

OUTDOOR LEARNING AS A PATHWAY TO INCLUSIVE AND INNOVATIVE PRACTICES IN MIDDLE SCHOOLS

L'OUTDOOR LEARNING COME PERCORSO VERSO L'INCLUSIONE E L'INNOVAZIONE NELLA SCUOLA SECONDARIA DI PRIMO GRADO



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ABSTRACT

The paper presents a research project aimed at describing how outdoor learning is configured in the Italian context of lower secondary schools, with attention to the promotion of inclusive processes, educational well-being and student motivation. The research, launched in 2023 and co-conducted by Indire, the University of Bologna and the Rete delle Scuole all'Aperto, involved 240 schools belonging to three national networks of schools characterized by a common pedagogical vision centered on outdoor learning and school innovation. The explanatory sequential mixed methods study design included a first quantitative phase, followed by a second qualitative phase aimed at deepening the phenomenon initially detected on a large scale.

Il contributo presenta un progetto di ricerca volto a descrivere come si configura la didattica all'aperto nel contesto italiano della scuola secondaria di primo grado con attenzione alla promozione di processi inclusivi, benessere educativo e motivazione degli studenti. La ricerca, avviata nel 2023 e co-condotta da Indire, Università di Bologna e Rete delle Scuole all'Aperto, ha coinvolto 240 istituti scolastici appartenenti a tre reti di scuole nazionali caratterizzate dalla comune visione pedagogica centrata sull'outdoor learning e sull'innovazione scolastica. Il disegno di ricerca di tipo misto sequenziale esplicativo ha previsto una prima fase quantitativa, seguita da una seconda qualitativa finalizzata ad approfondire il fenomeno rilevato inizialmente su larga scala.

KEYWORDS

Outdoor learning, inclusion, place-based education, school networks, innovative educational practices
Outdoor learning, inclusione, place-based education, reti di scuole, pratiche didattiche innovative

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Introduction

The research described in this paper is part of the scientific collaboration agreement signed between Indire, the Department of Education Sciences "Giovanni Maria Bertin" of the University of Bologna, and the Istituto Comprensivo 12 of Bologna, as the lead school of the Rete delle Scuole all'Aperto. The agreement aims to initiate qualitative and quantitative research pathways on the themes of outdoor learning and to support educational and organizational innovation processes related to outdoor teaching in Italian lower secondary schools. The collaboration between schools, researchers, and universities — between teachers and academics — can indeed provide spaces for reflection useful for making bold decisions in the educational field aimed at transforming the traditional didactic and organizational model (Giunti et al., 2025).

With regard to Indire, the research originates in the context of the *Avanguardie Educative* Movement, where studies emerging from schools adopting the “Outdoor education Idea”¹, in line with the Movement's goals, aim to identify and disseminate outdoor educational practices that rethink the organization of teaching, time, and space in schooling (Giunti et al., 2023; Giunti et al., 2022; Giunti & Panzavolta, 2022).

Regarding the Department of Education Sciences "Giovanni Maria Bertin" at the University of Bologna, the research aligns with its activities of establishing, implementing, and monitoring the national Rete delle Scuole all'Aperto, active since 2016, through research-training paths (Asquini, 2019; Schenetti, 2021) aimed at developing teacher professionalism and transforming educational practices² (Schenetti 2022b).

This paper presents an initial joint research project aimed at investigating how outdoor learning has been implemented in lower secondary schools, particularly in relation to student well-being, motivation, and inclusive and innovative teaching practices.

In particular, the first part of the article presents the context in which the study is situated, the research questions, and the chosen methodology. The second part of

¹ The INDIRE research group in the context of *Avanguardie Educative* that focuses on the concept of Outdoor education is composed of: Chiara Giunti, Patrizia Lotti, Elena Mosa, Massimiliano Naldini, Lorenza Orlandini, Silvia Panzavolta, and Laura Tortoli.

² Michela Schenetti is the scientific coordinator of the Rete delle Scuole all'Aperto and serves as the lead for research and training activities.

the article outlines the phases of the research and the tools utilized. The contribution addresses key themes such as the relationship between outdoor learning and inclusive processes, educational well-being, and student motivation.

1. Context and aims

The transition from primary to lower secondary school represents a critical phase for students' educational well-being and motivation. Numerous studies highlight that during this transition, students may experience a decline in intrinsic motivation and a diminished sense of school belonging. Additionally, literature indicates that this period is associated with a decrease in students' psychological well-being.

These phenomena are often linked to changes in the educational context, such as increased cognitive demands, more formalized relationships with teachers, and the abandonment of hands-on teaching methods and the playful dimension of learning typical of primary school. While primary education more readily activates the experiential dimension of learning — engaging not only cognitive but also emotional, sensory, and physical aspects of students — lower secondary education often emphasizes rigid disciplinary boundaries, promoting decontextualized and abstract knowledge, and frequently reducing practical and immersive experiences.

The continuity between experience and learning, as proposed by Dewey and formalized by Kolb in a cycle encompassing concrete experience, reflective observation, abstract conceptualization, and active experimentation, is often lacking in lower secondary education. This gap negatively impacts not only student engagement and motivation but also the genuine acquisition of knowledge and skills, as well as personal growth.

From a well-being perspective, the literature highlights how the transition to lower secondary school can lead to an increase in school-related stress and performance anxiety, mainly due to more rigorous assessment practices and reduced personalization of teaching (Ryan & Deci, 2000; Goldstein, Boxer & Rudolph, 2015). In particular, the transition to a higher school level negatively affects dimensions that, according to the literature (Lucisano & Rubat Du Merac, 2014; 2015), define educational well-being — such as students' perception of the school environment, satisfaction in relationships with teachers and peers, and levels of anxiety in different learning situations — especially in relation to the implementation of outdoor practices (Rubat Du Merac, Di Nisio & Schenetti, 2023; Schenetti & Rubat Du Merac, 2023).

However, international research highlights that adopting pedagogical approaches centered on active and experiential teaching, such as outdoor education, can facilitate a more positive adaptation to lower secondary school. These methods ease the transition between educational stages and contribute to creating a stimulating environment that promotes student motivation, inclusion, and well-being (Wang et al., 2004; Mann, Gray, & Truong, 2023).

In the context of Italian research, studies have primarily focused on early childhood services and primary education. Numerous experiments and documentation of best practices have been reported in these educational stages (Antonietti et al., 2022; Schenetti, 2022a, 2022b), aligning with the core elements of the approach identified in international literature (Orlandini & Giunti, 2023; Giunti et al., 2022; Giunti & Panzavolta, 2022; Giunti et al., 2023). In recent years, there has been a significant editorial investment in outdoor education across its various forms (Farnè, Bortolotti & Terrusi, 2018; Bortolotti, 2019; Antonietti et al., 2022).

Despite numerous international studies (Rickinson et al., 2004; Becker et al., 2017), the relationship between outdoor learning and inclusion, motivation, and well-being in lower secondary school remains underexplored in the Italian context. Specifically, lower secondary schools have been less involved in research and experimentation related to outdoor education and learning.

This study aims to address this knowledge gap by exploring a descriptive problem. It seeks to investigate significant outdoor learning practices in lower secondary schools that can be effectively integrated into the curriculum, promoting a multidimensional approach to learning that considers students' cognitive, physical, and emotional dimensions. In particular, the research intends to explore the role of outdoor teaching in fostering inclusive processes, educational well-being, and student motivation in lower secondary education.

2. Research questions

Building upon the previously outlined framework and considering the descriptive aims of the research, the following questions were discussed and formulated:

How is outdoor learning implemented in lower secondary school?

Specifically:

How does the use of outdoor spaces (in continuity with indoor spaces) influence the selection of active teaching strategies, the teacher's role, and peer relationships in lower secondary school?

What are the connections between outdoor learning, inclusive processes, educational well-being, and study motivation in lower secondary school?

These questions are situated within a complex field of inquiry and aim to foster new reflections in the domain of outdoor education and learning, as well as their implications for innovating the "school system" at the levels of organizational policies, methodological innovation, utilization of indoor and outdoor educational spaces, and the initiation of teacher training programs geared towards implementing innovative teaching practices.

Furthermore, the project seeks to identify the potential and challenges associated with adopting this pedagogical approach in lower secondary education, offering practical insights for its implementation and encouraging greater involvement of lower secondary schools in educational innovation processes.

3. Methodology: Mixed-methods design

The research, initiated in 2023 and jointly conducted by Indire, the University of Bologna, and the Rete delle Scuole all'Aperto, involved 240 educational institutions affiliated with three school networks sharing a common pedagogical vision centered on outdoor learning and educational innovation. The study employed an explanatory sequential mixed-methods design, as outlined by Creswell and Plano Clark (2011), consisting of an initial quantitative phase followed by a qualitative phase aimed at deepening the understanding of phenomena identified on a larger scale.

The quantitative phase involved administering a questionnaire that provided an overview of the prevalence of outdoor teaching practices within the three networks under investigation. The subsequent qualitative phase focused exclusively on lower secondary schools within these networks and involved 6 schools in an in-depth investigation conducted in the form of a case study. (Figure 1)

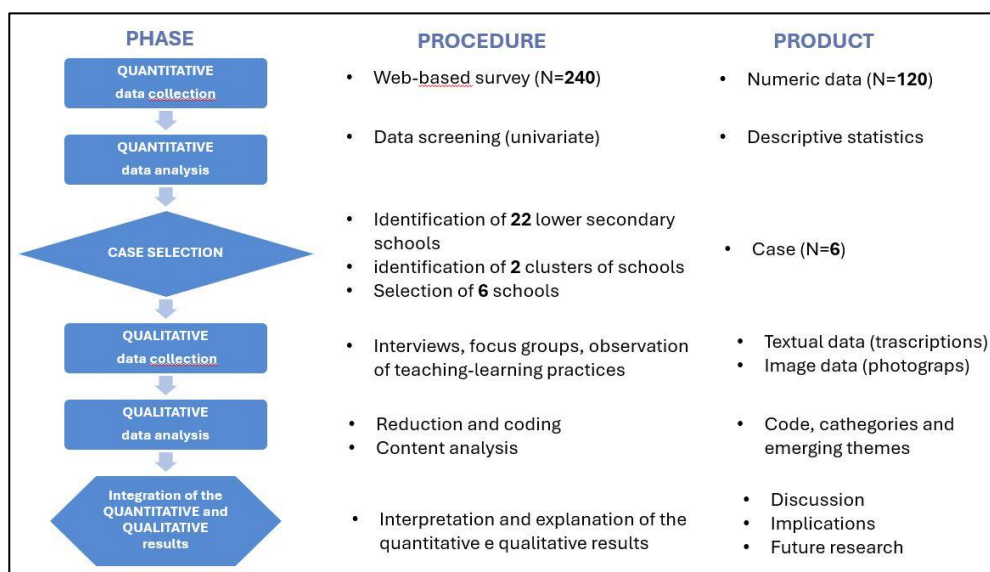


Figure 1. Visual display of the research design used in the study

The decision to adopt a mixed-methods strategy was driven by the intent to comprehensively describe the phenomenon under study and its dynamics, moving beyond the dichotomy between quantitative and qualitative research in favor of methodological pluralism, as advocated by Greene et al. (2007) and Trincherro & Robasto (2019).

4. Participants

The research involved 240 schools belonging to three national school networks, all characterized by a shared pedagogical vision focused on outdoor learning and educational innovation: 115 schools within the Avanguardie Educative network, adopting the “Outdoor education” Idea; 102 schools within the Rete delle Scuole all'Aperto; 14 schools belonging to both the Avanguardie Educative network and the Rete delle Scuole all'Aperto; and 9 schools within the Scuole Outdoor in Rete network.

The first network involved is Avanguardie Educative³, a cultural movement and network of approximately 1,700 schools established in 2014 under the initiative of INDIRE (National Institute for Documentation, Innovation, and Educational

³ <https://innovazione.indire.it/avanguardieeducative/outdoor-education>

Research), with the goal of exploring, documenting, and facilitating the systematic implementation of innovation in the Italian school system. One of the Movement's proposals for innovation is the “Outdoor education” Idea, which is now adopted by 172 schools, including 129 schools in 2023 (100 comprehensive schools, 1 national boarding school, and 28 high schools). The second network involved is the Rete delle Scuole all'Aperto⁴, which was established in 2016 under the supervision of the University of Bologna. Today, this network includes 123 schools, with 109 comprehensive schools, 6 primary education schools, and 1 national boarding school in 2023. Finally, the Scuole Outdoor in Rete network⁵, currently includes 18 schools, with 9 schools in 2023 (1 comprehensive school and 8 high schools).

Thus, the schools participating in the research share a certain homogeneity in terms of context, based on a common pedagogical framework represented by outdoor education & learning. However, significant differences exist with regard to the composition of the networks, the activities, and the participation protocols adopted. As evidenced by the data presented above, the most noticeable element of diversity is the educational level of the schools. While the Rete delle Scuole all'Aperto network is exclusively aimed at primary and lower secondary schools (first cycle of education), the Scuole Outdoor in Rete network consists almost entirely of high schools (second cycle of education), and the Avanguardie Educative network includes both cycles, though with a significant prevalence of schools from the first cycle.

Moreover, other factors influencing the data collection include the different governance models of the three networks, which determine various approaches to training, professional development, and participation in network activities. The Avanguardie Educative network offers new adopting schools a model of assistance and coaching, which includes the sharing of self-training materials (guidelines, toolkits, video documentation, etc.) as well as information and training courses promoted by lead schools and key schools in the Movement. The Rete delle Scuole all'Aperto offers new member schools a three-year training program coordinated by the Istituto Comprensivo 12 in Bologna, under the supervision of the University of Bologna. This program involves teachers, university researchers, pedagogists, and environmental educators. Over the three years, both the pedagogical foundations of outdoor learning and the design of teaching activities, as well as documentation to integrate outdoor learning into the curriculum in a stable and

⁴ <https://www.scuoleallaperto.eu/>

⁵ <https://www.scuoleoutdoorinrete.net/>

sustainable way, are addressed. Finally, the Scuole Outdoor in Rete network offers its member schools training meetings to promote interdisciplinary projects and work camps for class groups using the PCTO (Pathways for Transversal Skills and Orientation) model, co-constructed with local organizations (municipalities, parks, associations, Civil Protection, etc.).

5. Quantitative phase: data collection through questionnaire

The questionnaire was administered in May 2023 to 240 schools belonging to both the first and second cycles of education. The invitation to complete the questionnaire was addressed to both the school principal and the designated coordinator for outdoor education within each school.

The questionnaire consisted of 27 closed-ended questions and one open-ended question. Following an initial section aimed at identifying the profile of the respondents (including affiliation with one or more of the three reference networks and school level), the main body of the questionnaire focused on exploring the extent of outdoor education implementation within schools, the schools' proactive engagement with the network, and, in alignment with the research objectives, the implementation of outdoor education practices in lower and upper secondary schools.

An operational description of the questionnaire is provided below (Table 1).

Factors	Indicators	Survey Items	Variables
Diffusion of outdoor education in schools belonging to the networks	Teachers engaged in outdoor education Classes in which outdoor education is implemented	Compared to the total number of teachers at the school, those practicing outdoor education are... Compared to the total number of classes at the school, those implementing outdoor education are...	Less than 25%, between 25% and 50%, between 50% and 75%, more than 75%
Proactivity of schools in relation to network membership	Motivations behind joining a network promoting outdoor education	What motivated the school's participation in the network?	Motivation: The commitment of a group of teachers who already practice outdoor education in our school

	Expectations related to network membership Types of training activities undertaken	What do I expect from joining the network? Have the school teachers been trained/are they being trained in outdoor education?	• The collaboration of the school with the local community (agreements, operational and specific conventions, community pacts, etc.) aimed at planning a shared educational project • The search for continuity in teaching with other school levels that already practice outdoor education in our institution Expectations: • Participate in training courses • Exchange ideas with schools that implement outdoor education • Receive support in developing outdoor education programs • Promote our outdoor education activities Training: • University courses • Courses promoted by the network • Self-training paths • No training program has been activated
Implementation of outdoor education practices in lower and upper secondary schools	Participants, involved actors, learning objectives, timing and locations of implementation	Number of classes Number of students Number of teachers External partners Subjects involved Indoor/outdoor spaces School year(s) of reference	Open-ended question

Table 1. Operational definition of the first phase of the research: factors, indicators, survey items, and variables

As outlined in the operational definition of the questionnaire, its administration served a dual purpose: on the one hand, to map the schools belonging to the three networks involved in the research; on the other hand, to identify significant outdoor education experiences to be selected for the subsequent phase of the study, which aimed to conduct in-depth field investigations of particularly effective cases through qualitative analysis.

A total of 120 fully completed questionnaires were collected, corresponding to a response rate of 50%. The open-ended question yielded 51 narrative accounts of outdoor education experiences. Of these, 36 referred to lower secondary schools, while the remaining 15 referred to upper secondary schools.

Data analysis was carried out between July and September 2023 (Giunti & Schenetti, 2024).

Among the findings, we present here the data concerning the percentage of teachers who reported practicing outdoor education in schools belonging to the three networks. The results, disaggregated by school level and type, reveal a significant lack of uniformity both between the two cycles of education and within different types of schools, indicating an uneven distribution of outdoor education practices.

In particular, within the first cycle of education, the proportion of schools reporting that “more than 75%” of teachers practice outdoor education decreases across school levels: from 24.2% in preschools, to 6.8% in primary schools, and down to 0% in lower secondary schools. Correspondingly, the opposite category — “less than 25%” — increases across the same progression from preschool to lower secondary school (see Figure 2).

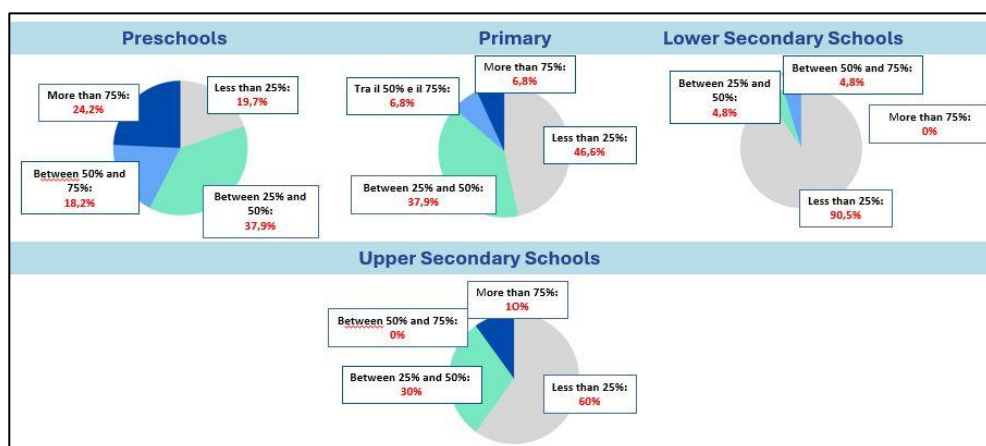


Figure 2. Percentage of teachers practicing Outdoor education across school levels

These data outline the typical profile of a comprehensive school that is part of the three educational networks and are consistent with the findings of a recent research report presenting the results of a national study on teaching practices in Italy (Ianes, Zagni & Pacenza, 2024). According to that study, Outdoor education is widely practiced in preschool settings, while its application significantly declines in subsequent educational levels (Ianes, Zagni & Pacenza, 2024, p. 13).

As previously highlighted, the transition from primary to lower secondary school represents a critical phase: the presence of rigid subject divisions and the abandonment of hands-on, play-based, and experiential teaching methods substantially hinder the development of “out-of-classroom” learning approaches that are experiential and transdisciplinary in nature.

Taken together, these elements reaffirm both the relevance and urgency of the goals of our research.

Returning to Graph 2, the data for upper secondary education show that in 10% of schools, the proportion of teachers practicing outdoor education exceeds 75%. While this represents an encouraging sign, it is essential to interpret the result in its proper context: these are upper secondary schools that have deliberately chosen to join a network committed to promoting Outdoor education & learning. Therefore, the data reflect an innovation-oriented educational context and cannot be generalized to the entire Italian school system.

6. Case selection: Interviews

The second phase of the research involved a qualitative investigation aimed at exploring the observed phenomenon in greater depth. Drawing on the 36 narratives related to lower secondary schools — collected through the single open-ended question included in the questionnaire, which invited respondents to describe a concrete outdoor education experience in detail — 22 schools were selected.

The selection process was guided by a specific evaluation grid (Table 2), which was used to exclude narratives that lacked sufficient detail regarding the implemented teaching activities, as well as those referring to extracurricular activities or experiences that could not be classified as outdoor learning. The latter were excluded based on key defining elements found in the literature and outlined in the *Avanguardie Educative* guidelines (Giunti et al., 2023, pp. 6–8).

Factors	Indicators
Teaching in external environments in continuity with the internal environment	Use of outdoor space (both natural and urban, both school-owned and non-school-owned) as a learning environment Teaching activities take place in the outdoor space, linking the activities carried out in the indoor environment and vice versa
Active teaching	Teaching activities involve the active participation of students Teaching activities are based on direct experience Teaching activities are based on hands-on methodologies Teaching activities include "authentic" tasks
Involvement of the cognitive, physical, emotional, and relational dimensions of the student	Students are involved in activities that require problem-solving, critical thinking, and reflection Students are actively engaged in activities that involve movement, environmental exploration, and manipulation of objects The activity promotes a sense of belonging to the group and good emotional management The activity promotes spontaneous collaboration among peers
Activation of interpersonal relationships, ecosystemic relationships, and ekistic relationships	The activity encourages active and equal collaboration among students during the activities The teacher acts as a facilitator The activity encourages the recognition of interactions between living species and environments, fostering ecological awareness

	The activity encourages the recognition of connections between school, territory, and community
Curricular focus, didactic and educational intentionality, teaching planning	Presence of outdoor learning units in teaching programming documents Consistency between the goals of outdoor education and the National Curriculum Guidelines (MIUR, 2012).
Duration and intensity	Regular implementation of outdoor activities throughout the school year, not just as occasional events or isolated projects Presence of integrated outdoor teaching routines in the weekly school schedule
Interdisciplinarity	Outdoor activities that involve multiple subject areas from an interdisciplinary perspective
Flexible time	Activities are not rigidly bound to the school schedule/lesson hours Time is allocated for observation, reflection, and re-elaboration, both individually and in groups
Project-based approach based on the characteristics of the territory and the social and cultural context in which the school is located	Project choices take into account the specific natural, urban, or rural environments of the territory Joint projects or activities co-conducted with local authorities, cultural associations, cooperatives, third-sector organizations, etc.

Table 2. Grid of factors and indicators used for interview selection

Out of the 22 selected narratives, based on the availability of the participating schools, it was possible to conduct 17 semi-structured interviews. The interviews were carried out online via the Webex platform by two researchers, between September and December 2023.

The 17 interviews were conducted using a checklist developed around indicators for the systemic integration of the pedagogical approach of outdoor learning. Systemic integration is a crucial factor for assessing a school's level of maturity in adopting the outdoor education approach, as it highlights the institution's capacity to embed outdoor learning within its teaching and organizational practices.

Additionally, the checklist allowed researchers to specify the disciplinary area to which the documented experience belonged (mathematics-science-technology, history-geography, or language-arts-expressive arts), as well as any connections to civic education, the pedagogical approach of Service learning, and the goals of the 2030 Agenda.

Finally, within the checklist, each researcher was asked to provide an evaluative judgment on the experience described, indicating whether it was considered sufficiently mature and worthy of further investigation through an on-site visit.

Each interview involved both the school principal and the teacher responsible for outdoor education.

The interviews were recorded and fully transcribed. For each school, comprehensive documentation was also collected, including learning units, assessment tools, school regulations related to outdoor education, and photographic, textual, and video materials illustrating the outdoor teaching practices implemented.

The data collected were made comparable through coding in a double-entry matrix, with the names of the individual schools as rows and the systemic integration indicators from the checklist as variables in the columns (Trinchero in Mortari & Ghirotto, 2019).

Based on the analysis of the 17 interviews, it was possible to identify two clusters of lower secondary schools, grouped according to the level of systemic integration of outdoor learning within the institution.

These two clusters represent different school profiles in terms of the degree of integration of outdoor education.

7. Qualitative phase: data collection through focused interviews, observation of teaching-learning practices, and focus groups

The ensuing phase of the research involved a further qualitative investigation carried out between March 2024 and March 2025, engaging the six schools identified in the cluster with the highest level of systemic integration.

Regarding their geographical distribution across Italy: two schools are located in the North, three in the Central region, and one in the South. In terms of their affiliation with the three networks involved in the research: two schools belong to the Avanguardie Educative network, two to the Rete delle Scuole all'Aperto, and one school is affiliated with both the Avanguardie Educative network and the Rete delle Scuole all'Aperto.

This qualitative phase also employed a shared research protocol developed collaboratively by the researchers. The research tools used — focused interviews, observation of teaching-learning practices, and focus groups — remained

consistent throughout the data collection process. Designed from a hermeneutic-interpretive perspective and aimed at enabling triangulation of data, methodology, and researchers (Trinchero, 2002, p. 84), these instruments were constructed to provide a meaningful and in-depth understanding of the phenomenon under investigation.

In line with the previously outlined research questions, the research team developed an operational model structured around factors and indicators. This model guided both the construction of the items used in interviews and focus groups, and the definition of the observation grid employed during on-site activities. Specifically, the factors considered were: the activation of active teaching strategies, the transformation of the teacher's role, the improvement of peer relationships, the initiation of inclusive processes, an increase in educational well-being, and enhanced student motivation.

The analytical table contains the operational description of this phase of the research regarding the factor "Activation of active teaching strategies" (Table 3).

Factors	Indicators	Survey Items
Activation of active teaching strategies	The teacher regularly proposes hands-on and cooperative learning activities. Students work in small groups to solve real-world problems. The teacher fosters critical thinking through open-ended questions.	What are the most commonly used teaching situations in outdoor settings? (e.g., independent study, small group collaboration, etc.) <i>(interview with the principal and teachers)</i> Does the outdoor space provide an individual area where students can engage in personal and independent activities (e.g., is the outdoor area equipped with comfortable furniture for resting, reading, or listening to music)? <i>(interview with the principal and teachers)</i> Is the outdoor space set up to encourage social interaction among students (e.g., an Agora-style area) and to host gatherings of the entire school community (students, school staff, and families)? <i>(interview with the principal and teachers)</i> When you're outdoors, do you work alone or together with your classmates? <i>(student focus group)</i> The teacher proposes authentic tasks and concrete examples, makes assessment

		criteria explicit, and activates moments of reflection (e.g., circle time) on the learning path with students. (<i>observation sheet</i>)
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Table 3. Operational definition of the qualitative phase of the research: example of factor “Activation of active teaching strategies”, its associated indicators, and related survey items.

For the interview phase, the research team opted for the use of semi-structured and “focused” interviews, organized around a core set of key questions but open to exploring additional aspects that emerged during the dialogue with interviewees (Mortari & Ghirotto, 2019, p. 49). The interviews were conducted online, with two researchers present, and involved both the teachers responsible for outdoor education programs in lower secondary school and the school principals. Subsequently, during in-person visits conducted by the same research pair, it was possible to re-engage with the same interviewees, allowing for a deeper exploration and saturation of the themes that had previously emerged.

For the visits and observation activities, the research group adopted a non-participant, unstructured observation approach aimed at gathering a rich and detailed description of the school contexts under study (Trinchero, 2002, p. 250). Each observation, carried out in pairs and lasting one full day per school, was supported by a semi-structured observation sheet with fillable fields. This sheet guided the documentation process by including both objective descriptions of the indoor and outdoor teaching activities observed, and the identification of specific behaviors based on the factors and indicators outlined in the operational framework of the qualitative research phase.

To capture students' voices, the research team chose a particularly flexible tool designed to facilitate the expression of opinions and experiences: the focus group. The aim was to deepen and complement the data obtained through classroom observations and interviews with teachers and principals, by highlighting aspects often difficult to detect through other methods. Following the literature (Rapari, 2005), methodological strategies were adopted to facilitate communication and reduce the adult-student relational asymmetry. In particular, the questions were short and accessible, using vocabulary adapted to the participants' age and linguistic and cognitive abilities.

The six focus groups involved between 8 and 10 students per school, selected from the same classes previously observed during the site visits. To ensure maximum

participation and maintain attention levels, each session was limited to 60 minutes. By alternating open and closed questions and incorporating moments of brainstorming, the sessions encouraged spontaneous and engaged group dynamics, which put students at ease and helped elicit authentic viewpoints.

To support the discussion, the “sticky notes” technique (Trinchero, 2002, p. 225) was successfully adapted using post-its. Students were asked to write down keywords related to their outdoor learning experiences. These contributions were later discussed collectively, prompting further shared reflection and enriching the final discussion.

The transcriptions of the interviews and focus groups, the completed observation sheets, and the reports from the site visits provided the researchers with an extensive and in-depth body of information on the six schools involved in qualitative phase of the research. In order to transform this information into usable data, the raw empirical material will undergo a process of systematization to be organized and made comparable. In particular, based on the research questions, a data analysis plan has been established which, through reduction and coding, will allow for the extraction of meaningful categories and labels from the texts. (Losito, 2007; Mortari & Ghirotto, 2019).

Conclusions, discussion and limitations

This research has enabled the collection of a significant amount of both qualitative and quantitative data, which, once triangulated, can offer a detailed and in-depth picture of the various forms that outdoor learning takes in lower secondary schools. In particular, it will help to highlight how outdoor practices intersect with aspects such as educational well-being, student motivation, and the promotion of inclusive and innovative learning environments (Rickinson et al., 2004; Becker et al., 2017). As we have seen, despite the growing interest in outdoor learning at the secondary level, this type of school continues to be underrepresented in national studies. It is in this context that the current study aims to fill an existing gap.

However, the research presents some limitations that must be acknowledged. Firstly, the investigation focused on three school networks that promote a set of shared values centered around an outdoor pedagogical vision and the reflective and professional development of teachers. This specific starting condition may influence the nature of the data collected (Morrison, 2001), potentially favoring the representation of contexts already inclined toward innovation. Therefore, the results are not generalizable to the entire Italian school system but should instead

be read as descriptions of good practices within favorable settings already oriented toward innovation and the move beyond traditional teaching models.

Secondly, the qualitative deep dive conducted in the qualitative phase of the research based on six school settings, was not longitudinal but rather focused solely on the present moment. The limited duration of observation does not allow for a systematic description of the evolution of practices over the medium to long term. The absence of a time frame of at least 4–5 years prevents a full understanding of the transformative potential of the experiences analyzed, which would require ongoing monitoring to better grasp the connections between outdoor learning, educational well-being, learning motivation, and school innovation.

In conclusion, despite these limitations, the research represents an important first step in outlining the characteristics that outdoor education and learning can take on in lower secondary schools. It offers valuable insights for practitioners' pedagogical reflection and can support efforts aimed at promoting outdoor learning in a sustainable, inclusive, and accessible manner. Future studies will need to expand the sample, adopt a longitudinal perspective, and further investigate the systemic impact of these practices on the curriculum and school culture in lower secondary education.

Author contributions

Although the paper has been conceived and discussed by all authors, Michela Schenetti has written the paragraphs 1, 2 and 3, while Chiara Giunti has written the paragraphs 4, 5, 6 and 7. The "Introduction", the "Conclusions, discussion and limitations" and the "Bibliography" were jointly prepared by both authors.

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