Do Slovak teachers teach outside? An insight into geography and biology teachers´ opinions on outdoor education and place-based learning

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Abstract: *This paper examines outdoor education and place-based learning from the perspective of Slovak teachers, focusing on their engagement with these methods, the barriers they face, and the locations they prefer for teaching outside. Through a survey of 303 educators across Slovakia, the study provides insights into the frequency of outdoor teaching, revealing a generally positive stance towards these activational approaches despite challenges, such as adverse weather, student behaviour, and topics identified by teachers as unsuitable. The research identifies key factors that influence outdoor teaching practices, including the support from school administrations and the accessibility of suitable outdoor locations. While the study acknowledges the broad benefits of outdoor education and place-based learning in enhancing student motivation and behaviour, it also points out the need for curriculum adjustments and improved teacher training to overcome the identified barriers. By offering a detailed account of preferred teaching sites and the correlation between teacher participation in outdoor education programs and their outdoor teaching frequency, this paper contributes to the discourse on effective outdoor education. It underscores the importance of structural changes within the educational system and suggests avenues for future research, particularly in evaluating the pedagogical impacts of outdoor education and place-based learning. The findings advocate for policy shifts to better integrate outdoor education into practice, highlighting its potential to enrich educational experiences and prepare students for future challenges.*

Keywords: *geography education, biology education, outdoor education, place-based learning*

Introduction

In the rapidly evolving world of the modern school, *outdoor education* (OE) and *place-based learning* (PBL) are modern, though not exactly new, movements that reshape the way we think about teaching. These innovative approaches, deeply rooted in experiential learning theories, emphasise the importance of connecting students with their local environment as a dynamic classroom without walls. By stepping beyond the traditional confines of four-walled classrooms, educators and students embark on a journey of discovery, where both the natural and built environments become the primary resources for learning.

Not just a mere educational trend, OE and PBL are rather a transformative approach that seeks to bridge the gap between academic knowledge and real-world experiences, fostering a deeper understanding of subjects through direct engagement with the surrounding world.

This paper investigates the use of OE and PBL, seeking to answer the question: What is the Slovak teachers' perception of these educational concepts? With answering this, it investigates the frequency with which the Slovak teachers teach outside; along with barriers that prevent them from doing so. Finally, a list of places that the teachers utilise for OE and PBL is compiled, which may serve as a source of ideas for educators and future researchers.

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Research background

Outdoor education is a term of many definitions, a few of them being as convenient as Priest's (1986). Priest defines OE as a method that emphasises learning through experience, is predominantly conducted in natural environments, utilises all senses, integrates various curricular disciplines, and focuses on the relationships between people and natural resources. Other authors tend to adopt this expanded definition (Brookes 2002, Christie, Beames and Higgins 2015, Karolčík et al. 2015), so we will adhere to it as well. In this definition, important attributes of outdoor education can be identified: the predominance of the outdoor environment, an environmental aspect, and a holistic character.

Smith and Sobel (2010) define place-based learning as an educational approach that employs the local environment as a classroom. By rooting learning in the immediate natural surroundings, this methodology offers students a more profound understanding of ecological principles, geographical features, and biological diversity specific to their locale.

For *geography*, the local landscape serves as a practical example to study physical geography, including landforms, water bodies, and climate, as well as human geography, such as land use, cultural landscapes, and urban planning. By analysing their immediate surroundings, students can appreciate the impacts of geographical factors on human activities and the environment (Salter 2010). In *biology*, the focus is on the diversity of life in local habitats. Students investigate plant and animal species native to their area, in order to understand their characteristics, behaviours, and adaptations. This not only deepens their appreciation for biodiversity but also highlights the importance of preserving endangered species and habitats (Howarth and Slingsby 2006, Harris et al. 2013).

Moreover, outdoor education and place-based learning in these subjects encourage interdisciplinary connections, where students can see the overlap between geography and biology in addressing environmental issues (Salter 2010, d'Alessio 2012). They learn to apply scientific inquiry, critical thinking, and problem-solving skills to real-world challenges, such as climate change, habitat destruction, and sustainable resource management. These educational approaches foster a sense of environmental stewardship, as students become aware of their role in preserving the health and sustainability of their local ecosystems (Ozer 2006, Jeronen et al. 2016).

Studies of teachers' views on OE and PBL are quite scarce. Palavan et al. (2016) inquired about the teachers' perspectives on outdoor education. Among other interesting findings, their paper presents the most common types of outdoor educational activities, with field trips to *natural sites* being most prevalent, followed by trips to *museums*, *supermarkets*, *factories*, *governmental institutions*, and lastly, to *performances/plays*. In terms of prevalent places to visit, Adalar et al. (2023) did similar research, where the teachers were asked to provide as many out-of-school learning environments as possible. The most prevalent answers were *museum*, *schoolyard*, and *library*. The teachers have also stated reasons why they did not employ outdoor educational activities, with *large class sizes* being the predominant answer, followed by *laziness*, and *concerns regarding meeting curricular deadlines* respectively (Palavan et al. 2016). Munge, Thomas and Heck (2017) have identified 4 most important barriers in realising OE, namely *low funding*, *lack of its representation in curriculum*, *safety concerns*, and *outdated pedagogic approaches in this field*. Lock (2010) also argues that the tendency for the realisation of OE lessons among teachers has declined in the past 50 years. The research by Borsos et al. (2022) also identified a common concern among pre-service teachers about the inadequacy of their preparation in OE methodologies within their training programmes. This indicates a notable shortfall in teacher education, highlighting the necessity for more robust training in OE to better prepare future educators for integrating OE effectively into their teaching practices.

On the other hand, in a study by Kervinen et al. (2017), the teachers have identified the most important positive effects of outdoor education on their students. The most widely perceived effects were enhancement of *personal growth* and *general wellbeing*. Feille and Nettles (2019) discovered that teachers of lower grades are more likely to hold classes outdoors. They also highlighted a generally positive attitude among these educators towards OE.

Studies that focus on OE in Slovakia are, to our best knowledge, even scarcer. A paper by Kmeť and Karolčík (2020) aimed to determine the extent to which schoolyards are used for teaching natural sciences by schools in the region of central Slovakia (Žilina County). According to the results, such schools are relatively rare, and OE is often implemented as a result of participation in projects organised by non-governmental organisations. Another interesting finding, OE was often associated with community forms of teaching, which are relatively rare in traditional schools. Görner (2019) explored the perception of OE by teachers at Slovak elementary schools and identified the main positives perceived by teachers, mainly those related to the physical well-being of students; and challenges, mainly administrative. In addition, they list the most common activities teachers tend to implement outdoors: physical education and environmentally focused activities prevailing. The authors emphasise the high interest in OE among students and parents, and the need to include outdoor activities in the national curriculum. Kancír and Šolcová (2021) aimed to compare the implementation of OE in different countries, including Slovakia. The paper emphasises that Slovakia, as a member of the international organisation Outward Bound International, has the opportunity to utilise OE methods and the experience of educators from around the world. The authors argue that integrating these approaches into the Slovak educational system could bring positive changes to education. The study concludes with the need for further development and support of OE in Slovakia, aiming to positively influence science education and prepare students for the challenges of current and future life.

Research sample

The research sample comprised 303 educators from Slovak primary and secondary schools (ISCED 2, 3), spanning all Slovak regions, with a notable prevalence in western Slovakia (130). However, the highest number of respondents resided in Žilina County (n = 50; Fig. 1). Participants from urban schools (n = 185) exceeded those from rural ones (n = 118). Regarding gender composition, female respondents (n = 254) significantly outnumbered males (n = 49); age-wise, the largest group of respondents fell into the 36–45 age bracket. The vast majority of respondents were primary school teachers (n = 236). Most participants were quite experienced (21–30 years of teaching) with at least the first governmental certificate. More biology than geography teachers participated in the research (Fig. 2).

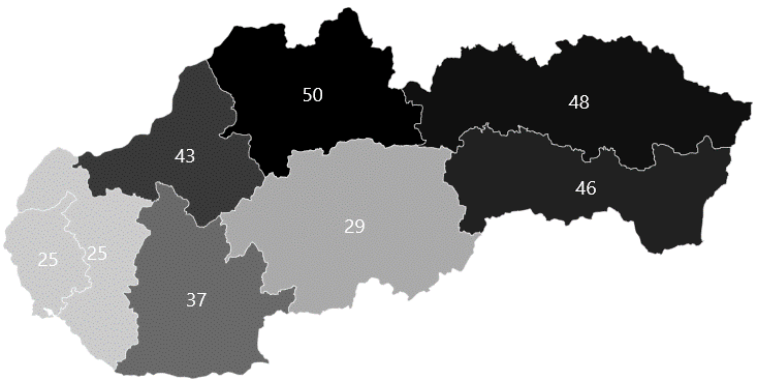

Fig. 1. *Number of respondents in the regions of Slovakia according to the location of the school where they work*

All participants, who either teach biology or geography, often in conjunction with other subjects, agreed to both complete the questionnaire and for the publication of the data.

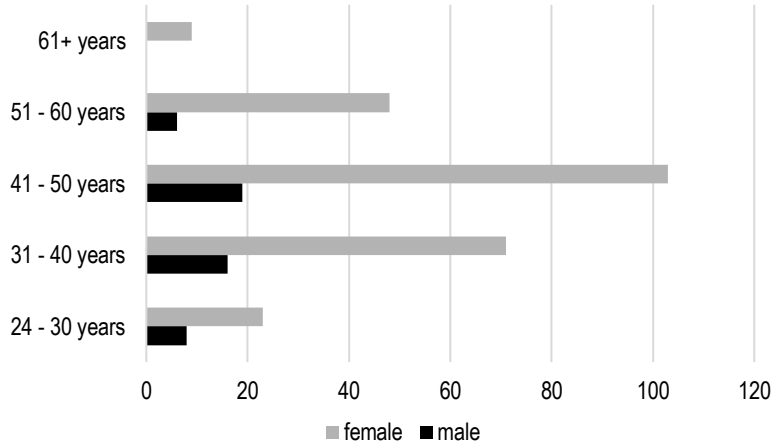

Fig. 2. *Demographic characteristics of the research sample.*

Research instrument

Between January 2023 and April 2023, a questionnaire was administered utilising the Google Forms platform. It commenced with a preliminary section providing guidelines for its completion, followed by questions designed to elicit information on the demographic and professional profiles of the participants, such as their gender, the location of their school, their teaching experience, and the subjects they teach. Subsequent questions aimed to garner teachers' perspectives on OE and PBL, exploring the frequency with which teachers hold classes outdoors (0 = never; 1 = once a year; 2 = once in three months; 3 = once in a month; 4 = a few times in a month; 5 = weekly), the online resources they utilise, the beneficial impacts of outdoor teaching, and their viewpoints on the integration of outdoor learning practices within the national curriculum (all on a scale of 1 – 4).

Furthermore, a semi-closed-ended item investigated the places in general (such as *schoolyard, municipal area,* etc.) where teachers conduct OE. Next, open-ended items were included to gain insights into the specific locations where teachers conduct their outdoor lessons and the obstacles they perceive as the most significant to the success of outdoor education.

Subsequently, statistical methods were employed to interpret the data. The software IBM SPSS Statistics 27 was used for the statistical analysis of the data. Firstly, descriptives were calculated, then the normality of each dataset was evaluated using the Shapiro-Wilk test. Since all datasets exhibited a normal distribution, ANOVA, supplemented by Bonferroni correction, was employed.

Results

Regarding the places, conditions and equipment for teaching outside, the average score was 2.76 with normal distribution, which may be characterised neutral to fairly positive. A different result was observed in teachers' view of the national curriculum and its implementation of OE. The mean of the answers was 1.53 with normal distribution, which indicates a neutral to fairly negative opinion.

In terms of the frequency of teaching outside, the average score was 1.86. The Shapiro-Wilk test for normality tells us that the dataset has a normal distribution ($Sig < 0.001$), therefore

ANOVA with Bonferroni correction was utilised in order to identify the factors that influence how often the teachers choose to teach outside.

Tab. 1. *The results of Analysis of variance (ANOVA) for frequency of teaching outside.*

Factor	Frequency of teaching outside	
	Sig. (ANOVA)	Highest sig. (after Bonferroni)
Gender	.137	–
Age	.729	1.000
Years of teaching practice	.041*	.032*
Certificates	.835	1.000
Type of school	.002**	.002**
Urban/rural	.002**	–
County	.350	1.000
Participation in OE programmes	< .001**	–
Places, conditions, and equipment	< .001**	< .001**

The results of the statistical analysis showed no significant difference between gender, age, professional characteristics, or the county and the frequency of teaching outside (Tab. 1). However, as it is apparent in Tab. 1, years of teaching practice have significant effect on the frequency of teaching outside. The teachers who have been teaching for 0–5 years have taught outside more frequently (x = 2.17) than teachers who have been teaching for 6–10 years (x = 1.53). Their average frequency was higher than those of the other groups too, although no significant differences were identified.

Significant differences between types of school have also been identified. According to the results, the teachers at primary schools had the highest frequency (x = 1.97) of teaching outside, significantly higher than teachers at secondary grammar schools (x = 1.43).

The type of settlement also influences the frequency of teaching outside. The teachers from rural schools (x = 2.09) taught outside significantly more often than teachers at schools in urban settlements (x = 1.71).

The results also indicate that participation in OE programmes (mainly as projects proposed by non-governmental organisations) is an important factor that motivates teachers to teach outside more frequently. The teachers who participated in OE-themed educational programmes showed significantly higher frequency of teaching outside (x = 2.34) than those who did not (x = 1.76).

Another interesting result is that there is a significant correlation between the teachers' evaluation of places, conditions and equipment for outdoor education and their frequency of teaching outside (Tab. 1). Teachers who evaluated their schools' conditions for outdoor teaching with higher score taught outside significantly more often than those who consider the conditions to be unsuitable. However, since this is an initial study, more in-depth future research will be needed to further investigate this issue.

The descriptives of the scores in terms of the observed influence of OE and PBL on students' motivation and behaviour are summarised in Tab. 2. The descriptives indicate an overall neutral-to-positive effect of these teaching methods, as observed by the teachers.

Tab. 2. *The descriptives of the scores in terms of the influence of OE and PBL on students' motivation and behaviour.*

Descriptive	Effect of OE and PBL on student behaviour	Effect of OE and PBL on student motivation
Mean	2.868	3.462
Median	3	4
Variance	.996	1.057
Std. deviation	.998	1.028
Skewness	.066	-.412
Kurtosis	-.424	-.185

The scores in both datasets showed normal distribution according to the Shapiro-Wilk test of normality (*Sig* < .001 for both). Therefore, ANOVA with Bonferroni correction was employed to find the significant influence of the factors on both observed effects. The results are summarised in Tab. 3.

Tab. 3. *The results of Analysis of variance (ANOVA) for the selected datasets.*

Factor	**Effect on Behaviour**		**Effect on Motivation**	
	Sig. (ANOVA)	**Highest sig. (after Bonferroni)**	**Sig. (ANOVA)**	**Sig. (after Bonferroni)**
Type of school	.007**	.011*	.553	1.000
Urban/rural	.382	–	.605	–
County	.295	.625	.389	.579
Frequency of OE	.088	.238	.078	.066
Participation in OE programmes	.130	–	.419	–

As we can see in Tab. 3, only the type of school has shown to have a significant influence on the observed positive effects *on behaviour*; the teachers teaching at vocational schools had observed more positive effects of OE and PBL than those who teach at primary schools. The factors of settlement type, county, frequency of OE, or participation in OE programmes have shown no significant influence on the observed effect on student behaviour.

Subsequently, the participants were asked to identify barriers that prevent them from teaching outside. The most prevalent barrier was *weather* (stated by 60% of the participants), followed by *unsuitable topic* (some topics, like lab practice in biology, had been identified as less suitable for outdoor education; 56%), *students' behaviour* (43%), *safety concerns* (18%), *school location* (the teachers had concluded that their school is far from any places suitable for outdoor education; 15%). Among *others*, the teachers have stated the unsuitable equipment, lack of support from the school management, or administrative issues (Fig. 3).

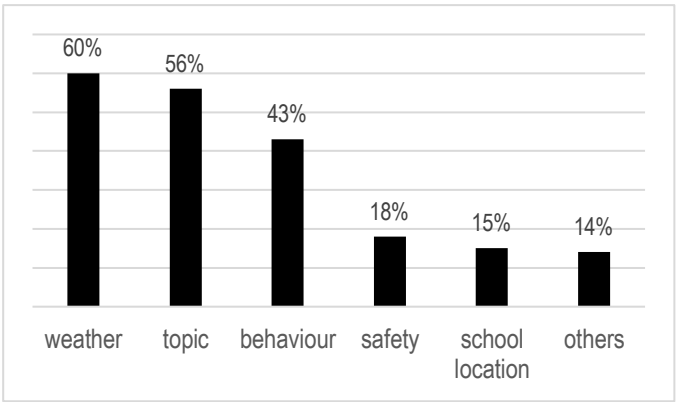

Fig. 3. *Barriers in the implementation of outdoor education perceived by teachers.*

In terms of the most common place for outdoor education, most teachers (71%) have picked *schoolyard* as their answer, followed by *municipal area* (49%), *local park* (32%), *educational trail* (25%), *botanical garden* (12%), and *zoological garden* (11%). The results are summarised in Fig. 4.

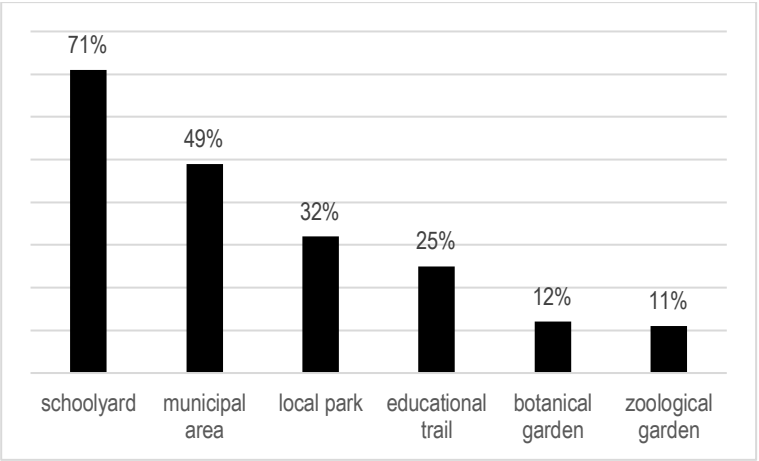

Fig. 4. *Most common places for outdoor education.*

The participants were also asked for the specific places where their outdoor education take place. The list of places is, however, influenced by the school location of the individual respondents; nonetheless, it provides a useful inspirational tool for teachers while choosing where their next OE lesson may take place. The results were summarised in *Tab 4*. As can be concluded from the table, most of the places that the teachers choose for outdoor education are *natural habitats*, followed by *institutional places*, such as museums, galleries, water treatment plants, planetariums, zoological and botanical gardens etc. The least prevalent were *municipal areas and parks*, such as public parks, old towns, and suburban areas, despite their accessibility.

Tab. 4. *Places of Slovak teachers' outdoor education.*

County	Natural habitats	Municipal areas and parks	Institutional places
Bratislava	Devínska Kobyla, Sandberg, Železná Studienka, Kačín, Starohájsky les, CHKO Dunajské luhy (Protected landscape area), Morava (river banks)	Gabčíkovo (dam), Sad Janka Kráľa, Koliba, Bratislava (old town), Račianske mýto (public park), Pionierska, Senecké jazerá, Modra (old town)	Hurbanovo planetarium, Botanical Garden in Bratislava, Bratislava ZOO, Rozálka, Devín (castle)
Trnava	Smolenice - Jaskyňa Driny (cave), Marhát	Trnavské rybníky (lakes), Hamuliakovo (dam), Panská záhrada Hlohovec (garden), Teplica (river banks) in Senica	Kamenný mlyn in Trnava
Nitra	Zobor, Borina Nitra, Berek, Nitra (river banks), Biela Taňa (lake), Váh (river banks), Starý vrch in Topoľčany, Kulháň (nature trail)	Nitra (calvary), Dražovce, Bernolákov park in Nové Zámky, Tovarnícky park	SPU Botanical garden in Nitra, Mlyňany (arboretum), Nitra (castle), Water treatment plant in Komárno, Lesná škola Levice
Trenčín	Brezina, Váh (river banks), Svinica (river banks), Strážovské vrchy, Vršatec (castle), Dvoly, Dolina (Myjava), Čierne Blato in Myjava, Haluzická tiesňava, Víšky (nature trail)	Trenčianske Teplice (old town), Prievidza (public park)	Čachtice (castle), Bojnice ZOO, Regional culture center in Prievidza
Žilina	Rajčianka (river banks), Divinka (nature trail), Straník, Kysuca (river bank), Kuzmínovo (nature trail), CHKO Kysuce, Povina, Tábor in Kysucké Nové Mesto, Demäňovské jaskyne (caves), Turiec (river banks), Šútovo (waterfall), Blatnická dolina, Jasenská dolina, Veselovianka (river banks), Oravská Jasenica (quarry), Klinské rašelinisko, Lúžňanka (meanders), Brankov (waterfall), Juráňova dolina, Prosiecka dolina, Kvačianska dolina	Divina (village), Žilina (old town), Žilina (dam), Vlčince, Žilina (public park), Oščadnica, Oravská priehrada, Vlkolínec, Bôr (public park) (Turčianske Teplice)	Budatín (castle), University of Žilina, Žilina (water treatment plant), SHMÚ meteorological station, Horný Vadičov (hive station), Open-air museum in Pribylina, Hrádok (arboretum), SMOPAJ, Liptovské múzeum in Ružomberok
Banská Bystrica	Radvanský kopec, Suchý vrch, Kalamárka, Ježová (quarry), Ipeľ (river banks), Kurinec (lake), Krtíš (river banks), Bralo (Veľký Krtíš), Putikov vŕšok, Kamenné more in Vyhne	Radvanská záhrada (public garden), Banská Bystrica old town, Banská Štiavnica (old town), Čierny Balog, Krupinské pivnice, Kalinovo (public park), Žarnovica (calvary)	Múzeum máp in Kynceľová, Krupina (amphitheatre)
Prešov	NP Pieniny, TANAP, Minčol (Čergov), Zborov (castle), Topľa (river banks), Hubková (river banks), Jasenov (castle), pod Sokolejom (quarry), Brestovské rybníky, Kvetnica, Bachureň, Torysa (river banks), Sninský kameň, NP Poloniny, Levočské vrchy	Malkovská hôrka in Prešov, Bardejovské kúpele areal, Radničné námestie (Bardejov), Poprad (town centre)	Ekocentrum Maľcov, Bardejov (meteorological station)
Košice	Zádielska tiesňava, Bankov, Jahodná, Predná Holica, Bukovec, Vyšný Klátov (quarry), Morské Oko (lake), Sennianske rybníky (ponds), Oborín (nature trail), NP Slovenský raj, Markušovský skalný hríb, Rittenberg, Schulerloch, Bačkovská dolina	Nad Jazerom, Dargovských hrdinov, Furča (public park), Sobranecké kúpele, Spišská Nová Ves old town, Smižany (calvary), Vinné	Košice ZOO, UPJŠ Botanical garden, Medzev (planetarium)

Discussion

In exploring the perceptions of Slovak teachers towards OE and PBL, this study has found implications that both corroborate and diverge from existing literature. The acknowledgement of OE's benefits, particularly in fostering students' personal growth and general well-being echoes findings from Kervinen et al. (2017) and Feille and Nettles (2019). Our quantitative analysis, which reveals an overall neutral-to-positive effect of OE and PBL on students as observed by teachers, with mean scores of 2.868 and 3.462 for the effect on student behaviour and motivation respectively, corroborates the universal recognition of these educational approaches' value. This shared understanding underscores the potential of OE and PBL to significantly enhance the educational experience across diverse learning environments. We have also proven that the teachers at primary schools utilise OE more frequently, which agrees with the findings of Feille and Nettles (2019).

Conversely, our study highlights persistent barriers to the implementation of OE, paralleling issues identified in previous research, such as administrative obstacles (Palavan et al. 2016, Görner 2019). Notably, our findings add to this discourse through the identification of weather, unsuitable topics, and student behaviour as significant impediments, with 60%, 56%, and 43% of Slovak teachers citing these factors respectively. This insight into the specific challenges faced by Slovak educators provides a more nuanced understanding of the obstacles to OE in Slovak educational system.

Our results regarding the prevalence of places for field trips corroborate those by Palavan et al. (2016) since natural habitats are the most prevalent answers. However, teachers in our study have chosen to teach at schoolyards quite often too, which may be attributed to the fact that we did not ask them to pick places for *field trips* (like Palavan et al. 2016), but rather for *outdoor education*, which is a broader term. Nevertheless, our results agree with those found by Adalar et al. (2023), who had identified the most prevalent place for outside activities to indeed be *schoolyard*.

The comparative analysis of OE in different countries, including Slovakia, by Kancír and Šolcová (2021) highlights the importance of international collaboration and exchange of best practices in OE. Their call for further development and support of OE in Slovakia parallels our study's implications for policy and practice, highlighting the need for comprehensive strategies to integrate OE and PBL into the national curriculum and teacher education programs.

A few ways of interpreting the quantitative results arise. Firstly, the frequency of teaching outside seems to be influenced by many factors, some of them easier to account for than others. For example, it is of no surprise that the teachers who participate in outdoor educational programmes and have suitable conditions, equipment, and places for realising OE tend to teach outside more frequently; this fact only puts an emphasis on the importance of these factors. The reason why rural teachers teach outside more frequently may be the fact that suitable places for outdoor education are more accessible in rural areas, as well as the fact, that rural students in Slovakia are well-adapted to nature play. However, since urban schools usually do not lack schoolyard either, these findings would require further research. The influence of years of teaching is, however, dubious. One of the possible explanations for the fact that the teachers who teach for 0–5 years tend to teach outside the most frequently may be burnout, which is frequent in later years of the teachers' careers; the other way to account for this fact may be the more up-to-date university education of these teachers; however, these findings call for further research. The reason why vocational schoolteachers observed the positive effects most frequently may be, that, anecdotally, the students at these schools are taught outside of the classroom quite occasionally and, therefore, the effect of this method may be stronger. However, this finding also requires further research.

Conclusions

This study has provided an examination of outdoor education and place-based learning within the Slovak educational context, revealing insights into teachers' perceptions, the frequency of outdoor activities, and the barriers to implementing these educational approaches.

Several effects that influence teachers' frequency of teaching outside have been identified. The observed effects, along with the qualitative results, emphasise the need for better equipment, support from both government and school management, and overall better conditions for outdoor education. The most common barriers to implementing outdoor education seem objective, but it is notable that teachers who have participated in OE programmes and have support and good conditions tend to teach outside more frequently. In conclusion, barriers exist, but there are ways to overcome them.

The study underscores the necessity for systematic implementation of OE into biology and geography education in Slovakia, including enhanced support for teachers. The focus on the Slovak context adds a unique dimension to the discourse, offering insights that can inform both national educational policy and international practices in outdoor education. Looking ahead, the research points towards the need for further exploration into the impacts of specific outdoor education and place-based learning activities on student outcomes, suggesting directions for future studies. It calls for policy changes that would integrate outdoor education into educational systems and recommend international collaboration to share best practices and innovations in outdoor education and place-based learning. By addressing the challenges and building on the opportunities identified through this study, there is a clear pathway forward to enhance the educational experience of students through outdoor education.

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