

Feminist Architecture for Inclusive Heritage Learning at the Colliq Pujie Museum

Muh. Alfin*, Ashari Abdullah, Citra Amalia Amal, Nurhikmah Paddiyatu, Sahabuddin Latif, Andi Yusri

¹Department of Architecture, Faculty of Engineering, Universitas Muhammadiyah Makassar, Indonesia.

ABSTRACT

This study develops an inclusive heritage-learning environment for the Colliq Pujie Museum Complex in Barru Regency through a feminist architectural approach. A research-through-design method combined literature and precedent review, field observation, comparative site selection, climate and access analysis, user-activity mapping, spatial programming, descriptive quantitative analysis, and criteria-based evaluation. The selected 1.79-ha site adjoins the existing museum and is directly accessible from a provincial road. The resulting 9,502-m² program integrates temporary and immersive exhibitions, a Barru history gallery, education, workshops, library and research functions, a 529-seat auditorium, reflection spaces, and supporting amenities. Feminist principles were translated into human-scaled thresholds, connected commons, universal circulation, passive visibility, mixed-mode environmental zoning, and an interpretive sequence that presents Colliq Pujie as a producer and custodian of Bugis knowledge. The proposal demonstrates that gender-responsive architecture can be operationalized as a performance framework linking representation, access, safety, participation, and environmental comfort rather than as a formal style. The design remains a schematic hypothesis requiring participatory validation, environmental simulation, accessibility auditing, and post-occupancy evaluation.

ARTICLE HISTORY

Received June 14, 2026
Received in revised form
July 16, 2026
Accepted August 20, 2026
Available online August 26,
2026.

KEYWORDS

Colliq Pujie; feminist
architecture; heritage
learning; inclusive museum;
research-through-design

1. Introduction

Museums are increasingly understood as public infrastructures for learning, interpretation, research, and participation rather than as buildings that merely store and display collections. This shift changes the architectural problem. A contemporary museum must reconcile controlled environments for collections with open civic spaces in which visitors move, pause, meet, question, and construct meaning. Museum architecture therefore mediates between curatorial responsibility and public life, and the quality of that mediation depends on spatial relationships among galleries, education areas, research facilities, social spaces, and support functions [1]. For regional institutions, the challenge is particularly acute because an archive-oriented building may preserve valuable objects while offering limited opportunities for interpretation, repeated learning, community programming, or inclusive access.

The question of access is inseparable from the question of representation. Museum narratives have often privileged political, military, and male-centered histories, while women's roles in literacy, cultural transmission, diplomacy, education, and everyday knowledge production remain less visible. Feminist museum practice responds by presenting women as historical agents rather than supplementary figures. Research on women's history education and feminist storytelling shows that museum environments can challenge inherited narratives and support critical historical consciousness when curatorial content, pedagogy, and visitor experience are developed together [2]. Architecture contributes directly to this work because thresholds, circulation, visibility, scale, seating, lighting, and

opportunities for participation influence which narratives appear central and who feels entitled to engage with them [3].

This issue is significant in Bugis cultural history. Lontaraq traditions document women as writers, readers, advisers, teachers, and custodians of collective memory [4]. Colliq Pujie is among the most prominent figures in this intellectual history. She contributed to the preservation and transmission of Bugis knowledge through writing, copying, reading, teaching, and documenting lontaraq manuscripts and the La Galigo tradition [5]. Her legacy demonstrates that heritage preservation is not passive storage; it is an active process of literacy, interpretation, and intergenerational transfer. A museum dedicated to Colliq Pujie should therefore provide not only exhibition space but also environments for reading, research, teaching, performance, making, dialogue, and reflection.

The existing Colliq Pujie Museum in Barru Regency is important as an archive and heritage institution, but the architectural design dossier identifies restricted capacity for education, research, community activity, outdoor interpretation, and inclusive circulation. Its position within the Barru town-square landscape also limits major expansion without reducing the function of surrounding public open space. The regional population increased from 185,525 in 2021 to 195,385 in 2024, while local development priorities emphasize education, culture, equitable services, and public facilities. These conditions support an expanded institutional model in which the existing museum retains archival and documentary roles and a new adjoining complex accommodates public-facing, participatory, and educational functions.

The local architectural context also requires cultural and environmental continuity. An eco-cultural center for Bugis-Makassar heritage recently demonstrated how tropical adaptation, flexible activity zones, education, performance, and social interaction can be combined with locally grounded cultural representation [6]. This precedent is relevant to the Colliq Pujie project because it supports a move beyond superficial formal symbolism: local identity must be expressed through relationships among program, climate, landscape, material practice, and community use. The proposed complex consequently treats the museum as part of a wider heritage ecosystem rather than as an isolated iconic object.

Feminist architecture provides the conceptual framework for this transformation. It is not interpreted as a feminine visual language or a preference for curved forms. Instead, it examines how space distributes access, power, safety, recognition, comfort, and opportunities to participate. Feminist spatial scholarship foregrounds embodied experience and critiques environments presented as neutral despite serving users differently (Rendell, 2021; Matrix Feminist Design Co-operative, 2022). Recent research similarly emphasizes that gender, age, mobility, bodily ability, and social role shape spatial experience, requiring designers to consider emotional comfort, visibility, orientation, and social justice alongside technical function [7].

Inclusion in this study is therefore defined across physical, sensory, cognitive, communicative, and participatory dimensions. Older visitors may encounter barriers in digital interpretation even when the building is physically accessible [8], and co-design studies show that accessibility criteria become more credible when intended users help define and test them [9] [10,11]. The design proposition links women's representation to universal circulation, passive visibility, human-scaled transitions, rest opportunities, communal learning spaces, and a clear relationship between interior and exterior areas. The research question is: how can feminist architectural principles be translated into concrete spatial, programmatic, environmental, and interpretive decisions for a regional museum complex? The study contributes a traceable research-through-design method that connects identified problems, design criteria, architectural responses, and indicators for future evaluation.

The research gap is both practical and conceptual. Practically, the existing institution cannot accommodate the programmatic diversity required to connect collection care with public learning, research, performance, and community activity. Conceptually, feminist architecture is often discussed as critique, representation, or formal metaphor, while fewer design studies show how its principles can be converted into decisions that are visible in plans, sections, circulation, environmental zoning, and operational policy. The working proposition is that a distributed and legible spatial system—supported by universal circulation, shared learning spaces, passive visibility, and a narrative centered on women's intellectual agency—will create a more inclusive heritage environment than a repository-led and spatially hierarchical model. The novelty lies in the evidence-to-decision chain: social theory informs criteria; criteria inform design moves; and design

moves are paired with indicators that can later be audited rather than accepted through visual impression alone.

2. Methods

This study used research-through-design, treating architectural design as both a method of inquiry and a synthesized response to interacting cultural, spatial, environmental, technical, and social conditions. The method did not test a causal hypothesis through an experiment. Instead, it developed an architectural proposition and assessed whether the final configuration was internally consistent with the documented problem, site conditions, user requirements, feminist criteria, and institutional objectives. This approach is appropriate for design problems in which multiple forms of evidence must be integrated into a plausible future condition.

The primary source was an architectural design dossier containing the project rationale, regional and cultural context, two alternative sites, field observations, site-analysis diagrams, user and activity schedules, room-area calculations, structural and material proposals, utility concepts, and final design drawings. The dossier also provided population figures for 2021–2024, a baseline of 17,929 annual visits in 2024, a linear annual increment of 247 visits, a 17,900-m² selected site, parking requirements, and a consolidated internal program of 9,502 m². No raw survey responses, measured environmental time series, post-occupancy data, or experimental observations were available. Quantitative analysis was therefore limited to descriptive statistics, planning ratios, and the documented linear visitor projection; assumed values were not presented as empirical findings.

The process comprised six linked stages. First, the institutional problem was defined by comparing the archive-oriented condition of the existing museum with the broader requirements of an inclusive heritage-learning facility. Second, the two sites were compared in terms of area, access, visibility, adjacency, environmental exposure, and capacity for future development. Third, users and activities were mapped. Visitor groups included general visitors, students, researchers, tourists, older adults, children, caregivers, and people with different mobility and sensory needs. Operational users included management, curatorial and conservation staff, reception, finance, technicians, security, cleaning, logistics, and parking personnel. Fourth, activities were converted into a spatial program and adjacency structure. Fifth, feminist principles were translated into observable design criteria. Sixth, massing, circulation, landscape, material, structure, and utilities were integrated and evaluated. The overall research-through-design workflow, linking evidence, analytical translation, feminist criteria, design synthesis, and evaluation, is summarized in Figure 1.

Site analysis followed a condition-response format. Prevailing wind was documented as predominantly southwest, western solar exposure was identified as the principal source of afternoon heat gain and glare, and road traffic created the highest noise level along the main frontage. The design response retained perimeter vegetation, introduced high-level openings for warm-air release in suitable zones, used overhangs and vertical shading on exposed façades, specified low-emissivity

glazing where controlled transparency was required, and set the building back from the road. Entry and exit movements were separated, with distinct areas for visitor cars, motorcycles, buses, staff vehicles, and services. Pedestrian routes connected the drop-off, parking, plaza, main entrance, landscape, and existing museum.

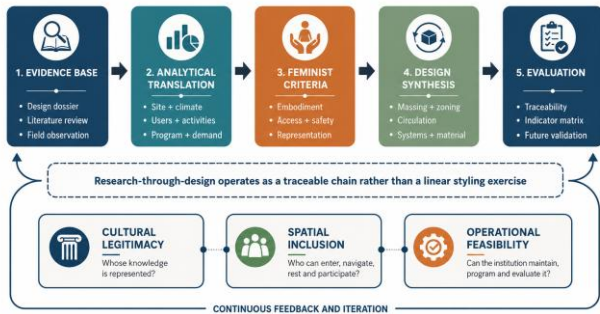


Figure 1. Research-through-design workflow linking evidence, analytical translation, feminist criteria, design synthesis, and evaluation. Source: author synthesis.

Site User analysis translated activity sequences into spatial relationships. A typical visit progresses from arrival, information, ticketing, and orientation to temporary exhibitions, immersive interpretation, education, Barru history, workshops, library and research, auditorium events, and reflection. This sequence was not treated as compulsory; visitors can shorten, repeat, or reverse parts of the route. Students require group orientation and facilitated learning, researchers require controlled access to study resources, and operations require separate collection, loading, conservation, storage, and service routes. Five zoning categories—public, semi-public, semi-private, private, and circulation/accessibility—were used to maintain openness without compromising collection control and building operation.

The feminist evaluation framework comprised five principles. Embodied experience required human scale, shaded thresholds, thermal moderation, seating, and attention to bodily diversity. Non-hierarchical space required legible organization around shared commons rather than a single intimidating ceremonial axis. Inclusive access required step-free alternatives, clear wayfinding, and independent access to all major public functions. Safety and visibility required predictable routes, passive observation, adequate lighting, and fewer blind corners. Women's narratives required a curatorial sequence in which Colliq Pujie appeared as a producer, teacher, and custodian of knowledge. Each principle was linked to a design translation, an observable indicator, and an intended outcome.

The design was evaluated by triangulating the problem statement, site and program analyses, feminist criteria, and final drawings. A response was considered coherent when it could be traced to an identified condition and supported more than one objective. For example, the central commons supports orientation, daylight, visual connection, social encounter, and rest; the road setback supports acoustic buffering, safer arrival, and a civic forecourt; and distributed massing supports functional zoning, reduced visual dominance, and shorter movement paths. Because the

building has not been constructed, the evaluation concerns the plausibility and traceability of the design hypothesis rather than measured performance.

The literature review was organized as an evidence-to-decision matrix rather than a catalogue of precedents. Five evidence streams were extracted: inclusive spatial configuration, participatory design, narrative and emotional interpretation, hybrid physical-digital engagement, and heritage governance. The Integrated Museum Engagement Model informed the combination of participatory design, storytelling, and digital representation [12], while inclusive museum studies emphasized that the size and adjacency of educational, research, and social functions influence participation [1]. These sources were not used to copy a formal solution. They were used to formulate questions for the design: Can each major function be reached independently? Are movement choices visible? Can visitors rest without leaving the interpretive sequence? Do digital elements provide alternatives rather than new barriers? Does the narrative present women as producers of knowledge?

3. Findings and Discussion

3.1 Demographic demand and site strategy

Barru's population rose from 185,525 in 2021 to 186,910 in 2022, 194,500 in 2023, and 195,385 in 2024. The net increase was 9,860 people, or 5.31%, and the compound annual growth rate was 1.74%. Annual change was uneven, ranging from 0.46% to 4.06%, which cautions against interpreting the short series as a stable long-term trend. The visitor model begins with 17,929 annual visits in 2024 and adds 247 visits per year, producing 20,399 visits in 2034, or a 13.78% increase. This is a planning projection rather than a statistically fitted forecast. Its value lies in establishing a modest baseline while recognizing that school groups, festivals, performances, temporary exhibitions, and community events can create concentrated peaks that annual averages obscure. The demographic trend and the documented linear visitor projection are summarized in Figure 2.



Figure 2. Demographic context and documented visitor projection. Population values cover 2021–2024; the linear model adds 247 visits per year. Source: author analysis of the architectural design dossier.

The selected 1.79-ha site on Jalan Sultan Hasanuddin was preferred to the approximately 0.5-ha alternative behind the town square. It offers direct provincial-road access, high visibility, sufficient area for the full program, and immediate continuity with the existing Colliq Pujie Museum and park. The new building is positioned as an extension of the

heritage ensemble, not as a replacement. A public forecourt mediates between the road and the museum, while planted edges buffer noise and solar exposure. A one-way vehicular system reduces crossing conflicts, and continuous pedestrian routes connect arrival areas, parking, landscape, the new complex, and the existing museum.

Parking occupies 3,415 m², approximately 19.1% of the site, and includes 87 visitor-car spaces, 133 visitor-motorcycle spaces, four bus spaces, 11 staff-car spaces, and 20 staff-motorcycle spaces. This provision supports group visits but risks allowing vehicles to dominate the public realm. The schematic plan therefore requires shaded pedestrian priority, tree canopies, permeable paving, bioswales, and a long-term option to convert some parking to public landscape if collective transport improves. The site strategy is strongest when landscape performs simultaneously as climatic infrastructure, orientation device, gathering space, and interpretive setting. The resulting site strategy, including the museum mass, public forecourt, vehicular circulation, pedestrian connections, parking, and landscaped perimeter, is illustrated in Figure 3.



Figure 3. Proposed site plan showing the central museum mass, public forecourt, separated vehicle movements, parking, pedestrian connections, and landscaped perimeter. Source: architectural design dossier (2026), graphically refined for publication

3.2 Spatial program and learning sequence

The internal program totals 9,502 m². The consolidated spatial program and the analytical share of each program category are presented in Table 1. Temporary exhibition is the largest category at 2,157 m² (22.7%), followed by workshops at 1,816 m² (19.1%), reflection spaces at 1,669 m² (17.6%), supporting functions at 1,579 m² (16.6%), auditorium functions at 1,036 m² (10.9%), immersive exhibition at 529 m² (5.6%), Barru history at 466 m² (4.9%), and education at 250 m² (2.6%). The ratio of programmed floor area to site area is approximately 0.53. As the building is arranged over two storeys, this program can retain substantial land for circulation, planted buffers, stormwater management, gathering, and connection to the existing museum.

The area distribution demonstrates institutional transformation rather than simple enlargement. Exhibition remains central, but workshops, education, research, auditorium, reflection, and public amenities form a substantial share of the project. Four workshop themes—La Galigo literature, lontaraq script, traditional music and sinrilik, and Bugis weaving—translate heritage from displayed content into practiced knowledge. Two rooms for each workshop theme, each with a nominal capacity of 20 participants, provide a concurrent workshop capacity of 160 people. The museum can therefore support cultural

production and intergenerational transmission alongside collection display.

Table 1. Consolidated spatial program and analytical share of total floor area.

Program category	Area (m ²)	Share (%)	Primary design role
Temporary exhibition	2,157	22.7	Flexible exhibitions and high-capacity public events
Workshops	1,816	19.1	Participatory learning and living-heritage practice
Reflection	1,669	17.6	Quiet interpretation, contemplation, and narrative closure
Support	1,579	16.6	Lobby, amenities, food, retail, prayer, and operations
Auditorium	1,036	10.9	Performance, lectures, seminars, and community events
Immersive gallery	529	5.6	Narrative and sensory interpretation of Colliq Pujie
Barru history	466	4.9	Regional context and cultural continuity
Education	250	2.6	Structured learning and facilitated group activities
Total	9,502	100.0	Integrated museum complex

Note. Percentages are calculated from the documented 9,502-m² spatial schedule.

The visitor sequence is organized as orientation, encounter, interpretation, participation, and reflection. Arrival and information establish a clear cognitive map. Temporary and immersive galleries introduce Colliq Pujie's life, manuscripts, and historical context. Education and Barru history spaces provide explanation and comparison. Workshops, library, and research functions enable visitors to read, write, make, discuss, and investigate. Reflection spaces provide quieter environments for considering women's intellectual labor and cultural continuity. The sequence remains media-flexible: physical collections and facsimiles can be supplemented by audio, tactile replicas, projection, or mobile interpretation when these media serve explicit learning objectives. Hybrid approaches can be useful for small local museums, but they should be tested with older visitors and people with disabilities rather than assumed to be inclusive [8] [13].

The planning-capacity check confirms that the museum is designed for peak programming rather than a uniform daily flow. An annual average of approximately 56 visits per calendar day is much lower than the combined nominal capacity of galleries, workshops, and the auditorium. This difference is intentional. A school group can arrive while researchers use the library, workshops operate, and an auditorium event is prepared. Flexible temporary galleries and divisible learning rooms allow the institution to absorb these overlaps without making every area permanently oversized. The central commons functions as a distribution and waiting space, reducing pressure on ticketing and gallery thresholds. Detailed design should nevertheless establish maximum simultaneous occupancy, egress width,

assembly points, staff supervision, and collection-security protocols for each operating scenario. Figure 4 summarizes both the distribution of the 9,502-m² spatial program and the intended visitor sequence from orientation to reflection.



Figure 4. Distribution of the 9,502-m² program and the intended visitor sequence from orientation to reflection. Source: author analysis and synthesis

3.3 Form, systems, and environmental performance

The massing uses four curved wings linked by a central commons and roof system. The design value of the curves is functional rather than gender-symbolic. Distributed wings reduce the apparent bulk of the 9,502-m² program, clarify program clusters, create multiple visible destinations, and form human-scaled edges. The central void connects the two floors visually and becomes the principal orientation and social space. Public and semi-public functions line clear routes, while management, conservation, technical, and service functions remain controlled without becoming spatially dominant. Stairs, ramps, and an inclined platform lift provide multiple vertical-mobility choices, and accessible seating is integrated into the auditorium.

Material and environmental systems respond to a warm-humid tropical setting. Reinforced concrete provides the primary two-storey frame, while a steel space-frame roof supports broad column-free galleries and the auditorium. Zincalume roof cladding, aluminium composite panels, low-emissivity glazing, external screens, and overhangs combine durability, controlled daylight, and façade depth. Natural ventilation is prioritized in transition, communal, and non-collection zones, whereas galleries and sensitive collection areas require mechanically controlled temperature, humidity, ultraviolet exposure, and air quality. The climate-responsive logic is consistent with recent evidence from tropical architectural design, where cross-ventilation, shading, energy-efficient materials, and mixed passive-active strategies were identified as key contributors to thermal comfort and reduced cooling demand [14]. The museum proposal does not claim equivalent energy savings because no simulation has yet been performed. The proposed massing, entrance lobby, central communal space, and temporary exhibition environment are illustrated in Figure 5.



Figure 5. Architectural visualizations of the proposed complex: aerial setting, entrance lobby, central communal interior, and temporary exhibition environment. Source: architectural design dossier (2026), assembled for publication.

Landscape is central to both environmental and social performance. Planted buffers along the western and road edges can reduce glare, dust, and perceived traffic exposure, while shaded paths support visitors who move slowly or require frequent rest. Courtyards and gardens can extend workshop activities, provide informal gathering, and create transitions between intense exhibitions and quiet reflection. Permeable surfaces and bioswales can reduce runoff from the large parking allocation, although hydrological capacity must be verified through site-specific calculation. Landscape interpretation can connect Colliq Pujie's intellectual history to Barra's geography and living cultural practices. These functions support the broader principle that landscape sustainability should integrate ecological processes with human well-being and sense of place [15].

The environmental concept remains schematic and requires technical verification. Final development should use measured climate files, solar and daylight simulation, ventilation modelling, acoustic analysis, and energy assessment. Western shading must be dimensioned according to sun angles, glazing properties, and maintenance access. Mixed-mode zones must be separated according to collection risk, and the irregular roof geometry requires detailed drainage, movement joints, acoustic control, service coordination, corrosion protection, and seismic analysis. Water systems should integrate municipal supply, storage, greywater separation, stormwater infiltration, and safe maintenance. These measures are necessary to establish the environmental performance, technical robustness, and long-term operational viability of the proposed museum complex.

3.4 Feminist architecture as spatial performance

The feminist framework is expressed as spatial performance. Embodied experience is addressed by shaded thresholds, rest points, moderated daylight, and varied sensory intensity. Non-hierarchical organization is addressed by a shared commons and connected clusters rather than a singular ceremonial route. Inclusive access is addressed by step-free circulation and independently reachable public functions. Safety is addressed by long sightlines, predictable routes, passive visibility, and separation of public and service traffic. Representational justice is addressed by spaces for writing, teaching, performance,

research, and making that position Colliq Pujie as an active knowledge producer. The resulting design aligns the museum’s message about women’s agency with the practical conditions through which diverse visitors enter, move, participate, and speak.

Biophilic and inclusive design evidence from a recent educational project in Wajo reinforces the importance of integrating light, air, vegetation, water, privacy, safety, and psychological comfort rather than treating them as decorative additions [16]. In the museum, planted thresholds, shaded courtyards, visual access to landscape, and quiet recovery spaces serve the same broader principle of embodied support. Their application must remain compatible with conservation requirements and must not expose collections to uncontrolled daylight, moisture, or biological risk. The proposal therefore separates robust public transition zones from tightly controlled collection environments while maintaining a coherent visitor experience.

The operationalization matrix converts theory into an auditable design hypothesis. Table 2 details the corresponding spatial translations, observable indicators, and intended outcomes used to operationalize each feminist architectural principle. Each principle is paired with an observable indicator: comfortable transitions and available seating for embodied experience; multiple visible destinations for non-hierarchical space; independent access to major functions for inclusion; reduced blind corners and clear entry–exit movement for safety; and recognition of women as intellectual actors for narrative agency. These indicators do not prove that inclusive outcomes have already been achieved. They define what should be tested during design development, exhibit prototyping, and post-occupancy evaluation. The relationship between feminist architectural principles, their spatial translations, and the expected outcomes is summarized in Figure 6.

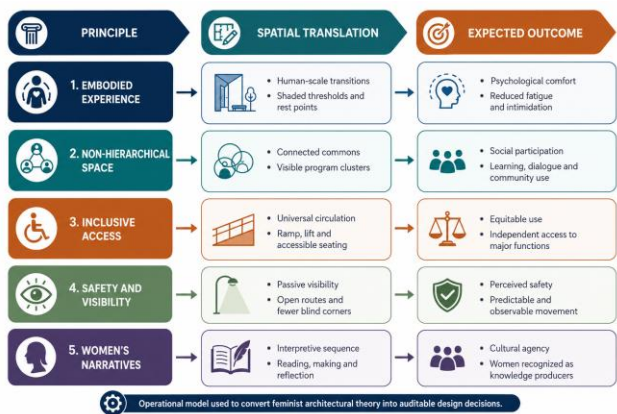


Figure 6. Operational framework linking feminist architectural principles to spatial translations and expected outcomes. Source: author synthesis.

Digital interpretation is proposed as a selective layer rather than the dominant museum experience. Immersive media can visualize manuscript production, historical landscapes, and oral traditions that are difficult to communicate through objects alone, but technological novelty does not guarantee learning or inclusion. The strongest applications are tied to specific tasks: comparing script forms, hearing narrated passages,

exploring relationships among people and places, or recording visitor reflections. Multisensory and emotionally resonant interpretation can deepen engagement when historical accuracy and curatorial transparency are maintained [17]. Interfaces should provide captions, audio description, adjustable volume, simple navigation, non-digital alternatives, and staff assistance. Prototype testing should compare comprehension and task completion across age, familiarity, sensory ability, and digital confidence before permanent installation.

Table 2. Operationalization matrix of feminist architectural principles, design translations, observable indicators, and intended outcomes.

Principle	Design translation	Observable indicator	Intended outcome
Embodied experience	Shaded thresholds, rest points, moderated daylight, human-scaled interiors	Comfortable transitions; seating and climate protection along major routes	Reduced physical and psychological stress
Non-hierarchical space	Central commons and connected program clusters	Multiple visible destinations linked to a shared orienting space	Greater participation and less institutional intimidation
Inclusive access	Ramps, inclined platform lift, accessible auditorium seating, clear wayfinding	All major public functions independently reachable	Equitable use across age and ability
Safety and visibility	Open sightlines, predictable routes, separated service traffic, fewer blind corners	Long views across circulation; clearly defined entry and exit movements	Improved perceived safety and orientation
Women's narratives	Immersive, educational, workshop, library, and reflection sequence centered on Colliq Pujie	Women represented as intellectual actors through content and activity	Recognition, cultural agency, and critical historical learning

Note. The observable indicators define criteria for future design development, accessibility auditing, exhibit prototyping, and post-occupancy evaluation; they do not represent measured post-occupancy performance. Source: author synthesis.

Digital interpretation is proposed as a selective layer rather than the dominant museum experience. Immersive media can visualize manuscript production, historical landscapes, and oral traditions that are difficult to communicate through objects alone, but technological novelty does not guarantee learning or inclusion. The strongest applications are tied to specific tasks: comparing script forms, hearing narrated passages, exploring relationships among people and places, or recording visitor reflections. Multisensory and emotionally resonant interpretation can deepen engagement when historical accuracy and curatorial transparency are maintained [17]. Interfaces should provide captions, audio description, adjustable volume, simple navigation, non-digital

alternatives, and staff assistance. Prototype testing should compare comprehension and task completion across age, familiarity, sensory ability, and digital confidence before permanent installation.

The proposal's cultural strategy is deliberately contextual rather than literal. Indonesian museum research shows that local form and collective memory can be sustained when social meaning, architectural transformation, and contemporary use are interpreted together [18]. The Colliq Pujie complex therefore avoids claiming that one shape is inherently feminine or Bugis. Cultural identity is carried through the relationship among the historical figure, manuscript traditions, workshop practices, landscape, social gathering, and environmental response. The eco-cultural precedent in Gowa similarly demonstrates that tropical adaptation and flexible educational, performance, and social zones can support cultural continuity when local symbolism is tied to use and ecology [6].

Interpretation should be polyvocal but historically accountable. Contextualized displays can expose the networks of people, places, objects, and institutions that shape heritage meaning, while emotional and multisensory storytelling can help visitors bridge temporal distance [19] [17]. The museum should therefore combine manuscripts, facsimiles, oral histories, scholarly interpretation, and visitor response without presenting speculation as fact. Participatory design with cultural custodians, educators, women's groups, and local communities is necessary to determine which narratives are appropriate, what language should be used, and how intellectual ownership is recognized.

3.5 Institutional implications, limitations, and evaluation

Institutional transformation depends on programming and governance as much as architecture. The existing building can continue to support archives and documentation, while the new complex accommodates interpretation, learning, performance, research, and community use. This division requires a secure collection route between loading, quarantine, conservation, storage, and exhibition. It also requires adequate staffing, maintenance budgets, cultural partnerships, and a calendar of repeated activities. Heritage institutions become sustainable when communities, education systems, cultural practitioners, and management structures share responsibility for interpretation and continuity [20] [21].

The demographic and capacity calculations also have limitations. Four population observations cannot establish long-term demand, and the fixed visitor increment is not a validated forecast. Dividing 20,399 projected annual visits by 365 days gives an average of approximately 56 visits per day, but actual attendance will be episodic. The 529-seat auditorium and large galleries are justified by school arrivals, civic events, and temporary exhibitions rather than by average daily attendance. Visitor-flow simulation should test routine days, school groups, full-auditorium events, mixed simultaneous programs, and emergency evacuation. Operating calendars, staffing, collection quantity, and realistic budgets should be incorporated before final area approval.

The principal methodological limitation is the absence of direct participation from museum staff, descendants and cultural custodians connected to Colliq Pujie, local women's organizations, disability groups, educators, and prospective visitors. This limitation is especially important because a feminist process cannot define inclusion solely through designer judgment. Future work should use co-design workshops, accompanied walkthroughs, route tests, prototype labels, tactile and digital usability trials, and structured accessibility audits. Evaluation should examine physical reach, route errors, rest opportunities, perceived safety, participation diversity, learning outcomes, recognition of women as knowledge producers, thermal and sensory comfort, and repeat attendance [9,22,23].

The principal methodological limitation is the absence of direct participation from museum staff, descendants and cultural custodians connected to Colliq Pujie, local women's organizations, disability groups, educators, and prospective visitors. This limitation is especially important because a feminist process cannot define inclusion solely through designer judgment. Future work should use co-design workshops, accompanied walkthroughs, route tests, prototype labels, tactile and digital usability trials, and structured accessibility audits. Evaluation should examine physical reach, route errors, rest opportunities, perceived safety, participation diversity, learning outcomes, recognition of women as knowledge producers, thermal and sensory comfort, and repeat attendance [9,22,23].

4. Conclusion

The Colliq Pujie Museum Complex is proposed as an inclusive heritage-learning environment rather than an enlarged repository. The selected 1.79-ha site preserves continuity with the existing museum while providing capacity for a 9,502-m² program that combines exhibitions with workshops, education, research, performance, reflection, and public amenities. Distributed massing, a central commons, separated vehicle and service movement, connected pedestrian routes, and mixed-mode environmental zoning organize the complex as a cultural and civic landscape.

Feminist architecture is operationalized through performance, not symbolism. Human-scaled and shaded transitions support embodied experience; connected commons reduce unnecessary hierarchy; ramps, lift access, accessible seating, and legible routes support independent use; passive visibility strengthens orientation and perceived safety; and the interpretive sequence presents Colliq Pujie as a writer, teacher, and custodian of Bugis knowledge. The design therefore connects representational justice with spatial justice.

Feminist architecture is operationalized through performance, not symbolism. Human-scaled and shaded transitions support embodied experience; connected commons reduce unnecessary hierarchy; ramps, lift access, accessible seating, and legible routes support independent use; passive visibility strengthens orientation and perceived safety; and the interpretive sequence presents Colliq Pujie as a writer, teacher, and custodian of Bugis knowledge. The design therefore connects representational justice with spatial justice.

Declaration of generative AI and AI-assisted technologies in the manuscript preparation process

During the preparation of this manuscript, the authors used OpenAI ChatGPT to assist with language editing, grammatical refinement, organizational consistency, and editorial review. The authors subsequently reviewed and revised all AI-assisted content and take full responsibility for the accuracy, integrity, and final content of the manuscript.

CRedit authorship contribution statement

Muh. Alfin: Conceptualization, Methodology, Investigation, Formal analysis, Visualization, Writing – original draft. Ashari Abdullah: Supervision, Validation, Writing – review & editing. Citra Amalia Amal: Supervision, Validation, Writing – review & editing. Nurhikmah Paddiyatu: Supervision, Validation, Writing – review & editing. Sahabuddin Latif: Supervisi, Validasi. Andi Yusri: Supervisi, Administrasi proyek.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this manuscript.

Data availability

The data supporting the findings of this study consist of architectural design documents, site observations, room schedules, spatial-program calculations, diagrams, plans, and design visualizations generated and compiled during the study. These materials are available from the corresponding author upon reasonable request.

References

- [1.] Bayram AKŞ, Özgüven Y, Memişoğlu FI, Ertürk DZ. Grading the level of inclusiveness in museum buildings: Istanbul Modern Museum. *International Journal of the Inclusive Museum*. 2022;16(1):17–30.
- [2.] Llewellyn KR, Davies M, Johnson C. Going public with women's history education: Feminist museum design and youth historical consciousness. In: Brunet MH, Llewellyn KR, Fine-Meyer R, editors. *Women, gender, and history education: Perspectives from Ontario and Quebec*. Palgrave Macmillan; 2024. p. 149–71.
- [3.] Peraturan Presiden Republik Indonesia Nomor 12 Tahun 2021 tentang Perubahan atas Peraturan Presiden Nomor 16 Tahun 2018 tentang Pengadaan Barang/Jasa Pemerintah, (2021).
- [4.] Ilyas HF, editor *The Bugis–Makassar women imagery in the lontaraq manuscripts*. Proceedings of the 2nd International Seminar on Translation Studies, Applied Linguistics, Literature and Cultural Studies; 2021.
- [5.] Anggara RA, Salam S, Sultan S. Nilai pendidikan karakter dalam kisah Colliq Pujie. *Titik Dua: Jurnal Pembelajaran Bahasa dan Sastra Indonesia*. 2023;3(1).
- [6.] Suaib M, Syarif M, Paddiyatu N, Rohana, Yusri A, Latif S. *Arsitektur sebagai katalis budaya: Desain eco-cultural untuk pusat warisan Bugis-Makassar*. *Journal of Green Complex Engineering*. 2025;3(1):41–50.
- [7.] Xu Z, Huang X, Li X, Duan C. Interaction between gender and space: A study on the genealogy of feminist architecture. *Buildings*. 2024;14(11):3658.
- [8.] Ai L, Phaholthep C. Evaluating older adults' engagement with digital interpretation exhibits in museums: A universal design-based approach. *Heritage*. 2025;8(6):229.
- [9.] Bianco ND, D'Angelo I, Caldarelli A, Shogren KA, Giaconi C. Co-designing inclusive museums with people with intellectual disabilities: A pilot study in immersive virtual environments. *International Journal of the Inclusive Museum*. 2025;18(1):63–81.
- [10.] Carruba MC, Siri A. A UDL–ICF framework for inclusive artificial intelligence in cultural heritage: Exploratory insights from an Erasmus+ blended intensive programme. *Heritage*. 2026;9(7):268.
- [11.] Molek J, Vela RC, Olcese G, Siri A. Accessibility as a shared cultural responsibility: The Entre Luces project at the Pablo Gargallo Museum. *Heritage*. 2025;8(11):475.
- [12.] Cesário V, Campos P. The Integrated Museum Engagement Model (IMEM): Bridging participatory design, immersive storytelling, and digital representation for enhanced museum experiences. *International Journal of the Inclusive Museum*. 2024;17(1):63–81.
- [13.] Chai-Arayalert S, Puttinaovarat S, Saetang W. Phygital experience platform for textile exhibitions in small local museums. *Heritage*. 2025;8(1):35.
- [14.] Ilmiansah M, Latif S, Paddiyatu N, Amal CA, Amin SFA, Idrus I. *Arsitektur tropis berkelanjutan untuk infrastruktur olahraga: Desain yang tanggap iklim untuk pusat pelatihan bulu tangkis di Polewali Mandar*. *Journal of Green Complex Engineering*. 2025;2(2):55–60.
- [15.] Yodsurang P, Wiyati W. Cultural heritage interpretation of old home and historic house in the old town of Nakhon Lampang. *Journal of Architectural/Planning Research and Studies*. 2022;19(2):35–54.
- [16.] Juhari LH, Idrus I, Latif S. Integrasi alam dan spiritualitas: Desain pesantren inklusif berbasis biofilik untuk santri—Studi kasus di Kabupaten Wajo, Indonesia. *Journal of Green Complex Engineering*. 2026;3(2):59–66.
- [17.] Economou M, Young H, Sosnowska E. Digital storytelling for emotional engagement in museums: Design and evaluation of the Hunterian Antonine Wall EMOTIVE experiences. *International Journal of Heritage Studies*. 2026;32(3):324–55.
- [18.] Alimin NN, Triatmodjo S. The amalgamation style of Rumah Gadang in architecture and interior of Istano Basa Pagaruyung in Batusangkar, Indonesia: Iconography–iconology analysis. *Cogent Arts & Humanities*. 2025;12(1):2442165.
- [19.] Gokmen PA. Contextualizing a Neolithic artifact: Different representations of the Seated Woman of Çatalhöyük in exhibitions. *International Journal of the Inclusive Museum*. 2025;19(1):53–75.
- [20.] Hayajneh H, Cesaro G. The UNESCO contribution to safeguarding and preserving Jordan's cultural heritage. *Jordan Journal for History and Archaeology*. 2022;16(3):387–406.
- [21.] Pasina I, Corti E. Preserving culture, fostering community engagement and sustaining the heritage ecosystem: A case study of Al Jazeera Al Hamra heritage village. *Journal of Cultural Heritage Management and Sustainable Development*. 2026.
- [22.] Marfoglia A, Santilli T, Generosi A, Mengoni M, Giaconi C, Ceccacci S. Co-designing a virtual museum application with a haptic interface involving people with vision impairments and blindness. *International Journal of the Inclusive Museum*. 2025;18(2):201–30.
- [23.] Perry S, Foxton K, Gargett K, Northall L. Centring audiences: What is the value of audience mapping for influencing public engagement with cultural heritage? *The Historic Environment: Policy & Practice*. 2024;15(2):248–72.

