

Cultural heritage as a key to engagement and participation in Learning Cities programmes

Il patrimonio culturale come chiave di coinvolgimento e di partecipazione nei percorsi delle Learning Cities

Alessandra De Nicola^a, Franca Zuccoli^{b,1}

^a *Università degli Studi di Milano-Bicocca*, alessandra.denicola@unimib.it

^b *Università degli Studi di Milano-Bicocca*, franca.zuccoli@unimib.it

Abstract

The contribution highlights the importance of tangible and intangible cultural heritage as a key factor in promoting participation in projects linked to Learning Cities. Cultural heritage can become an important centre of aggregation, but it requires specific mechanisms to evaluate the processes put in place. To do this, the paper re-examines the case study of Mantua and Sabbioneta, within the more complex Mobartech industrial research and innovation project, as a practice of urban learning guided by cultural heritage and discusses its evaluative potential. Although not conceived as a ‘learning city’ programme, the institutional anchoring (collaboration with the municipality and local Unesco offices) and the participatory approach to heritage interpretation have allowed it to be interpreted in terms of urban learning ecosystems.

Keywords: heritage education; urban learning ecosystems; assessment; composite indicators; Learning Cities.

Sintesi

Il contributo sottolinea l'importanza del patrimonio culturale materiale e immateriale come chiave di lavoro e di attivazione della partecipazione nei progetti legati alle Learning Cities. Il patrimonio culturale può diventare un importante centro di aggregazione, che richiede però precisi dispositivi grazie al quale valutare i processi messi in atto. Per fare questo si rilegge il caso studio di Mantova e Sabbioneta, all'interno del più composito progetto di ricerca e innovazione industriale Mobartech, come pratica di apprendimento urbano guidata dal patrimonio culturale e se ne discute il potenziale valutativo. Pur non essendo stato concepito come programma ‘learning city’, l'ancoraggio istituzionale (collaborazione con il Comune, gli uffici Unesco locali) e l'impostazione partecipativa dell'interpretazione del patrimonio hanno consentito una lettura in termini di ecosistemi di apprendimento urbano.

Parole chiave: educazione al patrimonio; ecosistemi di apprendimento urbano; valutazione; indicatori compositi; Learning Cities.

¹ Abstract section was jointly written. §§ 1 and 4 were authored by F. Zuccoli; all remaining §§ were authored by A. De Nicola.

1. Cities as places of exchange and continuous cultural growth

The research and promotion work conducted in recent decades on the creation and enhancement of Learning Cities has enabled the realisation, or perhaps perhaps rediscovery and focus, from a contemporary perspective, the enormous potential for widespread, informal and situated learning that cities can offer. If properly supported, with the aim of enriching everyone's potential, this human proximity and concentration can foster personal growth (Kearns, 2012), as well as the development of communities as a whole in deep connection with their lived territory. This vision focuses on the participation of every citizen, supporting and promoting constant learning opportunities (Longworth, 1999) and highlighting relational, human, cultural, professional and educational networks. From this perspective, the tangible and intangible cultural heritage (Bortolotto, 2008; Gasparini, 2014) of the location in which these cities are situated can also be considered as a component of sharing and collective construction of knowledge and learning, in close relation to the contemporary world.

Certainly, if we consider tangible and intangible cultural heritage as an opportunity for further development of proposals related to Learning Cities. In this regard, it is important to immediately try to define the concept of heritage, understanding it not only as a memory or a collection of objects, works of art, and monuments to be conserved, preserved, and handed down, but as a living element (Waterton & Watson, 2013) part of everyone's daily life, understood as a powerful innovative cultural glue, thanks to which we can reflect and plan the city in a participatory and flexible way. In this sense, the project presented here, which arose from the need to expand and enhance citizen participation in the cities of Mantua and Sabbioneta, has shown itself to be a proposal that has enabled a series of actions through the collection, listening to and relaunching of the voices of the inhabitants. These actions have seen a constant exchange of knowledge between different generations and professions. Cultural heritage has thus been demonstrated as a driving force capable of promoting knowledge while respecting different perspectives.

2. Case study

Mobartech (case study Mantua-Sabbioneta), was developed within² a regional FSR-funded innovation programme (Regione Lombardia) aimed at combining industrial research, experimental development and cultural heritage enhancement. The overall project involved universities, research centres and private partners. It included three case studies that concerned two art-historical sites in Milan and the Unesco World Heritage Site formed by Mantua and Sabbioneta. This paper focuses on the third case study, situated within a single Unesco World Heritage site whose 'two-city' configuration is not always perceived as a unified cultural landscape by local communities and visitors alike. In dialogue with the local administrations, Unesco offices, schools and citizens, the practice-oriented aim was defined as strengthening *place attachment* and a sense of belonging towards the two urban heritages. That is to say, the aim was to enable residents and visitors to recognise, interpret and narrate the site as a meaningful, lived environment rather than as a set of fragmented

² The research and data collection work – required to create the first prototype – took place between 2017 and 2018. In 2019, the final kit was created, and in the following years (2022 and 2023) public meetings and presentations were held, as well as further data was collected.

monuments, by building an evidence-informed toolkit grounded in the perspectives of city users.

2.1. Collaborative and participatory orientation

Building on co-design and co-creation approaches in cultural heritage, which shift the focus from consultation to the joint production of meanings and experiences (Bosco et al., 2023; Grcheva & Vehbi, 2021; Kastenholz & Gronau, 2020; Ottaviani et al. 2023), the case study was designed as a participatory (Ferrero et al., 2024), education-oriented process in which cultural heritage was treated not as an end point for information transfer, but as a starting point for collective interpretation. Stakeholder involvement was therefore not limited to dissemination but structured as co-design: local institutions supported access to sites and audiences; researchers curated the interpretive and methodological framework; and ‘city users’ (residents, visitors, students) contributed experiential knowledge that informed both the content and the form of the interpretive resources. This approach was explicitly aimed at building an ‘interpretive community’ (Hooper-Greenhill et al., 2003) around shared urban heritage, and at generating evidence that could inform municipal reflection on engagement and inclusivity. This approach is consistent with participatory governance and heritage community models, which emphasise the role of stakeholders as co-producers of knowledge and enhancement scenarios (Della Spina, 2025). In this sense, the ‘interpretive community’ is not only an educational outcome, but also a kind of informal social infrastructure for aware and inclusive decisions about urban heritage. Inviting people without specialist skills to talk about their heritage, the heritage that represents the context of their lives, means confronting them with so-called problem situations. It involves them in the process, however small or seemingly insignificant, and breaks down the barriers to access created by the sense of inadequacy that usually arises during questionnaires and interviews (Djabarouti, 2021). In line with participatory approaches to heritage and community-based planning, these problem situations are framed as open-ended, everyday dilemmas rather than technical questions, so that participants can mobilise experiential and affective knowledge, feel entitled to articulate doubts and disagreements, and gradually shift from being ‘informants’ consulted by experts to active contributors in identifying heritage values, conflicts and possible futures (Li et al., 2020).

2.2. From evidence to design: iterative development of site-specific kits

The interpretive output of the case study was operationalised through a site-specific Interpretation Kit designed to support slow, reflective exploration and active meaning-making. Development followed an iterative pathway: early prototypes emerged from educational activities and participatory workshops (including student-produced visual and narrative materials) and were progressively refined through feedback on usability, legibility, and interpretive clarity. A first ‘craft’ prototype was produced through co-design activities and then tested formatively during a dedicated field session (2018/2019) with a middle-school cohort in Sabbioneta. The test combined a structured route-based trial with a grid questionnaire (instruction clarity, feasibility, timing, engagement, and material legibility) and facilitated group debriefings. Findings informed revisions to prompts, sequencing, and the balance between open exploration and interpretive guidance, documenting a transparent prototype → feedback → revision trace that complements the quantitative validation strategy described in the methods section. Importantly, qualitative insights (images, narratives, lived geographies) and quantitative profiles (validated dimensions from the Urban Prosperity Index and the City Reputation Index) were treated

as complementary design inputs (Greene, 2007): the former helped surface salient metaphors and situated experiences, while the latter mapped needs and perceptions across groups. Read together, these evidence layers guided decisions on themes, language tone, and the balance between physical and digital components. The resulting kits were not conceived as promotional tools but as evidence-informed educational devices aligned with belonging-oriented aims and capable of supporting both visitor experience and local civic engagement. For the reader's convenience, Figure 1 summarises the research-to-design pipeline and the main evidence sources at each step. Finally, we clarify that 'validation' here refers to formative evaluation and usability testing of prototypes, whereas psychometric validation of the quantitative instrument (item screening, EFA/CFA, and the latent-dimension model) is addressed separately in the dedicated methods section.

Phase	Aim	Main Actions	Outputs
1. Programme framing	Define case-study focus within FSR innovation programme	Selection of Mantua-Sabbioneta Unesco WH site; institutional alignment	Case-study scope and interpretative framework
2. Qualitative entry ('public listening')	Gather experiential accounts to inform design	On-site interviews, participatory activities, collection of user narratives	Qualitative insights informing toolkit themes
3. Quantitative tool development	Measure subjective representations of place	Conceptual model construction; item generation; expert review	Validated questionnaire (35 indicators, 11 dimensions)
4. Large-sample administration & validation	Ensure robustness of measurement model	Survey across three settings; EFA/CFA procedures	Psychometrically validated model
5. Descriptive application	Interpret resident/tourist patterns	Cohort comparison; dimension analysis	Diagnostic insights on belonging and perceived quality
6. Design translation & prototyping	Translate evidence into educational toolkit	Development of physical/digital kit; iterative refinement	Evidence-informed interpretative toolkit

Figure 1. Mobartech Mantua-Sabbioneta: research-to-design pipeline (documented steps).

2.3. Observing the case study through the lens of Unesco Learning Cities

Although Mobartech was not formally conceived as a Learning City programme, the action research conducted can be coherently interpreted through the Key Features of Learning Cities (Unesco, 2013) as a heritage-led form of urban learning. The project mobilised cultural and institutional actors – including the Unesco site office, the two municipalities, schools at different levels, and the day centre of the Department of Mental Health of the City of Mantua – to foster inclusive participation around shared heritage. A central objective was to transform heritage enjoyment into practices of interpretation and collaborative meaning-making.

Within this framework, the psychogeographic dimensions investigated (welcoming, belonging, social relations, perceived quality of life, and recognition of heritage value) function as evaluative proxies for selected Learning City conditions. Rather than measuring simple visitor satisfaction, they make observable the cultural and relational environments that support lifelong learning and civic orientation toward the common good. The case illustrates how heritage can operate as a local enabling structure for urban learning, and

how lightweight assessment tools can render strengths and critical issues visible in relation to selected Unesco characteristics (Unesco, 2013).

The literature on learning cities highlights that the sustainability of urban educational processes depends on partner coordination and multi-level collaboration. In this interpretation, 'partnership and coordination' represent the primary analytical variable (Valdés-Cotera et al., 2018). The findings do not claim that Mantua-Sabbioneta constitute a Learning City, nor that the interpretive kit alone ensures durable civic engagement. Rather, they document how a partnership-based heritage intervention can: (a) mobilise stakeholders, (b) generate triangulated evidence, and (c) translate this evidence into mediating artefacts that support situated learning. Sustainability, as widely discussed in the literature, remains dependent on institutional continuity and partnership capacity.

The indicators were therefore not treated as prescriptive benchmarks but as context-sensitive monitoring devices for identifying strengths and areas for improvement. In this perspective, Unesco heritage is understood not as an additional thematic focus, but as a cultural structure through which civic learning, belonging and local agency may be activated (Kearns, 2012). For analytical clarity, outcomes are distinguished into three interconnected dimensions: (i) cognitive/perceptual (changes in how the city is interpreted), (ii) civic/relational (belonging and participation), and (iii) institutional (capacity for coordination and continuity).

3. Evaluation results in brief

The complexity of the subject matter and the diverse literature (Lido et al., 2019) invite us to investigate the phenomena, as already mentioned, using mixed methods (Bergman, 2011; Creswell & Plano Clark, 2023), and to interpret the data by leveraging the unity of integrated multi-indicators to construct various profiles, also in line with different political agendas. As suggested by Mariani and Bianchi (2023), sets of urban indicators can be translated into narrative feedback for cities, meaning discursive profiles that support self-assessment and decision-making. Here, we interpret the data collected as evaluative proxies, understood as elements of an evaluative narrative that can guide local policies and interventions. In parallel, Facer and Buchczyk (2019) propose viewing learning cities as discursive, material and affective infrastructures: networks of places, devices, values and emotions that enable certain forms of learning and exclude others. The dimensions investigated by the questionnaire are interpreted as indicators of learning infrastructures. In this sense, the items become evaluative proxies for infrastructure conditions. In this case study, quantitative analysis based on a questionnaire (scale 1-7) shows an overall positive assessment of the urban heritage context, with different patterns between residents and tourists. In both cities, historical heritage emerges as the most salient dimension (Mantua: tourists 6.15; Sabbioneta: tourists 5.96; residents 5.64 and 5.61), confirming the role of heritage as a cognitive and experiential asset. Alongside this, tourists report high scores on dimensions related to personal compatibility with the place (personal fit, Mantua 6.01; Sabbioneta 5.72) and openness/welcomingness (openness, Mantua 5.85; Sabbioneta 4.87), suggesting an experience perceived as inclusive and relationship oriented. Among residents, factors related to quality of daily life are more evident (Mantua: food 5.56; traffic conditions 5.09; green spaces 5.01; Sabbioneta: green spaces 5.60), which is useful for interpreting the learning city as an ecosystem that intertwines heritage, liveability and belonging. (Zuccoli et al., 2021). Figure 2 summarises the data reading process carried out in terms of learning cities.

Dimension	What it observes (in learning ecosystem lens)	Evidence in the case (Mantua / Sabbioneta)
Historical heritage	Acknowledgement of cultural value as an educational and identity resource	Tourist: 6.15 / 5.96; Residents: 5.64 / 5.61(Mantua)
Openness (Welcoming)	Perception of openness/welcomingness (symbolic and social accessibility)	Tourist: 5.85 / 4.87; Residents (Sabbioneta): 5.09
Personal fit (Attachment)	Subjective affinity and sense of 'well-being' in the place (precondition for sense of belonging and participation)	Tourist: 6.01 / 5.72; Residents (Sabbioneta): 5.01
Social aspects (Connections)	Perceived relational climate (co-presence, conviviality, social capital)	Mantua Tourist: 5.89 (one of the higher dimensions)
Green spaces (Tranquility/Relaxation)	Environmental quality and spaces for wellbeing (support for informal learning and care practices)	Sabbioneta residents: 5.60; Sabbioneta Tourist: 5.42; Mantua residents: 5.01
Food	Material culture/hospitality as infrastructure for experience and encounter	Mantua residents: 5.56 (the highest size among residents)
Traffic conditions	Living conditions and practical accessibility (enabling condition for use/participation)	Mantua residents: 5.09 (one of the higher dimensions)

Figure 2. Operational micro-table (dimension → what it observes → evidence in the case).

The data considered does not refer to cities included in the formal list of Learning Cities, so we analysed and interpreted it using an indirect and composite measure (Nardo et al., 2005), namely the evaluative proxies of certain Unesco Key Features, taking them as an indicative tool. Without assuming that cities formally adhere to the network and in order to avoid falling into a sort of analytical conformism, we sought to find tools useful for consistent local operationalisation (Atchoarena & Howells, 2021). Therefore, the following indicators were identified: openness/welcoming and (in part) social aspects make observable signs of inclusiveness and quality of relationships that support participation; personal fit/attachment intercepts processes of belonging and agency, crucial for transforming enjoyment into active involvement; historical heritage indicates the ability of heritage to act as an infrastructure for learning and building shared meanings; finally, green spaces and traffic conditions refer to environmental and accessibility conditions that enable informal lifelong learning practices. Together, these indicators make it possible to link the Mobartech experience to an idea of an urban learning ecosystem and to discuss its strengths and weaknesses in terms of governance and educational sustainability.

3.1. Critical contribution and limitations of Mobartech

Although Mobartech was not conceived as a formal Learning City programme, reading the Mantua-Sabbioneta case through the Unesco learning city framework is analytically useful because it highlights the distance between normative principles and operational conditions. Contributions from the Unesco Institute for Lifelong Learning emphasise that sustainable

learning cities require multi-level governance, open decision-making and durable cross-sector partnerships, with the involvement of diverse actors and attention to vulnerable groups throughout planning, implementation and monitoring.

Within this interpretative perspective, Mobartech can be understood as a heritage-led learning ecosystem in which cultural assets function as enabling conditions for participation and meaning-making rather than as endpoints of information transfer. Methodologically, the case documents an evidence-informed research-to-design pathway combining participatory inquiry with a psychometrically validated quantitative instrument. The questionnaire underwent item review, large-sample administration, and exploratory and confirmatory factor analyses (EFA/CFA), resulting in a final model of 35 indicators loading on 11 latent dimensions. This process offers a replicable basis for describing how different cohorts relate to heritage cities and for supporting cautious comparative reflections across contexts.

In relation to the learning city debate, this approach provides a pragmatic way to render otherwise elusive constructs – such as belonging, perceived inclusivity and relational quality – empirically observable through indirect measures, without presupposing formal membership in the Unesco network.

At the same time, the interpretative move has clear boundaries. The identified proxies capture perceived enabling conditions (welcomingness, attachment, social aspects, historical heritage, green spaces, traffic), not direct learning outcomes or long-term behavioural change. They are therefore more suited to monitoring contextual conditions than to demonstrating causal educational impact. Moreover, the cross-sectional and cohort-based design (tourists/residents) supports diagnostic insights – such as relational gaps in Mantua – but does not in itself demonstrate policy stabilisation or sustained civic agency.

In this contribution, psychogeographic dimensions – openness/welcoming, personal fit/attachment and social aspects – are treated as evaluative proxies for inclusion, belonging and participation within a lightweight monitoring framework (Simister, 2024). The case illustrates how lifelong learning principles may be operationalised in local arrangements grounded in partnership and coordination (Valdés-Cotera et al., 2018). Its main lesson remains interpretative: heritage can function as an enabling condition for urban learning when participatory action-research translates mixed-method evidence into context-sensitive educational design choices.

4. Conclusions

The research presented here was intended to address a need expressed by the administrations of Mantua and Sabbioneta to establish a connection between these two cities, which are different from each other but unified in a sense by their status as a single Unesco site. This meant working closely with the inhabitants of the two cities from the initial stages of the project. Firstly, the needs of the two cities were identified, along with their similarities and differences, by gathering the opinions of those involved. Collecting and evaluating data on the various steps taken proved to be an essential element. Creating material (an interpretative kit) to encourage the emergence of a shared narrative and the recovery and circulation of knowledge also meant activating shared collection, monitoring and evaluation systems. In a process of active participation, the request to build materials and tools together, and to test and validate them, was an essential element. An evaluation that became an assessment of the project, its achievements and applications, as well as a

self-assessment of what can be done both individually and collectively.

Reference list

- Atchoarena, D., & Howells, A. (2021). Advancing Learning Cities: Lifelong Learning and the Creation of a Learning Society. In S. Ra, S. Jagannathan & R. Maclean (Eds.), *Powering a Learning Society During an Age of Disruption* (pp. 165-180). Springer. https://doi.org/10.1007/978-981-16-0983-1_12
- Bergman, M. (2011). The Good, the Bad, and the Ugly in Mixed Methods Research and Design. *Journal of Mixed Methods Research*, 5, 271–275. <https://doi.org/10.1177/1558689811433236>
- Bortolotto, C. (2008). *Il patrimonio immateriale secondo l'Unesco: Analisi e prospettive*. Istituto Poligrafico e Zecca dello Stato.
- Bosco, A., Gasparotto, S., & Lengua, M. (2023). Participatory Flows: A Comparative Analysis of Co-Design Processes in the Field of Cultural Heritage. *Strategic Design Research Journal*, 15(2), 92–106. <https://doi.org/10.4013/sdrj.2022.152.02>
- Creswell, J. W., & Plano Clark, V. L. (2023). Revisiting Mixed Methods Research Designs Twenty Years Later. In C. N. Poth (Ed.), *The Sage Handbook of Mixed Methods Research Designs* (pp. 21-36). Sage.
- Della Spina, L. (2025). Community Branding and Participatory Governance: A Glocal Strategy for Heritage Enhancement. *Heritage*, 8(6), 188. <https://doi.org/10.3390/heritage8060188>
- Djabarouti, J. (2021). Practice Barriers Towards Intangible Heritage within the UK Built Heritage Sector. *International Journal of Heritage Studies*, 27(11), 1101–1116.
- Facer, K., & Buchczyk, M. (2019). Understanding Learning Cities as Discursive, Material and Affective Infrastructures. *Oxford Review of Education*, 45(2), 168–187.
- Ferrero, M., Friel, M., Meneghin, E., & Lavanga, M. (2024). Industrial Heritage and Citizen Participation: The Unesco World Heritage Site of Ivrea, Italy. *Urban Planning*, 9, 8220. <https://doi.org/10.17645/up.8220>
- Gasparini, L. (2014). *Il patrimonio culturale immateriale: riflessioni per un rinnovamento della teoria e della pratica sui beni culturali*. Vita e Pensiero.
- Grcheva, O., & Vehbi, B. (2021). From Public Participation to Co-Creation in the Cultural Heritage Management Decision-Making Process. *Sustainability*, 13(16), 9321. <https://doi.org/10.3390/su13169321>
- Greene, W. (2007). Functional Form and Heterogeneity in Models for Count Data. *Foundations and Trends® in Econometrics*, 1(2), 113–218.
- Hooper-Greenhill, E., Dodd, J., Moussouri, T., Jones, C., Pickford, C., Herman, C., ... & Toon, R. (2003). *Measuring the outcomes and impact of learning in museums, archives and libraries: the Learning Impact Research Project end of project paper*. Research Centre for Museums and Galleries (RCMG).
- Kastenholz, E., & Gronau, W. (2020). Enhancing Competences for Co-Creating Appealing and Meaningful Cultural Heritage Experiences in Tourism. *Journal of Hospitality & Tourism Research*, 46(8), 1519–1544.

- Kearns, P. (2012). Learning Cities as Healthy Green Cities: Building Sustainable Opportunity Cities. *Australian Journal of Adult Learning*, 52(2), 368–391.
- Li, J., Krishnamurthy, S., Roders, A., & Wesemael, P. (2020). Informing or Consulting? Exploring Community Participation within Urban Heritage Management in China. *Habitat International*, 105, 102268. <https://doi.org/10.1016/j.habitatint.2020.102268>
- Lido, C., Reid, K., & Osborne, M. (2019). Lifewide Learning in the City: Novel Big Data Approaches to Exploring Learning with Large-Scale Surveys, GPS, and Social Media. *Oxford Review of Education*, 45(2), 279–295. <https://doi.org/10.1080/03054985.2018.1554531>
- Longworth, N. (1999). *Making Lifelong Learning Work: Learning Cities for a Learning Century*. Stylus.
- Mariani, I., & Bianchi, I. (2023). Translating Data Into Narratives. *Strategic Design Research Journal*, 15(3), 334–349. <https://doi.org/10.4013/sdrj.2022.153.09>
- Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffmann, A., & Giovannini, E. (2005). *Handbook on Constructing Composite Indicators: Methodology and User Guide (OECD Statistics Working Paper STD/DOC (2005)3)*. OECD.
- Ottaviani, D., Demiröz, M., Szemző, H., & De Luca, C. (2023). Adapting Methods and Tools for Participatory Heritage-Based Tourism Planning to Embrace the Four Pillars of Sustainability. *Sustainability*, 15(6), 4741. <https://doi.org/10.3390/su15064741>
- Simister, N. (2024). *Indicators (Monitoring, Evaluation and Learning Resources)*. Intrac.
- Unesco. United Nations Educational, Scientific and Cultural Organization. (2013). *Key Features of Learning Cities*. Unesco.
- Valdés-Cotera, R., Wang, M., & Lunardon, K. (2018). Realising Lifelong Learning for All: Governance and Partnerships in Building Sustainable Learning Cities. *International Review of Education*, 64, 287–293.
- Waterton, E., & Watson, S. (2013). *Heritage and Community Engagement: Collaboration or Contestation?* Routledge.
- Zuccoli, F., De Nicola, A., & Pepe, A. (2021, July 5-6). Mobartech: Working with the Public to Explore Their Perceptions of Mantua and Sabbioneta. In *Proceedings of EDULEARN21 Conference* (pp. 11939-11946). IATED Academy.