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Heritage Spatial Learning in Plural Educational Contexts: A Case Study on the Educational Mediation of Landscape Heritage

Heritage Spatial Learning nei contesti educativi plurali: uno studio di caso sulla mediazione educativa del patrimonio paesaggistico

Alessandra De Nicola
Free University of Bolzano, Italy

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Abstract
This article analyses the project *I Gelsi della Gualda. Le altre storie (dalle filande) raccontate attraverso gli alberi. Voci, percorsi e dispositivi per l'interpretazione del paesaggio della seta* [*The Other Stories (from the Silk-Spinning Mills) Told through Trees: Voices, Routes and Devices for Interpreting the Silk Landscape*] as a case study in educational design within a heritage, landscape and associative context. The research is situated within the framework of plural educational contexts and investigates the conditions through which a historic-agricultural site can become an informal learning environment through visual, sound-based, bodily and participatory devices. The study adopts an exploratory mixed-method design with a qualitative and design-oriented emphasis. The empirical corpus combines participant-level questionnaire data (N = 21), open-ended responses, contextual observations, participatory materials and analysis of the educational devices. Within this exploratory purposive stakeholder sample, 20 of 21 participants assigned a score of 4 or 5 to the site's potential as an informal educational environment, while open-ended responses highlighted spatial, sensory, memory-related and participatory dimensions of the experience. The analysis frames the educational mediation of heritage as the design of experiential conditions that activate observation, listening, movement, memory and relationships with the landscape. The case also highlights the need for light, situated and accessible evaluation tools in informal contexts. The article proposes the notion of Heritage Spatial Learning to describe forms of situated learning that emerge from the conscious traversal of space and the shared construction of meanings around heritage.

Keywords: Heritage education; Informal learning; Multimodal mediation; Situated learning

Riassunto
Il contributo analizza il progetto *I Gelsi della Gualda. Le altre storie (dalle filande) raccontate attraverso gli alberi. Voci, percorsi e dispositivi per l'interpretazione del paesaggio della seta* come studio di caso di progettazione educativa in un contesto patrimoniale, paesaggistico e associativo. La ricerca si colloca nel quadro dei contesti educativi plurali e interroga le condizioni attraverso cui un luogo storico-agricolo possa configurarsi come ambiente informale di apprendimento mediante dispositivi visuali, sonori, corporei e partecipativi. L'indagine adotta un disegno esplorativo mixed-method, con prevalenza qualitativa e progettuale. Il corpus empirico integra dati del questionario a livello dei partecipanti (N = 21), risposte aperte, osservazioni contestuali, materiali partecipativi e analisi dei dispositivi educativi. All'interno di questo campione intenzionale di stakeholder, coerente con il carattere esplorativo dello studio, 20 partecipanti su 21 hanno attribuito un punteggio di 4 o 5 alla possibilità che il sito si configuri come ambiente educativo informale, mentre le risposte aperte hanno evidenziato dimensioni spaziali, sensoriali, legate alla memoria e partecipative dell'esperienza. L'analisi illustra la mediazione educativa del patrimonio come una progettazione di condizioni esperienziali capaci di attivare osservazione, ascolto, movimento, memoria e relazione con il paesaggio. Il caso evidenzia inoltre la necessità di strumenti valutativi leggeri, situati e accessibili nei contesti informali. Il contributo propone la nozione di Heritage Spatial Learning per descrivere forme di apprendimento situato che emergono dall'attraversamento consapevole dello spazio e dalla costruzione condivisa di significati intorno al patrimonio.

Parole chiave: Educazione al patrimonio; Apprendimento informale; Mediazione multimodale; Apprendimento situato

Credit author statement

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1. Introduction

The increasing articulation of contemporary educational contexts calls for a reconsideration of the places, devices and forms through which learning is produced. Alongside schools, which remain the main institutional space of education, non-formal and informal environments such as museums, lived spaces and cultural landscapes, associations, libraries, archives, botanical gardens, local communities and participatory cultural practices are becoming increasingly relevant. In these contexts, learning takes shape as a situated, relational and multimodal experience in which subjects construct meaning through interaction with spaces, objects, memories, languages and social practices.

This perspective is particularly relevant within heritage education. Cultural heritage is approached here as an environment to be interpreted, traversed and renegotiated, as well as a field in which knowledge, preservation and transmission acquire situated educational meaning. Pedagogical literature has long emphasized the relationship between heritage, education, territories and multiliteracies, showing that heritage and museum education require devices able to connect knowledge, interpretation, participation and citizenship competences (Nuzzaci, 2011, 2012a, 2012b). More recent studies also stress the value of pedagogies rooted in local contexts, capable of strengthening historical consciousness, heritage literacy and community participation through partnerships among schools, museums, tourist offices, cultural associations and local actors (Marques, 2025).

The situated dimension of heritage learning calls for a non-frontal conception of educational mediation. If heritage is presented only as informational content, it risks reproducing a transmissive logic even in contexts that are formally open or experiential. By contrast, when heritage is designed as an environment to be explored, it can support processes of observation, orientation, memory, comparison and participation. Educational experience therefore does not coincide with the visit, nor with mere exposure to a cultural asset, but with the construction of conditions that enable subjects to perceive, question and consciously inhabit a place, thereby attributing new meanings and values to heritage itself. Within this perspective, care is assumed as a relational and ethical posture of the actors involved in designing and mediating heritage experiences, orienting attention, responsibility and presence in relation to places and communities (Mortari, 2006, 2015).

This shift is also supported by hybrid devices, both digital and non-digital, for heritage mediation when they do not replace the context but expand its accessibility and legibility. Media education frames such devices as cultural and didactic environments in which critical, expressive and participatory competences are formed (Rivoltella, 2017). Visual, bodily and sound-based mediation can therefore orient attention, activate interpretation and support participation; through the concept of resonance, educational experience can be read as a transformative relationship between subject and world (Rosa, 2019; Rosa & Endres, 2020).

The study is grounded in the intersection of three theoretical perspectives: plural educational contexts and the relationship among formal, non-formal and informal learning; heritage education and situated learning; and visual, bodily and sound-based mediation. Although these perspectives are well established, their convergence in the educational design of non-musealized heritage landscapes remains less explicitly conceptualized. In such contexts, the spatial and material characteristics of place, cultural memory, social practices and designed mediations jointly participate in the construction of meaning. The study therefore addresses two research questions:

- RQ1. How can multimodal heritage mediation configure a non-musealized landscape as a plural educational environment that supports situated learning through embodied, interpretive and participatory engagement?
- RQ2. How do participants perceive and articulate the educational affordances of the visual, sound-based, bodily and participatory devices through which this environment is experienced?

These questions are explored through *I Gelsi della Gualda*, an exploratory case study developed within a historical-landscape complex in Veneto characterized by a Monumental Mulberry Corridor and stratified agricultural, communal and cultural memories. The intervention integrates three lines of mediation: a sound and bodily proposal for traversing the corridor; a participatory listening path based on testimonies,

memories, drawings and photographs; and interpretive kits combining sensory, scientific and visual observation. Together, these devices organize different ways of reading, listening to, traversing and interpreting the place.

The study combines descriptive questionnaire data, open-ended responses, contextual observations and analysis of the educational devices to examine the reception of the intervention among a purposively selected stakeholder group. The findings are interpreted as perceptions, self-reported learning and situated forms of reception within an exploratory phase of the project. The study examines how a heritage and associative context can be designed and perceived as an informal educational space within an exploratory case-study framework.

Building on the case, the article proposes the notion of *Heritage Spatial Learning* as an interpretive framework for situated forms of heritage learning in which the spatial and material characteristics of place, bodily and perceptual experience, community memory, multimodal mediation and participation jointly contribute to meaning making. Space is thus understood as an active component of the learning process, shaping practices of observation, movement, interpretation and participation. It thereby frames heritage as a relational environment whose educational meaning emerges through situated practices of observation, movement, interpretation, resonance and participation.

2. Theoretical framework

2.1 Plural educational contexts and informal learning

The growing attention to plural educational contexts derives from the recognition that educational processes do not end within formally instituted spaces. The distinction between formal, non-formal and informal learning provides a useful analytical basis: the first refers to institutionalized and certified pathways; the second to intentional experiences organized outside the school system; the third to processes embedded in everyday activities and not necessarily designed as explicit instruction (Gross & Rutland, 2017; Johnson & Majewska, 2022). Recent literature nevertheless moves beyond typology towards an ecological and relational understanding of learning contexts, in which museums, associations, archives, botanical gardens, cultural landscapes and local communities produce distributed, often uncertified learning that is decisive for interpretive, social and civic competences.

This perspective redefines the possible school relationship with the territory. School remains the institutional place of didactic design, of the systematization of knowledge and of democratic access to knowledge. This centrality finds a historical reference in Dewey's conception of school as a form of social life, a democratic laboratory and a space in which experience, participation and knowledge intersect in the formation of the citizen (Dewey, 1916). For this very reason, the relationship with non-formal and informal contexts should not be read in substitutive terms, but as an extension of the conditions of experience, participation and citizenship. Recent reflection on school as a space of civic literacy confirms that democratic education requires opportunities for communication, experience and engagement with common problems (Wahlström, 2022). Similarly, studies on situated learning and communities of practice show that understanding becomes more robust when knowledge is mobilized in meaningful situations marked by negotiation, responsibility and social interaction (Sadler, 2009; Rogoff et al., 2016).

In this sense, the territory can be understood as an educational ecology in which subjects, institutions, practices and knowledge enter into relation, exceeding its instrumental use as a didactic resource. Italian pedagogical tradition offers a significant precedent: in the experience of the Scuola Rinnovata, Giuseppina Pizzigoni attributed a structural role to the relationship between school, environment, direct observation, work and outdoor life in the construction of educational experience, anticipating a conception of context as a mediator of knowledge rather than as a mere frame for instruction (Pizzigoni, 1914, 1929). Contemporary literature supports the need to build connections among schools, communities and external organizations, including digitally mediated environments, recognizing the value of informal experiences without dissolving the specificities of different contexts (Prestridge et al., 2024). However, the possibility of taking the territory as an autonomous pedagogical category, able to put historical, scientific, aesthetic and social knowledge into tension within the same device, remains less explicitly thematized. More often, it appears

through adjacent vocabularies—community, local environment, stakeholder network, learning ecology—that describe some of its functions without always clarifying its theoretical scope.

In this direction, educational communities should not be understood as generic aggregations of actors willing to collaborate, but as pedagogical configurations in which responsibilities, competences and resources are distributed among different actors: schools, local authorities, associations, cultural institutions, families, professionals, volunteers and citizens. The central issue is therefore not only to broaden and diversify the spaces of knowledge, but to design the conditions through which these spaces can support legible, accessible and intentional experiences. Informal learning requires devices able to orient attention without rigidifying experience, to make contents available without reducing fruition to frontal transmission, and to foster participation without turning every activity into an assessable performance. It is in this tension between openness and intentionality that plural contexts acquire pedagogical relevance: they allow us to observe how knowledge takes shape in situations in which the subject is called upon to move, choose, interpret, connect and give meaning back.

2.2 Heritage education, commons and situated learning

Heritage education offers a privileged field for questioning the plurality of educational contexts. In addition to the functions normally attributed to cultural heritage – a body of assets, documents or testimonies to be preserved and transmitted – there are also those of a social mechanism through which a community selects, interprets and renegotiates its relationship with the past, the landscape and forms of collective life. In educational terms, this implies a shift from a conception of heritage as content to a conception of heritage as context: not an object crystallized in time to be presented, but an environment of relations in which knowledge, memories, practices and values are brought into play.

Heritage didactics and museum education have shown that the encounter with cultural assets requires competences of reading, interpretation and contextualization. Heritage is not immediately evident: it must be made legible through mediations capable of connecting material and immaterial elements, disciplinary knowledge and lived experiences, individual and collective memory. In this direction, Nuzzaci's studies on heritage, education, territories and multiliteracies situate heritage education beyond the mere visit or museum communication, as a field of plural literacies in which subjects learn to read signs, spaces, objects, images, narratives and social practices. Drawing on situated cognition and sociocultural accounts of learning, situated learning is understood here as a process in which knowing is shaped through participation in meaningful activities and practices embedded in material, cultural and social relations (Brown et al., 1989; Lave & Wenger, 1991; Billett, 1996). Situatedness concerns the interdependence of knowledge, activity, participation and context rather than the physical location in which learning occurs. Accordingly, institutional, professional or digitally mediated environments may also support situated learning when knowledge is mobilized through meaningful practices and problems (Herrington & Oliver, 2000). In heritage education, this perspective foregrounds the role of place as a material, cultural and social component of meaning-making.

This approach can be further specified through the category of commons. In this debate, a commons is understood as a dynamic configuration composed of resources, communities and rules of use, access and care (Ostrom, 1990; Hess & Ostrom, 2007). Applied to heritage, this perspective makes it possible to move beyond the idea of the cultural asset as exclusively institutional property and beyond a merely identity-based or celebratory conception of memory. Speaking of heritage commons therefore means considering heritage as shared cultural capital, both material and immaterial, capable of supporting belonging, inclusion, social creativity and local development when forms of participatory governance and collective responsibility are activated (Lekakis, 2020; Iaione et al., 2022; Avdikos et al., 2024).

The reference to commons shifts attention from access to heritage towards participation in its construction, maintenance and transformation. The Faro Convention, through the notion of *heritage community*, locates heritage value in the relations that people and groups establish with cultural heritage, while the critique of Authorised Heritage Discourse highlights the asymmetries involved in deciding which heritage and memories acquire recognition (Council of Europe, 2005; Smith, 2006). In this framework, care concerns not only the material conservation of assets, but the possibility of keeping alive the social, sym-

bolic and educational conditions that make a place meaningful for a community (Tronto, 1993; Mortari, 2006; Puig de la Bellacasa, 2017).

In the heritage context examined here, situated meaning-making becomes visible in the relations participants establish among material traces, cultural practices, memories and contemporary uses of place. A tree can be related to an agricultural practice, an architectural trace to a community memory, a landscape to the forms of work that produced it, and an archival image to a contemporary use of space. Situated learning therefore emerges from the ability to establish connections among heterogeneous dimensions, often not immediately visible. In this direction, heritage acts as a complex environment: it brings historical, scientific, aesthetic and social knowledge into tension and requires devices able to make these dimensions mutually interpretable.

From this perspective, heritage can be approached as an environment to be traversed. Traversing a place entails entering an interpretive relationship with it through walking, pausing, observing, listening and engaging with local memories (Careri, 2006; Degen & Rose, 2012; Gros, 2013). Walking can therefore contribute to a progressive and stratified understanding of place (Kagge, 2018). Knowledge does not precede experience as content to be applied; it is produced within experience itself, through a process of orientation, selection, resonance and attribution of value. In this sense, heritage educates not because it is displayed, but because it is made experienceable, questionable and shareable.

This approach also clarifies the relationship among heritage, participation and knowledge production. Testimonies, photographs, drawings, oral memories and practices of use become educational sources by making lived dimensions of heritage visible. Expert and situated knowledge retain different epistemic statuses while entering into relation through devices that enable perspectives to emerge, be compared and reworked. Such processes can strengthen historical consciousness, heritage literacy, cultural agency and community participation.

Heritage can thus be understood as a situated educational infrastructure composed of places, memories, practices, mediations and relations of stewardship. This perspective is particularly useful for analysing heritage contexts that are not fully musealized or institutionalized, where the educational function is not given in advance but must be constructed through devices able to make the place legible, traversable and shared. It is within this framework that the case study is interpreted as an informal learning environment and as an exercise in educational commoning.

2.3 Multimodal mediation and Heritage Spatial Learning

If heritage becomes an educational environment only through specific conditions of legibility, mediation assumes a central role. In this context, mediation organizes experiences that make the encounter among subjects, places and meanings possible, while translating expert content into accessible forms of inquiry. The object of this discussion is therefore an epistemic, not merely communicative, function: mediation does not simply present knowledge, but helps construct the forms through which knowledge can be perceived, questioned and understood.

Visual mediation acts in this direction by making visible relations that may remain implicit in ordinary experience. Maps, images, photographs, drawings, sheets, cards and graphic materials function as tools of cognitive and perceptual orientation: they select points of attention, propose reading trajectories, relate details and contexts, and foster processes of comparison and interpretation. From a visual literacy perspective, the image is a medium, a device through which one learns to see, distinguish, connect and argue.

Bodily mediation further deepens this dimension. In this perspective the body is not only the means by which the subject moves through space, but a condition of understanding. Posture, rhythm, pace, orientation, distance, proximity, pause and effort affect the way a place is perceived and interpreted. A pedagogy attentive to the embodied dimension of learning recognizes that knowledge is produced not only through verbal language, but also through gestures, actions, motor sequences and forms of attention distributed in the relationship between body and environment.

Sound-based mediation introduces a third dimension. Sound makes it possible to work on the temporality of experience, memory, attention and presence. In the context examined here, listening brings out what vision tends to crystallize: voices, rhythms, pauses, absences, temporal stratifications and relations

between near and distant spaces. The sound dimension therefore does not merely accompany experience, but can transform the way the place is perceived. It produces a form of knowledge that does not coincide with the accumulation of information, but with the intensification of the relationship between subject and environment.

This orientation is consistent with research on multisensory and emplaced learning, which shows how movement, sensory attention and the material characteristics of environments participate in situated processes of meaning-making (Fors et al., 2013; Degen & Rose, 2012; Thyssen & Grosvenor, 2019).

The notion of resonance (Rosa, 2019) helps specify the type of educational relationship that these mediations can activate. In this specific case, seeing, listening and traversing function as practices through which the subject enters into relation with a place that addresses them, orients their attention and can modify the way it is perceived and understood. Applied to educational contexts, this perspective makes it possible to read learning as an experience of relation: something in the world responds, becomes meaningful and modifies the way the subject perceives themself and the environment. Visual, bodily and sound-based mediation are therefore not separate channels, but modalities through which a resonant relationship with heritage can be activated.

This leads to the proposal to read heritage educational devices as multimodal environments. From a sociosemiotic perspective, multimodality concerns the integrated organization of semiotic, material and sensory modes through which meaning is constructed (Jewitt, 2009; Kress, 2010). A multimodal device is pedagogically relevant when it enables subjects to construct meaning across different registers, including seeing, listening, walking, remembering, comparing, naming and interpreting. Its educational value depends on the coherence among these modes, the intentionality of the device, accessibility and the characteristics of the context.

Within this framework, the concept of Heritage Spatial Learning (HSL) indicates a possible theoretical synthesis. It designates forms of learning that emerge from the conscious traversal of a heritage place, when space is made legible through visual, bodily, sound-based and participatory devices. It integrates four interrelated dimensions: the spatial-material configuration of the heritage environment; embodied and sensory engagement; multimodal interpretive mediation; and participatory meaning-making through memory, cultural practices and social relations. These dimensions provide the analytical lens through which the devices and their reception are examined in the following sections.

3. Research design and case study

The research takes the form of an exploratory case study (Harris et al., 2024) and adopts a mixed-method design with a qualitative emphasis and a descriptive quantitative component. The objective is to analyse in depth an emerging and situated educational context as a bounded and complex system, in which the observed phenomenon cannot be separated from the real context, the social practices and the design conditions that make it possible (Merriam, 1998, 2010; Peel, 2020; Cleland et al., 2021). From this perspective, the case is not assumed as a statistically representative sample, but as an analytical unit capable of producing a contextually grounded understanding of the conditions through which an informal learning environment is constructed (Peel, 2020; Bocharova, 2025).

The case analysed is *I Gelsi della Gualda. Le altre storie (dalle filande) raccontate attraverso gli alberi. Voci, percorsi e dispositivi per l'interpretazione del paesaggio della seta* [*The Mulberries of La Gualda. Other stories from the silk mills told through trees. Voices, paths and devices for interpreting the silk landscape*], hereafter *I Gelsi della Gualda*. The project was developed at La Gualda, a sixteenth-century complex of historical-architectural and landscape value in the province of Vicenza, characterized by the presence of a monumental mulberry avenue and by stratified memories related to the agricultural, communal, educational and religious life of the place. The project was promoted by La Stella della Gualda, a Social Promotion Association and Third Sector entity committed to enhancing the site, with the aim of transforming it into a space of renewed development through processes of fruition, participation, education and training. La Gualda is therefore interpreted not as an already given heritage asset, but as a hybrid context with an educational potential under construction, whose functions and value are negotiated through participatory practices. Within this framework, heritage becomes legible through mediation devices and forms of involvement.

The plan involved three main lines of intervention. The first, *La Cadenza®,* is a sound proposal that invites visitors to walk along the Mulberry Corridor while involving body, listening and spatial perception. The second, *Echi tra i Gelsi*, is a listening path based on testimonies, memories, drawings and photographs collected through participatory processes and integrated with research on historical texts and literary sources, through which the landscape is returned as a living archive of practices and narratives. The third, *Enjoy! Le piante della nostra vita [the plants of our life]*, includes interpretive kits, activation cards, textual and sound materials and tools designed to promote exploration of the site by heterogeneous publics, with particular attention to the relationship between sensory experience, scientific knowledge and cultural heritage.

A mixed-method research design was adopted to integrate descriptive quantitative data and qualitative data in exploring the educational reception of the system of devices. In educational research, the integration of qualitative and quantitative methods enables a more articulated understanding of complex problems and brings interpretive depth into dialogue with numerical description (Adhikari & Timsina, 2024; Pregoner, 2024; Shekhar et al., 2019). Here, the quantitative component is descriptive rather than inferential, while the qualitative component is used to examine meanings, experiences, sociocultural conditions and forms of participation that numerical data alone would not capture (Adhikari & Timsina, 2024; Pregoner, 2024; Mujeeb et al., 2025). The researcher was directly involved in the conception, coordination and implementation of the project within an iterative process in which design, observation and refinement informed one another. This embedded position provided in-depth contextual knowledge while requiring reflexive attention to possible interpretive bias.

The quantitative component consists of questionnaire data collected during a feedback and testing event attended by approximately 50 invited stakeholders. Participants were recruited through purposive stakeholder sampling on the basis of their potential contribution to the educational, cultural and territorial development of La Gualda. They included primary and upper-secondary school teachers, researchers in agricultural and botanical fields, educators, association members with sustained involvement in the site, designers and cultural professionals, and local civic and institutional actors. The final dataset comprises 21 unique participants and 22 form submissions. One participant submitted a subsequent partial response containing only an additional answer to the final open-ended item, which was merged with the initial submission for participant-level analysis. The questionnaire combined five-point rating scales (1 = not at all, 2 = a little, 3 = moderately, 4 = very much, 5 = extremely), multiple-response items and two open-ended questions. Items addressed recognition of La Gualda as an educational environment, self-reported learning, reception of the three devices, significant dimensions of the experience and anticipated transferability. The final open-ended questions explored participants' interpretive reframing of the site and their observations of other participants' reactions and behaviours. Because not all respondents evaluated every device, valid n are reported by item in Table 1. Participants were informed that responses would be treated anonymously. Platform-recorded account identifiers were excluded from analysis, and data were analysed and reported in de-identified form.

The qualitative component includes open-ended questionnaire responses, contextual observations collected during the event, participatory materials incorporated into the listening path, and the educational devices themselves as design materials. The open-ended questionnaire corpus comprises 19 participant-level responses to the question asking how La Gualda was perceived after the experience and 17 responses to the question concerning reactions, comments or behaviours observed in other participants. Participatory materials include testimonies, drawings and photographs, while the educational devices analysed include cards, texts, QR codes, interpretive kits and visual materials (Wallwey & Kajfez, 2023). Open-ended responses were examined through a qualitative content analysis combining deductive and inductive categorization. Initial categories were informed by the research questions and the proposed HSL dimensions and were subsequently refined in relation to recurring meanings in the corpus. Particular attention was paid to references to spatial interpretation, memory and place, embodied and sensory engagement, multimodal mediation, participation and social reception.

Quantitative and qualitative data were integrated at the interpretive stage. Closed responses were used to identify descriptive tendencies in perceptions of the project and its devices, while open-ended responses and contextual observations were used to examine how participants articulated or observed those tendencies. Participatory and design materials were analysed to reconstruct the pedagogical architecture through

which the place was made legible and experienceable. The analysis therefore proceeds on three interconnected levels: descriptive, interpretive and design-oriented.

The exploratory design and purposive stakeholder sample define the scope of the study. The number and composition of responses do not support statistical inference or a conclusive assessment of educational effectiveness, and participants' prior interest in heritage and the site may have influenced reception. At the same time, the sample was appropriate to the initial testing and refinement phase, allowing an informed examination of how a heritage, associative and landscape context can be designed and perceived as an informal educational environment. The case therefore provides contextually grounded evidence on the initial configuration of a multimodal Heritage Spatial Learning system, to be further examined with broader publics.

4. The case study: *I Gelsi della Gualda*

The project begins from the decision to take the numerous centuries-old mulberry trees and the Monumental Mulberry Corridor as the first nucleus of site enhancement. The avenue was interpreted as a perceptual and narrative threshold: a vegetal structure that organizes orientation, memory, shade, rhythm, agricultural work and belonging. The very form of the corridor—its succession of trees, full and empty spaces, light and shade, interruptions and continuities—becomes the matrix of the educational and experiential device. In this sense, the project works on the relationship between form and function: the form of the tools created and of the place is not separated from its historical and possible uses, but becomes the principle through which mediation, listening and participation are constructed.

The case is articulated through three integrated devices. *La Cadenza*® is a site-specific sound installation, curated by Avant-dernière pensée and produced in collaboration with Fondazione Cosso, that offers five musical reinterpretations for walking along the avenue. The project takes the notion of cadence in its threefold musical, motor and linguistic meaning: rhythm of sound, step and language. The selected pieces—from Satie to Saint-Saëns, from Hahn to the Gabrielis, up to the reference to Cage's silence—become variations and invitations to modulate the movement of the body in space. The cards guide listening and activate movement through actions such as entering the rhythm, looking for the point where the air changes, pausing in the shade, reading the avenue as living architecture, and removing headphones to listen to the place. In Merleau-Pontian terms (Merleau-Ponty, 1945), the body is not a mere executor of movement, but a condition of understanding: through pace, pause, variation and listening, the subject progressively constructs the meaning of the place.

Echi tra i Gelsi enhances the narrative and participatory dimension of the project. Developed in partnership with the Municipality and the Pro Loco of Montecchio Maggiore, it is a non-linear QR-code path of pauses, returns and deviations. The texts invite visitors to recognize the mulberries as presences in the landscape and witnesses to everyday life and work; each point functions as a possible room, where time and space expand. The device integrates oral testimonies, childhood memories, photographs, drawings, literary texts and historical sources. The resulting map does not merely locate contents, but organizes a plurality of registers: agricultural memory, sericulture, children's games, women's and family work, bioclimatic resources, biodiversity and a cultural reflection on the loss of trees, in which the landscape becomes an archive of presences and absences.

The third device, *Enjoy! Le piante della nostra vita*, created with the Network of Botanical Gardens of Lombardy, translates this symbolic density into tools for observation and activation. Kits, cards and textual and sound materials are designed for different publics and combine accessibility, rigor and formal quality. Here, care for materials does not have an aestheticizing function: it makes the experience practicable. Manageable formats, brief instructions, operational prompts, non-specialist language and sensory activities make it possible to transform the landscape into a field of inquiry. From this perspective, graphic form, textual clarity and the selection of actions are part of the educational function, starting from the container itself: a bag produced in 25 variants designed to immediately show the biodiversity that characterizes the landscape of La Gualda, painted with natural colours and plant materials collected on the site.

A subsequent development, not included in the present empirical analysis, is the silent book project originating from *Echi tra i Gelsi*. Developed with two classes and 40 students from the Scuola Inter-

nazionale di Comics in Turin, it explores the visual transposition of collected memories through rhythm, ellipsis, symbols and landscape, documented through micro-diaries and reflective check-ins.

Taken together, the three analysed devices operationalize complementary dimensions of Heritage Spatial Learning: *La Cadenza*® foregrounds embodied and sound-based engagement, *Echi tra i Gelsi* connects landscape with shared memory and participation, and *Enjoy!* supports sensory and scientific observation. The specificity of the case lies in this architecture: a non-musealized heritage is made accessible through an ephemeral and intangible museographic form that does not affect the places and functions of La Gualda and can be activated according to different needs. The educational design operates through the care of materials, the selection of gestures and the construction of mediations capable of bringing the form of the place, its historical functions and its possible educational uses into dialogue.

5. Results

The data provide exploratory evidence on the educational reception of the devices within the purposive stakeholder sample. Questionnaire results are treated as descriptive indicators of reception and self-reported learning and are interpreted together with open-ended responses and contextual observations. Valid responses vary across items because not all participants answered every question or evaluated every device.

Dimension / item	Valid n	Distribution / most selected responses	Mean
La Gualda as an educational environment	21	1=0; 2=0; 3=1; 4=15; 5=5	4.19
La Cadenza®	19	1=1; 2=0; 3=7; 4=9; 5=2	3.58
Echi tra i Gelsi	18	1=1; 2=0; 3=2; 4=10; 5=5	4.00
Enjoy! Le piante della nostra vita	17	1=0; 2=1; 3=3; 4=5; 5=8	4.18
Self-reported learning[1]	21	Mulberry Corridor/agricultural landscape 13/21; memory, community and place 13/21; different observation of trees, traces, sounds, shadows and details 13/21; art, sound, images and interpretive devices 10/21; history of La Gualda 9/21; nature, cultural heritage and everyday practices 9/21	—
Most significant dimensions[1-2]	19	Slow and attentive encounter 9/19; memories and testimonies 8/19; landscape, history and community 8/19; accessibility for different publics 8/19; historical-cultural legibility 6/19; different publics 6/19; walking, body and movement 6/19	—
Anticipated transferability[1]	21	Primary school 14/21; museums, botanical gardens, parks and heritage sites 14/21; slow cultural tourism 14/21; teacher/educator/cultural-operator training 12/21; lower-secondary school 12/21; associations and local communities 11/21; upper-secondary school 10/21	—

Tab. 1: Descriptive questionnaire results at participant level (N = 21)
M = mean. Rating distributions refer to the five-point scale described in the Methods..
[1] Multiple-response item.
[2] Respondents were asked to select up to four options. One response exceeding this limit was excluded from this item.

The clearest quantitative indication concerns recognition of La Gualda as an educational environment, with 20 of 21 participants assigning a score of 4 or 5. Self-reported learning concentrated around three equally frequent dimensions: recognition of the Mulberry Corridor and agricultural landscape, connections among memory, community and place, and increased attention to trees, traces, sounds, shadows and other landscape details. Responses also referred to the use of art, sound, images and interpretive devices, suggesting a perceived reframing of the site through historical, naturalistic, sensory and relational registers.

The three devices received differentiated evaluations, with *Enjoy!* and *Echi tra i Gelsi* obtaining the highest mean ratings, while *La Cadenza*® showed a more heterogeneous distribution. Across the experience, participants particularly valued slow and attentive engagement, memories and testimonies, the relationship among landscape, history and community, and accessibility for different publics. Walking, bodily engage-

ment and movement also emerged among the significant dimensions of the experience. Anticipated transferability was strongest for primary education, heritage and nature-based institutions, and slow cultural tourism, suggesting perceived adaptability across educational and community settings.

Open-ended responses further articulate these patterns. Participants described La Gualda as «a crossroads of lives and a multiplicity of perspectives through which it is interpreted» and referred to a «broader relationship among the individual, nature and architecture», foregrounding the relational and spatial-material dimensions of the experience. The description of the site as «an interesting place, still alive today, which allows us to take a leap into the past and into traditions» connects present experience with heritage memory. Participatory meaning-making also appears in the observation that «it is enjoyable to play together with other people and discover different points of view and different ways of looking at things and experiencing the world». Together, these responses articulate spatial interpretation, temporal stratification, cultural memory and shared meaning-making, consistent with the dimensions proposed for Heritage Spatial Learning.

The final open-ended item focused on reactions or behaviours observed in others. One participant reported, «I saw people who were very focused, attentive and receptive». Such responses are treated as participant-observed indications of attention and social engagement rather than as independent behavioural evidence of learning.

6. Discussion and conclusions

The results, although preliminary, allow three implications to be discussed. The first concerns RQ1 and the conditions through which a non-musealized heritage landscape can be configured as an educational environment. In the case analysed, this function emerges from the interaction between the spatial-material characteristics of the place and the mediations that make it legible, traversable and shareable: heritage is organized as a field of experience rather than presented as a static object.

The second implication, corresponding to RQ2, concerns multimodal and embodied mediation. The findings suggest that observation, listening, walking, memory and visual materials provide complementary modes of access to the site, consistently with research on multisensory and emplaced learning (Fors et al., 2013; Thyssen & Grosvenor, 2019). Heritage Spatial Learning brings these dimensions together by treating space as an active component of situated meaning-making rather than as a neutral setting for educational activity.

The third implication concerns evaluation in informal contexts. The case highlights the difficulty of applying standardized and numerically robust tools in community-based and non-school settings. The integration of questionnaire data, open-ended responses, contextual observations and design analysis nonetheless provides a layered account of participants' reception of the devices.

The case of *I Gelsi della Gualda* shows how a heritage, landscape and associative context can be prepared as a situated educational infrastructure through light, reversible and non-invasive devices. The educational quality of the framework lies in organizing the complexity of heritage across multiple levels of access: memories, historical topics, scientific, artistic, sound-based and visual contents are made available through self-directed educational tools that can be modulated according to the time, attention, competences and interests of different users. In this sense, the devices do not lower the level of the experience, but construct progressive thresholds of legibility, allowing each participant to pause, deepen, connect and rework according to their own possibilities. The questionnaire and open-ended responses suggest a perceived reframing of the site through relations among landscape, memory, sensory attention and participation. These findings concern participants' interpretations and self-reported learning rather than independently measured changes in knowledge or behaviour. Future research should extend the study to broader and less specialized publics, strengthen qualitative documentation and examine the use of the devices with school and family groups. At this stage, HSL should therefore be understood as a provisional interpretive framework emerging from the case rather than as a validated model.

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