

Review Article

From Coursework Outputs to Public Heritage Interpretation: Mechanisms and Boundaries of University Labor Education in Grand Canal Heritage Transmission

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Abstract

University labor education involving cultural heritage may contribute both to student learning and to forms of cultural expression intended for wider publics. Yet the conditions under which coursework outputs can become meaningful contributions to public heritage interpretation remain insufficiently explained. Taking the design of the “Revitalizing Historic Sites” project in the Zhenjiang section of China’s Grand Canal as a practice-based point of reference, this article undertakes theoretical integration and conceptual analysis informed by embodied cognition, place attachment, and people-centred heritage conservation. It examines the mechanisms and boundaries of university labor education in the interpretation of tangible, linear cultural heritage. The analysis suggests that problem-oriented task reframing can reposition heritage as an object of professional inquiry; embodied engagement and place-based interaction may create conditions for heritage understanding and attachment to place; and knowledge translation and public deliberation can enable coursework outputs to enter the public cultural sphere. At the organizational level, professionalization of labor content, project-based implementation process, curriculum integration of local resources, and public-oriented outcome expression must operate alongside the cross-cutting requirements of interpretive reliability, local reciprocity, and organizational continuity. By distinguishing among the educational process, public interpretation, and sustained contributions, the article argues that completing course assignments or achieving short-term visibility does not, in itself, demonstrate successful heritage transmission. It offers a conceptual framework for assessing the possibilities and limits of university labor education in public heritage interpretation.

Keywords

University Labor Education, Grand Canal Cultural Heritage, Living Heritage Transmission, Embodied Cognition, Place Attachment, Public Heritage Interpretation

1. Introduction

The Grand Canal of China was inscribed on the World Heritage List of the United Nations Educational, Scientific and Cultural Organization (UNESCO) in 2014. Located in an area where the Yangtze River and the Jiangnan Canal are closely

connected, Zhenjiang contains bridges and locks, canal waterways, and historic districts along the canal. These sites comprise engineering remains relevant to professional learning

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while also demonstrating the interweaving of heritage meanings and everyday local life. As a historic hydraulic and transportation system extending across regions, the Grand Canal embodies accumulated engineering knowledge, institutional organization, and local memories; some of its sections continue to serve contemporary functions [1]. Sustaining its cultural value therefore requires more than preserving material remains: it also entails making historical knowledge intelligible to the public and maintaining meaningful relationships between different groups and heritage. Nevertheless, displaying heritage is not synonymous with sustaining its living transmission, nor can youth participation in communication replace professional conservation. These distinctions require conceptual clarification.

University labor education offers a perspective on this issue that differs from conventional heritage study visits. In the Chinese educational context, labor education is a deliberately organized component of formal education in which students undertake meaningful work to develop respect for labor, practical capabilities, responsible work habits, and a sense of social responsibility [2]. It encompasses everyday, productive, and service-oriented labor and is not limited to manual tasks or vocational training. China's Guidelines for Labor Education in Primary, Secondary, and Higher Education (Trial) call for the integration of labor education with disciplinary study, professional service, and social practice, encouraging students to apply knowledge to authentic problems and produce work of value [2]. Xiang emphasizes learners' agency and creativity in labor education, together with the meaningful connection between academic knowledge and social practice [3]. Accordingly, university labor education is understood here not as physical work or volunteering in general, but as a form of practice structured around educational purposes, disciplinary knowledge, authentic tasks, and social responsibility.

Existing scholarship has demonstrated the educational potential of cultural resources, but it has paid less attention to the conditions under which outputs produced beyond the classroom can contribute to the interpretation and communication of heritage value. This question is particularly salient for tangible heritage such as bridges, locks, and waterways. Unlike learners of a traditional craft, students do not become heritage bearers simply by mastering a specific technique; rather, they may participate appropriately through research, modelling, design, and interpretation. This article therefore addresses two related questions: How might university labor education transform students' practical relationships with heritage? Under what institutional and epistemic conditions might their coursework outputs move beyond internal academic assessment to become credible and publicly meaningful forms of heritage interpretation? The design of the "Revitalizing Historic Sites" project in the Zhenjiang section of the Grand Canal provides a practice-based reference for this conceptual inquiry.

2. Literature Review and Analytical Perspective

2.1. The Professional-Practice Orientation of Labor Education and Heritage Resources

Research on labor education in Chinese universities distinguishes participation in labor activities from engagement in labor education. Wang and colleagues, in their investigation of university students, argue that labor education requires intentional organization and systematic design; merely completing work activities does not constitute an educational process [4]. In research on regional culture and education, Wang and colleagues draw on embodied cognition to discuss the use of intangible cultural heritage in labor education, elucidating the connections among bodily engagement, cultural knowledge, and practical teaching [5]. With regard to Zhenjiang, Li and colleagues' research on a Grand Canal cultural heritage knowledge base demonstrates an existing foundation for the digital organization of local heritage and related knowledge services [6]. Although these strands of scholarship address educational organization, cognition, and resource representation, they do not establish that cultural products made by students have already generated heritage transmission outcomes.

An important implication of this literature is that heritage should not be treated solely as pre-interpreted teaching material. In the case of tangible heritage marked by spatial scale, engineering structures, and historical context, educational design should turn unresolved questions of documentation and interpretation into authentic tasks. In this way, students engage not only with established narratives but also with responsibility for checking sources, making disciplinary judgments, and choosing forms of representation. Whether that responsibility can extend to the local public cultural sphere, however, requires consideration of the legitimacy and limits of participation from the perspective of heritage studies.

2.2. From Learning About Heritage to Social Participation

Heritage scholarship does not necessarily regard value as a fixed property inherent in material objects. Smith conceptualizes heritage as a cultural practice through which meanings of the past are continually constructed and negotiated [7]. The people-centred approach advanced by the International Centre for the Study of the Preservation and Restoration of Cultural Property (ICCROM) likewise emphasizes dynamic relationships between heritage and society, particularly the involvement of communities and groups most closely connected to heritage [8]. This perspective creates scope for university engagement in heritage interpretation, while also establishing clear limits: students cannot stand in for local heritage communities, nor does completion of an academic assignment automatically confer interpretive authority.

For the purposes of this article, the “living transmission” of Grand Canal heritage refers to the continued communication of heritage knowledge, memories of use, and cultural meanings through contemporary interpretation and social participation, while respecting material authenticity and established conservation arrangements. This use of the term should not be conflated with the transmission of particular skills in the intangible cultural heritage field, and it does not imply that universities directly undertake the physical restoration of heritage sites. Whether students’ outputs constitute a contribution to transmission must therefore be considered in terms of the reliability of their content, the social relationships through which it is produced, and its subsequent use, rather than the number of works created or the scale of an exhibition. A further distinction is needed between preparing explanatory material about heritage and participating in decisions about how heritage is interpreted: the former may be organized through course requirements, whereas the latter involves negotiating evidence, local experience, and interpretive authority.

2.3. Embodied Cognition, Place Attachment, and the Analytical Approach

Wilson’s account of embodied cognition highlights the relationships among cognition, bodily action, tools, and environment, challenging accounts of cognition that reduce it to context-free information processing [9]. Place-based education similarly calls for learning to be connected to the histories, ecologies, and social relationships of particular locations [10]. Scannell and Gifford’s framework conceptualizes place attachment as a multidimensional relationship involving people, psychological processes, and characteristics of place [11]. Recent research on heritage participation also identifies associations among perceived heritage value, place attachment, and intentions to participate in conservation [12]. Such empirical findings, however, cannot be transferred uncritically to the present project as evidence of psychological change. Here, place attachment serves as a concept for explaining how relationships with place might develop, rather than as a statistically tested mediating variable.

Methodologically, the article follows the emphasis of conceptual research on theoretical selection, transparent reasoning, and the specification of propositional boundaries [13]. Labor education is treated as the condition organizing practical activities; embodied cognition provides a perspective on knowledge formation; place attachment informs an account of relationships between people and place; and participatory heritage conservation helps assess the public legitimacy of edu-

cational outputs. The materials considered are relevant published scholarship, policy documents, and the project design for “Revitalizing Historic Sites.” These conceptual resources are selected for their complementary capacities to explain the development of practical relationships, possible changes in cognition and place meaning, and the conditions under which educational outputs can acquire public legitimacy.

3. Practice Context and Mechanisms of Participation: “Revitalizing Historic Sites”

The “Revitalizing Historic Sites” project was initiated by Jiangsu University Jingjiang College. Situated in the cultural heritage landscape of the Zhenjiang section of the Grand Canal, it is designed to engage undergraduates in materials-related and civil engineering disciplines in labor education. The project encompasses canal-side bridges and locks, docks, granaries, and historic districts. Heritage significance, disciplinary suitability, implementation safety, and local cultural needs inform the selection of sites. Its plan envisages phased investigation and digital documentation of 18 heritage locations, rather than claiming that all such work has been completed. The core activities comprise field investigation, model making, cultural and creative product development, and exhibition-based explanation. These tasks are designed to connect heritage research, the application of disciplinary knowledge, and public cultural expression within a continuous program of work. The project thus provides a setting for examining how students’ professional work might extend beyond course-bound learning activities to contribute to contemporary heritage interpretation and public communication.

Within this setting, student participation in heritage interpretation is unlikely to result from any single work activity; rather, it depends on relationships among the organization of practice, knowledge formation, and public deliberation. As illustrated in Figure 1, educational aims, disciplinary knowledge, authentic tasks, and social responsibility constitute the organizing conditions for labor education to engage with heritage. Three interrelated analytical dimensions—problem-oriented task reframing, embodied engagement and place meaning, and knowledge translation and public deliberation—concern, respectively, the formation of an object of practice, the potential deepening of heritage understanding and relationships with place, and the movement of learning outputs into public interpretation. Interpretive reliability, local reciprocity, and organizational continuity impose constraints across these dimensions.

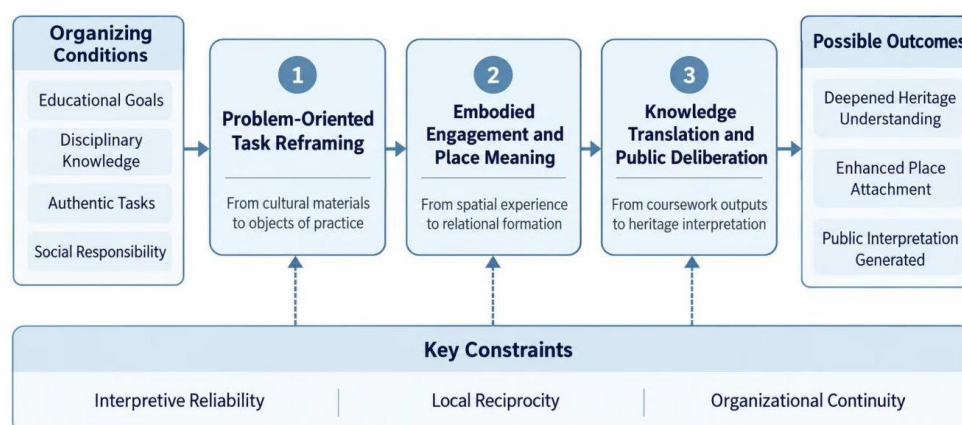


Figure 1. Conceptual framework for university labor education in the interpretation of Grand Canal cultural heritage.

3.1. Problem-Oriented Task Reframing: From Cultural Materials to Objects of Practice

Heritage commonly enters the classroom through historical accounts, visual materials, or guided visits. Such resources have explanatory value, but they do not necessarily require students to take responsibility for the provenance of information, structural relationships, or interpretive choices. For labor education to make a distinctive contribution, unresolved heritage questions must be reframed as tasks requiring disciplinary knowledge. Understanding a particular lock or bridge, for example, can move beyond recalling its name and history to investigating its spatial structure, reconciling discrepancies among sources, and explaining its engineering significance to non-specialist audiences. Heritage thereby becomes not merely a backdrop for teaching but an object that students must investigate and respond to.

The four activities envisaged by “Revitalizing Historic Sites” are conceptually interdependent. Model making requires field observation and trustworthy historical sources; creative expression presupposes an understanding of heritage’s core values; and public exhibition requires disciplinary knowledge to be presented in accessible interpretive forms. The theoretical significance of project-based work lies less in following a fixed sequence than in the successive demands each activity places on the judgments made in preceding work. Where a model prioritizes appearance alone or a design merely extracts decorative motifs, completing the assigned task does not necessarily amount to a substantive transformation of heritage knowledge.

3.2. Embodied Engagement and Place Meaning: From Spatial Experience to Relational Formation

The bridges, locks, waterways, and historic landscapes of

the Grand Canal have important spatial and environmental dimensions. Site visits, structural surveys, material trials, and revisions to models may enable students to understand engineering forms and historical functions through interactions among bodies, technical tools, and heritage objects. Embodied participation does not, however, guarantee deeper understanding; its value depends on whether practical work involves source verification, reflection, and professional judgment. If model making consists only of reproducing a prescribed design, students may remain at the level of technical execution rather than developing an adequate understanding of heritage value. Another possible outcome of place-based practice is the development of personal meanings attached to place. Students who come from elsewhere do not necessarily identify with Zhenjiang simply because they study there. Yet when its urban spaces become associated with their experiences of researching, making, interpreting, and interacting with local people, a place previously encountered as the background to student life may acquire personal significance.

3.3. Knowledge Translation and Public Deliberation: From Coursework Outputs to Heritage Interpretation

Research reports, physical models, cultural and creative products, and interpretive scripts are, in the first instance, coursework outputs. For these outputs to become resources for public heritage interpretation, they must cross the boundary between educational assessment and social use. This requires more than wider channels of dissemination: historical information should be traceable to its sources, the scope of creative adaptation should be explicit, local knowledge holders should be able to participate in interpretation, and materials should be revised in response to questions and concerns raised by real audiences. Students’ creativity is thus not a licence to recombine heritage symbols at will; it entails responsible disciplinary choices between fidelity to the historical record and meaningful contemporary communication.

There is, therefore, no automatic causal route from education to heritage transmission. Educational practice can provide young people with an entry point into interpretation, but the public cultural value of their outputs depends on appropriate expert review, responsiveness to the needs of local actors, and meaningful audience access and feedback. Even where these conditions are met, the most that can be claimed without further evidence is the possibility of publicly meaningful heritage participation; a single exhibition cannot demonstrate enduring improvements in heritage identification or attachment.

4. Institutional Conditions and Evaluative Boundaries of Practice Design

The preceding analysis of task reframing, embodied engagement, and knowledge translation indicates that university

labor education can create opportunities for students to contribute to heritage interpretation, but coursework outputs do not necessarily become contributions to public culture. To support such a transition, practice must coordinate professional learning, authentic heritage questions, and public cultural needs. Drawing on the design of “Revitalizing Historic Sites,” this article identifies four mutually supporting organizational principles: professionalization of labor content, project-based implementation, curricular integration of local resources, and public-oriented outcome expression. At the same time, because heritage interpretation entails historical authenticity, local actors’ rights to participate, and the ongoing use of outputs, interpretive reliability, local reciprocity, and organizational continuity should function as cross-cutting constraints. Figure 2 depicts the joint configuration of these principles and requirements. The following sections examine their implications for the quality of professional tasks and curricular continuity, local participation and reciprocal collaboration, and the assessment of public interpretation and heritage contributions.

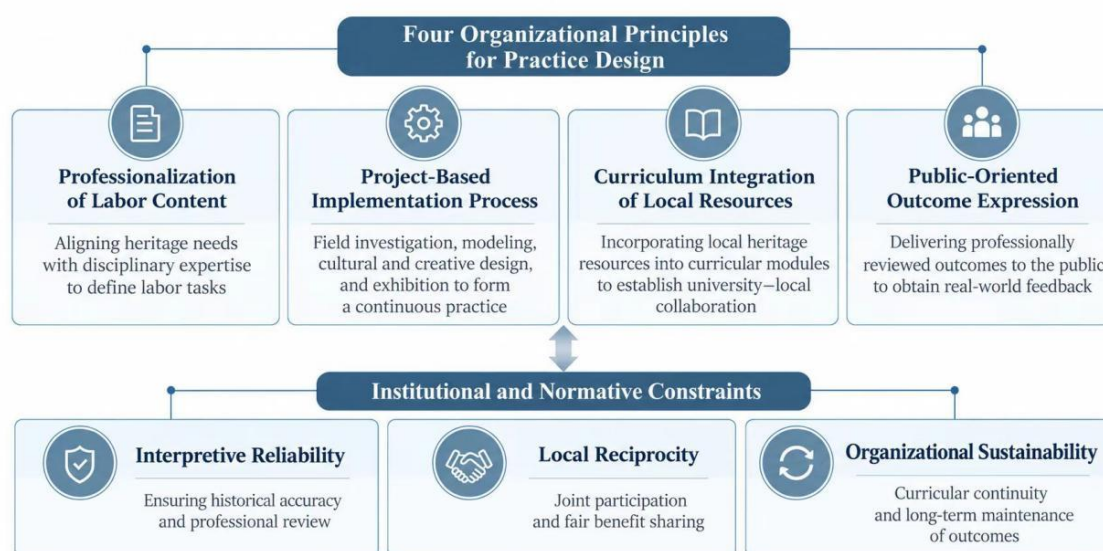


Figure 2. Organizational principles and cross-cutting constraints for university labor education in Grand Canal heritage interpretation.

4.1. Ensuring Task Quality Through Disciplinary Alignment and Curricular Continuity

Universities should design tasks with reference to the type of heritage, students’ disciplinary competencies, and on-site safety requirements. Learning-oriented documentation, historical research, and model making must be distinguished from conservation interventions and archaeological work requiring professional qualifications. For students in materials science and civil engineering, appropriate tasks might concern

engineering structures, materials, and spatial representation; students in design or communication disciplines could contribute to visual interpretation, visitor information, and public-facing explanations. These allocations should respond to genuine heritage needs rather than treating heritage sites merely as opportunities to demonstrate existing student skills. To avoid the fragmentation of one-off activities, investigation, verification, production, and interpretation should be incorporated into connected course modules, with traceable documentation and revision records that allow subsequent cohorts to build on earlier work.

Professionalization must also confront potential tensions

between educational aims and local needs. Teachers may prioritize task completion and learning experience, whereas heritage institutions are often more concerned with factual accuracy, conservation requirements, and the usability of outputs. Without jointly established quality criteria, educational products may remain confined to self-assessment within the course. Project design should therefore specify information sources, responsibility for content review, and permission to use or publish outputs from the outset. This would allow practical work to remain feasible for teaching while meeting minimum standards of credibility for public service.

4.2. Limiting University-Centred Approaches Through Local Participation and Reciprocity

Collaboration between universities and local organizations should extend beyond access to sites, guest lectures, or support for exhibitions. Service-learning research indicates that community partners may evaluate the benefits of collaboration, opportunities for decision-making, and enduring relationships differently from universities [14]. Project objectives should accordingly be discussed with relevant heritage management bodies, local cultural practitioners, and, where appropriate, community representatives. Such discussions should clarify which heritage questions genuinely need new interpretations, which materials concern community memory or sensitive information, and who will maintain, use, or update outputs after the project ends.

This form of collaboration also concerns the distribution of

interpretive authority. Although university students can introduce valuable perspectives, local people's memories should not be treated merely as material to be extracted. Interviews, photographs, and local narratives require attention to informed consent, attribution, and permitted uses; differences among groups in the meanings they attach to heritage should likewise be recognized. Educational participation in heritage transmission can move beyond the one-sided appropriation of local cultural resources only when relationships remain open to negotiation and correction.

4.3. Distinguishing Coursework Outputs from Heritage Contributions Through Standards of Public Interpretation

The International Council on Monuments and Sites (ICOMOS), in its Charter for the Interpretation and Presentation of Cultural Heritage Sites, emphasizes principles such as the use of reliable sources, authenticity, accessibility of interpretation, inclusiveness, and sustainability [15]. On this basis, student outputs should be assessed at three distinct levels: first, whether students have completed the investigation, production, and reflection required by their educational tasks; second, whether outputs have been professionally reviewed and communicated effectively to public audiences; and third, whether they have been taken up or continually used by local stakeholders, or have generated traceable understanding and participation. The first two levels primarily concern the educational process and conditions of dissemination, whereas the third supports stronger claims about social contributions to heritage. Table 1 sets out these levels and the types of evidence required.

Table 1. Evaluation levels for educational outputs and public contributions to heritage.

Evaluation level	Primary assessment focus	Evidence required	Claims not warranted
Educational process	Completion of authentic tasks; verification and reflection	Fieldwork logs; successive versions of outputs; instructor assessments	That students have developed enduring place identification
Public interpretation	Credibility of knowledge and intelligibility to audiences	Source checks; expert review; exhibitions and audience responses	That a single instance of dissemination constitutes sustained transmission
Sustained contribution	Recognition, uptake, ongoing use, and updating by local stakeholders	Partner evaluations; records of continued use and subsequent revisions	That universities can replace conservation professionals or heritage communities

This distinction helps prevent numbers of student products, short-term viewing figures, or self-reported satisfaction from being conflated with the effects of living heritage transmission. A more defensible approach would retain source-verification records, successive versions of outputs, expert review comments, audience feedback, and evidence of their use by partner organizations. In subsequent phases of the project, interviews

with different groups and longitudinal materials could examine whether changes in knowledge, place attachment, or willingness to participate actually occur. Evaluation should not presume positive outcomes; it should also document counterexamples, including cultural misinterpretation, limited student engagement, barriers to public understanding, and discontin-

ued partnerships, so that the proposed framework can be revised.

5. Discussion and Conclusion

The contribution of this article is not to repeat the general claim that labor education and cultural heritage can benefit one another, but to analyze the conditions under which educational and heritage values may become connected—and where that connection may fail. First, for heritage to become an educationally meaningful object of work, students' activities must be organized around authentic questions rather than visits alone. This does not negate the role of classroom teaching or conventional site visits; it suggests instead that, without further task reframing, they cannot readily perform the functions of disciplinary work and public participation examined here. Second, embodied activities can support understanding only insofar as they are accompanied by professional reflection; attachment to place may develop, but it cannot be assumed to follow directly from participation. Third, student outputs may become socially responsible forms of heritage interpretation only where their historical accuracy is reviewed, local participants are involved in deliberation, and public feedback can inform revision.

For tangible, linear heritage such as the Grand Canal, the appropriate role of university labor education is to undertake bounded forms of knowledge production, cultural interpretation, and public participation within existing conservation arrangements, not to replace heritage communities or professional bodies. Organizational principles—professionalization of labor content, project-based implementation, curricular integration of local resources, and public-oriented outcome expression—must operate under the conditions of interpretive reliability, local reciprocity, and organizational continuity. Future research could draw on records from successive project phases, in-depth interviews with students, evaluations by local partner institutions, and audience responses to examine differences across heritage types and project durations. It should also assess whether participating local communities and organizations receive identifiable and sustained cultural benefits from co-producing these projects.

Abbreviations

UNESCO	United Nations Educational, Scientific and Cultural Organization
ICCROM	International Centre for the Study of the Preservation and Restoration of Cultural Property
ICOMOS	International Council on Monuments and Sites

Author Contributions

Jingru Nie: Conceptualization, Methodology, Writing – original draft, Writing – review & editing

Huihui Zhu: Investigation, Resources

Hao Wang: Data curation

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Conflicts of Interest

The authors declare no conflicts of interest.

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