboration

The place offers an environment (often of a natural character) that students appreciate. These are more objective characteristics compared to the previous case. Sociocultural dimension: Students can develop strong connections to places that are associated with other people (family, friends) or with culture, artistic creations, cultural events (or people from these events).

4.3.3 Cognitive, socio-emotional, and behavioral dimensions of SOP

Cognitive dimension: For students, places that are associated with knowledge can also be meaningful. In these places (or about these places), they have learned something, gained knowledge, or developed a certain skill. These acquired skills and knowledge then translate into their feelings. **Socio-emotional dimension:** The reasons for the meaning of a place from this emotional dimension are often linked to the perception of the place through multiple senses. A student experiences certain emotions in the place, which can strongly influence their memories. **Behavioral dimension:** This dimension expresses the activities or behaviors of students in a given place (or related to a given place). A place can influence pro-environmental behavior, as well as other types of individual

behavior. In a way, this dimension is closely related to the concept of place dependence (the place allows the student to engage in a certain activity).

5. Discussion

The aim of the research was to find answers to two research questions: 1) To what extent do Czech and Slovak students identify with their region, and which factors are associated with this identity? 2) Which types of places do students feel the most connected to, and what are the reasons for this connection?

For the first research question, to which we sought answers using a quantitatively oriented research approach, we formulated hypotheses. First, we verified the multidimensional structure of the tool used for respondents from the group of lower secondary school students, which consists of three dimensions. Subsequently, we assessed the reliability of these dimensions. The main findings can be summarized in several points. First, students' identity with their region decreases with age across all three observed dimensions. This is in line with our first hypothesis, based on the

results of a study with a representative sample of students from lower secondary schools in the Czech Republic (Činčera et al., 2022). Dallago et al. (2012) describe a similar decline in students' place attachment with increasing age. The respondents of the described study (see www.hbsc.org) comprised 68,544 adolescents from 13 European countries, aged 11, 13, and 15 years. Explanations can be sought in developmental psychology theories. According to Piaget's theory (Piaget, 1972), with the onset of formal operations (around ages 11–12), children begin to develop abstract and hypothetical thinking, which enables them to perceive broader and more global contexts. Based on this, it can be assumed that these changes in cognitive abilities may also be related to a shift in students' relationship with their local environment and regional ties. These developmental changes may explain why our data show a decline in students' regional identity with age, and they also suggest that strengthening SOP should be intentionally supported – especially among older pupils – through methods that tap into their growing capacity for abstraction. Moreover, according to Erikson's model of psychosocial stages (Erikson, 1968), adolescents roughly between the ages of 12 and 18 undergo the 'identity vs. role confusion' stage, during which their focus is primarily on self-exploration, identity formation, and more intense peer relationships. It can therefore be assumed that this shift in developmental priorities may be one of the factors influencing the lower regional attachment we observed. Second, boys show a stronger identity with their region than girls. The exception is younger girls (under 11 years), who, in some dimensions, demonstrate a stronger connection to their region than younger boys. This finding also aligns with our second hypothesis and is furthermore consistent with Dallago et al. (2012). Third, there are differences in students' regional identity across different regions. We found significantly lower identity in students from the Ústí Region compared to the majority of other regions, which again supports our hypothesis. This finding is confirmed by the results of Chromý and Marada (2003). In contrast, students in the Prešov and Košice Regions exhibit the highest identity with their region. Overall, Slovak students show a stronger connection to their region than students from the Czech Republic. In the Czech Republic and Slovakia, there are marked regional differences that can influence perceptions of regional identity. For example, in the Ústí Region – whose strong industrial past and post-World War II demographic shifts have left their mark – students often show weaker place identity compared to those from South and Central Moravia or Eastern Slovakia, where cultural and historical continuity is stronger. In addition to post-war expulsions and demographic fluctuations, the borderland position of the Karlovy Vary and Ústí Regions, adjacent to Germany, may further weaken regional identity, as longstanding cross-border mobility and economic ties diminish residents' rootedness. Although the Czech Republic and Slovakia were long part of the same state (Czechoslovakia), after its dissolution in 1993, each country developed its own national identity. This historical context can shape regional identity, with some areas, such as Prague or Bratislava, displaying stronger connections to globalized values, while rural areas tend to retain more robust regional bonds. Most studies on regional identity focus on the adult population. There is little research focused on the regional identity of students (Tomčíková & Rubáš, 2023), although 'region' is one of the five key concepts in the content of geography education, according to the International Charter on Geographical Education (Haubrich et al., 1992). The results of our study can thus contribute to the discussion on the potential benefits of more effective implementation of place-based education in the educational process. The formation of students' connections to the place where they live is one of the important topics in the educational process.

In addressing the second research question, we found that the largest share of students' favorite places falls into the category of home. This finding is consistent with Derr (2002), who examined

favorite places of children aged 10–11 years. In contrast to Korpela et al. (2001), we found that 'only' just under 20% of students' favorite places fall into the category of natural environments. Owens (1988) found that adolescents aged 14–18 most value natural environments, places where they can be with their friends, places where they can be alone, or places they consider their own. Hewitt et al. (2020) aimed to understand how students aged 12–18 perceive and value their landscape. Their results suggest that functional places (e.g., sports facilities) or places valued for their social significance (e.g., shopping centers) can be distinguished. According to Martz et al. (2020; 2023), children's favorite places (aged 10–14) include community centers, residences, entertainment venues, food establishments, and travel destinations. In categorizing students' favorite places, we were inspired by Freeman et al. (2023), who revealed children's meaningful places through children's photos. The most frequently photographed feature of children was family. Similarly, in our research, nearly 40% of students identified home/residence as their favorite place. Students' favorite places could also be categorized according to spatial scale. Although research on children's SOP predominantly focuses on the local scale of places (Rubáš et al., 2024), studies also feature regional scales (Dann & Schroeder, 2015), regional to national scales (Shamai, 1991), or global scales (Varró & Van Gorp, 2021). From this perspective, Wee et al. (2013) focused more on this issue, with their scale containing 10 levels (from items or specific rooms to global or universal). We identified all these levels in the students' responses, although levels 8–10 (country-global) were represented minimally.

In addressing the second research question, we also examined the reasons for the popularity of students' places. These reasons can vary greatly and appear in all the main conceptual frameworks of SOP (see Rubáš et al., 2024). It is often impossible to strictly categorize the reasons provided by students into one specific category. The aim is not to categorize and quantify the reasons for place meaning, but to highlight their diversity, which points to the fact that students' relationships with places are often deep and justified. This research partially builds on an earlier analysis (Rubáš et al., 2023), refines it, and presents it more comprehensively. Sub-concepts helped us capture the precise meanings and emotions students associate with particular places (e.g., 'home = safety', 'forest = relaxation'). Ardoin's dimensions revealed the broader contexts in which students discuss places – such as how a place's biophysical character or sociocultural ties with family and community shape their relationship. Bloom's dimensions, in turn, were most useful for deriving concrete educational objectives from our findings – that is, determining what can be implemented in instruction to deepen students' knowledge, feelings, or skills in relation to their place. A similar topic has been explored in numerous international studies. Martz et al. (2020; 2023) sought to characterize SOP of children aged 10–14 based on the meanings they associate with their places. The main categories of meaning were: entertainment, familiar environments, significant people. Other studies reveal various factors influencing the process of developing and fostering children's SOP, which can be categorized into the socio-emotional domain: e.g., perception of environmental aesthetics by 6th and 8th graders (Ontong & Le Grange, 2015), feelings and emotions of primary school children (Simkins & Thwaites, 2008). Derr (2002) identified a connection between place-enabled activities of 10–11-year-old children and their SOP. Slingerland et al. (2020) found that outdoor play activities support SOP in children aged 10–12 years. The relationships children have with the places where they live and the ways in which these relationships are mediated were examined in the study by Irvine and Lee (2017). The authors found that for children, places where they frequently spent time with family or friends (socio-cultural dimension) are often significant. Similarly, strong cultural or family ties in

children aged 6–14 were revealed by Freeman et al. (2023). The social dimension in relation to places has a significant influence, as also demonstrated in our study. Similarly, Bartos (2013, p. 17) states that “children's relationship with their environment is substantially influenced by their social relationships with friends and family.” Derr (2002) also emphasizes the socio-cultural dimension. However, the process of forming SOP involves a combination of multiple dimensions (Jeziorski & Therriault, 2018), which we highlight in our research.

The study has several limitations. First, we were able to obtain responses from only 1.4% of the total student sample. This significantly limits the interpretative power of the results. However, it is still a very large sample of respondents. Another limitation is that the territorial units (the regions of the Czech Republic and Slovakia) to which the results are partially related have relatively large areas, and the number of respondents is too low to truly reflect students' identity with their region across the entire region. Another limitation is that some of the questions might have been too abstract for students (especially those from lower grades). The categorization of favorite places, inspired by Freeman et al. (2023), can also be a limitation, as it is not always entirely clear-cut (some places could be categorized into multiple categories depending on the perspective). In the case of the reasons for students' favorite places, it is also evident that many of them can be assigned to more than one category (which is why we did not attempt to quantify them).

Despite its limitations, the study provides valuable insights into the issue of lower secondary school students' identity with their region and the popularity of their favorite places. Identifying the factors associated with students' identity with their region can be significant for geography education. For instance, it may assist in the planning and implementation of intervention programs aimed at improving students' relationships with their locality or their environment in general. Furthermore, understanding students' favorite places allows for a more targeted approach to geography education. For concrete examples of didactic applications of SOP in geography and environmental education based on our findings, the following publications can be used. Sobel (2004) describes a series of project-based lessons grounded in the local environment that strengthen students' affective and cognitive ties to ‘home’. Semken and Freeman (2008) show how field activities and reflective tasks can cultivate students' cognitive, affective, and psychomotor dimensions of SOP as a valid learning outcome – an outcome also confirmed by our study. A useful tool for developing students' SOP is the photo-story map, in which students photograph places of personal significance and create accompanying narrative commentaries (Martz et al., 2020). This approach enhances their sensory perception, which students frequently mentioned in their responses. The model of partnered community projects (Ardoin et al., 2014) develops the sociocultural dimension of SOP, aligning with our findings on the importance of family and community ties. Numerous other instructional strategies exist for shaping students' SOP – focusing on individual dimensions as well as on their holistic development (see Rubáš et al., 2024).

We argue that the relationship with the region and the people who live there is a critical component of an individual's integrity. Therefore, greater attention should be devoted in schools to fostering an emotional connection between students and geographical spaces.

6. Conclusion and recommendations

Previous research suggests that students are more likely to protect their favorite places, indicating that a connection to a place is associated with environmentally responsible behavior (Snider

et al., 2018; Činčera et al., 2022). Identifying students' favorite places and examining identity with their region in greater detail can therefore significantly contribute to the process of developing sustainability competencies. For students to be willing to act in favor of the environment, it is essential for them to develop competencies such as embodying sustainability values, which include the competence of promoting nature (see GreenComp: The European sustainability competence framework). This requires children to form meaningful relationships and intrinsically identify with the natural environment as well as with specific places (Bianchi et al., 2022).

Based on the results of our research, we propose the following concrete recommendations for geography education, which can contribute to the development of sustainability competencies:

- Based on the finding that students' identification with their region decreases with age, we recommend that geography education foster regional identity from an early age (e.g., through experiential activities that help them better appreciate the value of their local environment). For older students, education should include critical examination of environmental issues and link regional identity to global challenges, thereby developing their ability to understand complex environmental questions and actively engage in their resolution.
- Based on the finding that students' identification with their region varies across different regions, we recommend that geography education be more tailored to the specific needs of each region – taking into account its historical, cultural, and environmental context. This calls for a wider implementation of place-based education.
- Since the largest share of students' favorite places falls into the ‘home’ category, we recommend that the theme of home be more fully integrated into geography education – for example, through project-based teaching focused on the local environment and the values students experience in their everyday lives.
- Students often form deep and meaningful connections with places, and these connections have been identified across all observed dimensions of SOP. Based on this, we recommend that educators comprehensively consider all of these dimensions when planning and implementing place-based education.

Overall, we contend that fostering students' emotional connection to place can have a profound impact on how they perceive environmental challenges and how motivated they are to engage in pro-environmental behaviors. Based on an in-depth qualitative analysis of students' favorite places and the reasons for their preferences, alongside a quantitative survey of their regional identity, the proposed recommendations offer valuable insights for curriculum development and teacher training. These insights can help ensure that place-based education explicitly supports the development of sustainability competencies (Bianchi et al., 2022) – for example, the competence of promoting nature. In doing so, it can contribute meaningfully to the advancement of UNESCO's SDGs, particularly SDG 4 and SDG 11.

Further research is needed in this area to clarify which teaching strategies are most effective in shaping students' identity with their region, whether and how teachers integrate the concept of SOP into the educational process, and how teachers specifically work with students' favorite places. We also recommend that future studies consider a detailed analysis of the effectiveness of each SOP framework (see Fig. 8) – for example, by quantitatively comparing the extent to which each framework covers the data. These questions, arising from our study, highlight possible directions for future research.

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