

Pathways for Expanding the Public Education Functions of Museums

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Abstract: Museum public education serves multiple functions, including knowledge dissemination, cultural transmission, aesthetic development, and social participation. At present, some museums continue to face problems such as educational content remaining subordinate to exhibitions, overly broad audience segmentation, insufficient continuity of educational activities, and weak evaluation of educational outcomes. Drawing on museum resources and the characteristics of public learning, this article proposes several pathways for improvement: transforming collection-based research findings into structured curricula, enhancing participatory activities, deepening museum–school collaboration, extending services into communities, developing digital educational resources, and improving mechanisms for personnel development and program evaluation. These measures are intended to broaden the reach and enhance the quality of museum public education.

Keywords: museums; public education; museum–school collaboration; cultural services; digital resources

Introduction

Museums are important institutions for collecting, preserving, researching, and exhibiting cultural heritage. They also function as public cultural spaces that provide lifelong education for society. Compared with formal schooling, museum education is less constrained by fixed class periods, standardized textbooks, and examination requirements. It can draw on collections, exhibitions, and museum spaces to facilitate observation, experience, discussion, and independent inquiry. Through direct engagement with material objects, visitors can develop an understanding of historical information, artistic styles, and scientific principles. Knowledge dissemination thus extends beyond textual interpretation to encompass material evidence, spatial narratives, and emotional experience.

Both the number of museums in China and the scale of public participation have continued to grow. According to data released by the National Cultural Heritage Administration, China had 7,046 registered museums by the end of 2024, representing an increase of 213 over 2023, while 91.46% offered free admission. In 2024, museums nationwide organized 43,000 exhibitions and 511,000 educational activities and received 1.49 billion visits^[1].

Table 1. Key Data on Public Services Provided by Museums in China in 2024

Indicator	2024 data	Implications for museum public education
Number of registered museums	7,046	The number of institutions providing public education services continued to increase
Increase over the previous year	213	The service network expanded further
Proportion offering free admission	91.46%	Barriers to public participation were reduced
Number of exhibitions	43,000	A relatively rich foundation existed for the provision of educational content
Number of educational activities	511,000	Museum-based and outreach educational activities were maintained on a substantial scale
Number of visits	1.49 billion	Public demand for cultural learning remained strong

Note: Data are drawn from the National Cultural Heritage

Administration's statistics on the development of China's museum sector in 2024 ^[1].

Increases in the number of museums, educational activities, and visits have created favorable conditions for the development of public education. However, expansion in the scale of educational activities does not necessarily result in a corresponding improvement in educational quality. Some activities remain limited to general guided tours, knowledge quizzes, and handicraft sessions, with insufficient connection between the value of collections and visitors' own experiences. The emphasis in expanding museums' public education functions should therefore shift from increasing the number of activities to improving content structures, learning approaches, and service mechanisms.

1. The Fundamental Positioning of Museum Public Education

1.1 Functions and Scope of Public Education

Museum public education comprises educational activities that draw on collections, exhibitions, research findings, and cultural spaces to provide diverse social groups with opportunities for learning, cultural understanding, and public participation. Its audiences include children, adolescents, adults, middle-aged and older people, persons with disabilities, and visitors from outside the local area. Its aims encompass not only the dissemination of knowledge about history, art, nature, and science but also the development of observational skills, evidence-based thinking, aesthetic judgment, and cultural identity.

Public education should not be equated simply with exhibition interpretation. Whereas guided interpretation primarily communicates information about exhibits, public education also includes curriculum development, the preparation of learning materials, thematic programs, teacher training, community services, and support for self-directed learning. In her research on museum education, Zheng systematically examined educational program planning, the division of responsibilities within education departments, and modes of public learning. She emphasized that educational programs require clearly defined audiences, objectives, content, and implementation procedures ^[2].

Museum public education is also non-compulsory. Visitors may select content and determine the sequence of their visits according to their individual interests, and they differ in both dwell time and depth of participation. Educational design must respect this autonomy. Clear

information hierarchies, appropriately framed questions, and optional activities can provide accessible entry points into learning for visitors with different needs.

1.2 Resource Advantages of Museum Education

Collections constitute the core resource for museum public education. Cultural relics, works of art, natural specimens, industrial heritage, and scientific and technological artifacts possess authenticity and immediacy, enabling abstract knowledge to be transformed into observable material evidence. The material, form, ornamentation, function, and archaeological context of an object can be connected to modes of production, social life, aesthetic concepts, technological development, and other dimensions.

Exhibition spaces can create narrative relationships through arrangements of objects, interpretive texts, lighting, sound, and scenographic design. As visitors move through these spaces, they encounter information progressively and develop a cognitive process distinct from classroom-based instruction. When educational activities mobilize observation, comparison, reasoning, and expression, they can guide visitors from merely viewing objects toward understanding them.

Museums also have the capacity to integrate interdisciplinary resources. Historical collections can be connected with archaeology, sociology, and craft technologies; art collections with art history, materials science, and aesthetic education; and natural specimens with ecology, environmental studies, and the life sciences. Public education curricula can cross the boundaries of individual disciplines and help participants understand relationships among different forms of knowledge.

2. Practical Challenges Facing Museum Public Education

2.1 Insufficient Integration of Educational Content and Collection Research

In some museums, educational activities are only loosely connected with collections, exhibitions, and academic research. Program themes often focus on festival customs, handicraft production, or general historical knowledge. Such content is easy to replicate and does not adequately reflect the distinctive features of an institution's collections. Exhibition-related research findings are used primarily in academic reports, catalogues, and exhibition texts and have not yet been fully transformed into educational content that is comprehensible to different age groups.

Stable mechanisms for translating collection research into educational activities are lacking. Researchers are familiar with the contexts of collections and relevant scholarly questions, whereas museum educators understand public needs and program organization. When these two groups do not plan programs collaboratively, curricula may be factually accurate but difficult to understand, or lively in form but superficial in content. Researchers, exhibition specialists, and educators should therefore be involved jointly from the initial planning stage of an educational program.

2.2 Insufficiently Refined Audience Segmentation

Some educational programs classify audiences simply as “young people” or “adults,” without adequately considering age, prior knowledge, learning motivation, or physical conditions. Preschool children depend primarily on sensory experience and concrete images; primary and secondary school students need to establish connections with school curricula; adults tend to be more interested in cultural contexts and contemporary issues; and middle-aged and older visitors may place greater importance on the pace of a visit, opportunities to rest, and the clarity of information. Standardized content cannot adequately meet the needs of all these groups.

There is also considerable room to improve learning support for persons with disabilities. Visitors with visual impairments require tactile replicas, audio descriptions, and clear navigational guidance. Visitors with hearing impairments require captions, sign-language interpretation, or visualized information. Visitors with mobility impairments require accessible routes and interactive facilities positioned at appropriate heights. Because public education emphasizes equality of opportunity, the needs of specific groups must be incorporated into routine service planning.

2.3 Limited Capacity for the Sustainable Operation of Educational Programs

Some educational activities are concentrated around public holidays, commemorative dates, and temporary exhibitions, with little documentation of outcomes or sustained updating after the activities conclude. One-off lectures, visits, and craft experiences may generate short-term impact but rarely establish a stable learning process. Museum–school collaboration may likewise consist of a single group visit organized by a school and a standardized tour provided by the museum, with insufficient preparation before the visit or extension activities afterward.

Small and medium-sized museums also face constraints such as limited numbers of education personnel, insufficient dedicated funding, and difficulties in reusing program materials. Established programs may lack standardized lesson plans, operating procedures, and resource kits, making it difficult for new employees or volunteers to take over quickly. Educational work often depends heavily on individual experience, and changes in personnel may therefore lead to fluctuations in program quality.

3. Innovation in the Content and Methods of Museum Public Education

3.1 Transforming Collection Resources into Educational Curricula

Collection-based curricula should be grounded in verified information and research findings, with their presentation reorganized for particular audiences. Curriculum development can begin by selecting representative objects and identifying their date, material, production techniques, contexts of use, and cultural significance. Educators can then formulate questions suitable for public inquiry. Programs for children may emphasize shape, color, and function; programs for secondary school students may incorporate comparisons of historical sources and analysis of evidence; and programs for adults may explore the institutions, technologies, and forms of social life reflected in the objects.

Curricula should not seek to maximize the quantity of information presented. A single activity can instead focus on one central question and create a coherent learning process through close observation of collection objects, reading of supplementary materials, group discussion, and completion of learning tasks. For example, an educational program on traditional objects can progress from “What is this?” to “How was it made?”, “Who used it?”, and “What way of life does it reflect?” Through this sequence of questions, the collection object ceases to serve merely as an illustration of established knowledge and becomes evidence that participants can analyze.

Educational curricula should also be supported by differentiated resource packages that specify learning objectives, target audiences, activity duration, collection information, guiding questions, operating procedures, and evaluation methods. Curricula of varying levels of difficulty can be developed for the same exhibition, reducing reliance on a single standardized tour script.

3.2 Designing Participatory Educational Activities

Participatory education emphasizes the active role of visitors in observation, discussion, practice, and expression. Museum educators are responsible not only for communicating conclusions but also for organizing learning through carefully designed questions. Activities may include searching for details in collection objects, comparing materials, discussing different roles or perspectives, recording observations in galleries, and producing creative responses. Such tasks encourage participants to formulate their own interpretations and revise their understanding in light of information provided by the exhibits.

Tian and Sun's study of the evolution of museum education in the United States shows that museum education has progressed through stages characterized by aesthetic functions, museum-school partnerships, and responses to multicultural needs. Changes in public demand have continued to reshape the educational role of museums^[3]. Educational activities should therefore attend to participants' lived experiences and cultural backgrounds and avoid providing only a one-way, standardized account of knowledge.

Innovation in program format should remain subordinate to educational objectives. Contextual performances, digital interactions, and hands-on activities generate effective learning only when they maintain a clear connection with collection content. A singular pursuit of entertainment can easily weaken the knowledge base of museum education. At the end of an activity, participants' understanding of its central content can be assessed through the sharing of work, responses to questions, or brief discussions.

4. Expanding the Service Settings of Museum Public Education

4.1 Establishing Mechanisms for Museum-School Collaboration

Museum-school collaboration should move from one-off visits toward coordinated curriculum development. On the basis of school curriculum standards and the characteristics of their collections, museums can work with teachers to define learning themes. Before a visit, schools can introduce relevant background knowledge and assign tasks. Activities in the museum can focus on direct observation of objects and evidence analysis. After the visit, students can consolidate their knowledge through reports, creative work, or thematic discussions. Connecting these three stages can improve the coherence and completeness of

museum learning.

Teachers play an important role in linking school curricula with museum resources. Museums can organize professional development programs for teachers to introduce collection-based research findings, exhibition structures, and methods for using learning resources. Once teachers participate in curriculum development, they are better able to arrange activities in accordance with students' ages and the progress of classroom instruction. Museums can also establish catalogues of bookable thematic programs that clearly specify target audiences, group size, duration, and learning requirements, thereby reducing mismatches in content caused by ad hoc organization.

Museum-school collaboration should not be limited to group visits by students. Museums can provide lesson plans, digital collection resources, and loanable educational materials to support extended classroom teaching. Schools can, in turn, share students' survey findings, oral histories of local communities, and inquiry-based learning outcomes with museums, thereby establishing a two-way exchange of resources.

4.2 Extending Services to Communities and Local Areas

Museum public education must move beyond the spatial limitations of museum buildings and bring educational resources into communities, rural areas, schools, enterprises, and public service institutions. Traveling exhibitions, educational loan boxes, thematic lectures, and displays of replicas are suitable for areas that lack museum facilities. The themes of outreach programs should be selected in response to local cultural needs, rather than by simply reducing the scale of an in-house exhibition and transferring it elsewhere.

Community residents are both recipients of educational services and potential narrators of local culture. Museums can organize collecting, interviewing, and co-creation activities centered on old photographs, traditional skills, production tools, and memories of everyday life, thereby incorporating residents' experiences into educational content. Public participation can supplement collection records and strengthen community cultural identity.

Qin et al. argue that the development of public cultural services in museums requires stronger connections among service content, target audiences, and social needs^[4]. The effectiveness of local outreach should not be measured only

by the number of activities. It should also be assessed in terms of audience reach, continuity of participation, and the effectiveness with which resources are used. In areas with limited transport access, regional inter-museum collaboration can facilitate the sharing of curricula, educators, and mobile exhibition equipment.

4.3 Developing Digital Educational Resources

Digital technologies can extend the temporal and spatial reach of museum public education. Online exhibitions, high-resolution images of collection objects, virtual galleries, and online courses can provide learning opportunities for people who cannot visit museums in person. Digital resources can also support preparation before a visit and review afterward, thereby extending the educational process beyond a single on-site activity.

Digital education should not be reduced to uploading exhibition texts to the internet. Because online learning lacks direct engagement with physical objects and on-site spatial experience, its information architecture must be redesigned. Short videos are suitable for explaining individual objects and specific points of knowledge; thematic courses can provide systematic content; and virtual galleries can demonstrate spatial relationships among exhibits. Different media should therefore perform different educational functions.

Artificial intelligence, virtual reality, and three-dimensional visualization can be used to analyze the structures of collection objects, reconstruct historical settings, and provide personalized guidance. Such applications must ensure the accuracy of information and clearly distinguish reconstructed content from authentic cultural objects. When visitor information is collected, data collection should be limited to what is necessary, and the personal information of minors and other participants must be protected.

5. Improving the Support System for Museum Public Education

5.1 Coordination between Professional Personnel and Social Participants

The expansion of public education requires a stable professional workforce. Museum educators should possess knowledge of museology, education, and public communication and be able to understand collection-based research findings. Museums can establish project mechanisms through which researchers, curators, and educators participate jointly, incorporating educational

planning into the exhibition development process rather than adding educational activities on an ad hoc basis after an exhibition opens.

Volunteers, schoolteachers, community workers, and social and cultural organizations can supplement museums' public education capacity. Volunteers are well suited to visitor guidance, basic interpretation, and program assistance, whereas the design of specialist curricula and the verification of content should remain the museum's responsibility. Volunteer services should include training, assessment, and periodic updating to reduce inconsistencies in interpretation and factual errors.

Collaborative projects with external organizations require clearly defined educational objectives, content ownership, and safety responsibilities. When commercial organizations participate in technological development or program operation, museums must retain authority over content review and preserve the public-interest character of public education.

5.2 Evaluating Educational Outcomes and Pursuing Continuous Improvement

The evaluation of educational activities should not be limited to recording attendance and satisfaction. Attendance indicates reach but cannot adequately demonstrate the knowledge, skills, and emotional experiences that participants have acquired. Evaluation can address understanding of core knowledge, observational skills, participation in discussion, cultural interest, and willingness to participate again. Indicators should be selected in accordance with the objectives of each activity.

Evaluation methods may include on-site observation, short questionnaires, interviews, worksheets, and analysis of participants' work. Learning outcomes in children's activities can be assessed through drawings, oral descriptions, and task completion. School programs can compare responses to questions before and after a visit. Adult programs can focus on the depth of discussion and the connections participants establish among different elements of the content. Questionnaires should not be excessively long, and evaluation procedures should not unduly disrupt the visitor experience.

Museums should regularly synthesize participant feedback, educators' records, and information on the use of activity materials to identify problems in curriculum difficulty, scheduling, and spatial organization. Established programs can maintain version histories and undergo continuing revision

while retaining their core content. Only when evaluation results inform the next cycle of planning can public education develop a stable process of continuous improvement.

Conclusion

Expanding the public education functions of museums requires a transition from treating education as an adjunct to exhibitions toward making it a routine practice embedded in collection research, exhibition planning, and public services. Rich collections, authentic material evidence, and open learning spaces provide distinctive conditions for knowledge dissemination, cultural understanding, and social participation. At present, however, the homogenization of educational content, overly broad audience segmentation, museum–school collaboration limited to visits, and inadequate evaluation continue to constrain improvements in the quality of public education.

To expand their public education functions, museums should strengthen the curricular transformation of collection-based research findings and provide differentiated services based on age, prior knowledge, and physical conditions. Museum–school coordination, community outreach, and

digital resource development can broaden the reach of services, while participatory activities can deepen public learning. Professional personnel, volunteers, and educational evaluation together provide the operational support required. By establishing a sustainable, open, and evaluable educational system while maintaining academic accuracy and a commitment to the public interest, museums can better fulfill their responsibilities for public cultural services and lifelong education.

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