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A TYPOLOGICAL DESIGN METHODOLOGY FOR AN INTERNATIONAL UNIVERSITY CAMPUS IN KATHMANDU

TYPOLOGICZNA METODOLOGIA PROJEKTOWANIA MIĘDZYNARODOWEGO KAMPUSU UNIWERSYTECKIEGO W KATMANDU

Abstract

The paper investigates how the experience of Kathmandu's historic urban fabric informs the design of a contemporary International University Campus. Through a research-by-design approach that combines observation, analytical drawing, and typological interpretation, the study demonstrates how urban experience can be transformed into architectural knowledge, thereby generating a campus that reinterprets local spatial structures while responding to contemporary educational needs.

Keywords: *architecture and experience, Kathmandu, research-by-design, university campus, urban typology*

Streszczenie

Artykuł analizuje, w jaki sposób doświadczenie historycznej tkanki miejskiej Katmandu wpływa na projekt współczesnego Międzynarodowego Kampusu Uniwersyteckiego. Wykorzystując projektowanie jako metodę badawczą (ang. *research by design*), łączące obserwację, rysunek analityczny i interpretację typologiczną, badanie pokazuje, w jaki sposób doświadczenie miasta może zostać przekształcone w wiedzę architektoniczną. Wiedza ta staje się podstawą projektu kampusu, który na nowo interpretuje lokalne struktury przestrzenne, odpowiadając jednocześnie na współczesne potrzeby edukacyjne.

Słowa kluczowe: *architektura i doświadczenie, kampus uniwersytecki, Katmandu, research by design, typologia urbanistyczna*

1. INTRODUCTION

Architecture is first encountered through experience before it is represented in drawings or codified as theory: architects observe before they design and interpret before they compose. This is particularly true of historic cities, whose accumulated urban development reveals coherent relationships between public space, architecture and collective life – an epistemic act through which architects recognise the spatial principles that generated their form. Kathmandu offers an exceptional context for this investigation: the historic city developed

through the gradual aggregation of urban types whose organisational logic continues to shape everyday life. Durbar Squares, neighbourhood courtyards (*bahal* and *bahi*), pedestrian streets and compact urban blocks operate not as isolated elements but as interconnected spatial systems structuring the experience of the city, with continuous transitions between compression and openness, monumentality and intimacy, movement and pause, revealing an urban order that cannot be understood through cartographic representation alone but requires direct observation and interpretative reading.[1] Within architectural theory, typology has long been the instrument for transforming such experiences into knowledge: for Muratori, the city expresses continuous typological evolution; for Caniggia and Maffei, types evolve through transformation rather than imitation; for Rossi, the city manifests collective memory; for Grassi, types retain rational permanence; and for Petruccioli, traditional fabrics are repositories of operative knowledge rather than artefacts to reproduce.[2] Together, these contributions establish typology as a bridge between the experience of the historical city and new design. This paper develops that position through an International University Campus designed within the Design Studio at the German University in Cairo, where the process began not with the functional programme but with the direct experience of Kathmandu: through field observation, drawing, typological analysis and interpretation, students investigated the spatial intelligence embedded within the city's structure before developing proposals. Urban typologies are interpreted here not as formal precedents but as enduring spatial structures through which architectural experience can be understood and transformed into contemporary design. The proposed campus therefore represents more than a new institution: it reinterprets Kathmandu's urban space to create an academic environment continuous with the city's historical identity while addressing contemporary needs – architecture as the continuation, not the reproduction, of the city's accumulated experience.

2. EXPERIENCING KATHMANDU THROUGH URBAN TYPOLOGIES

Kathmandu cannot be understood solely through maps or the visual analysis of its monuments; its character is revealed through movement and the gradual discovery of its interconnected spaces. Walking through the historic centre, narrow streets unexpectedly open into generous public squares, intimate courtyards emerge behind compact fronts, and religious monuments punctuate the fabric without interrupting its continuity, with architecture experienced not as isolated buildings but as a coherent system organising everyday life.[3] This distinguishes Kathmandu from cities shaped by vehicular infrastructure and zoning: its fabric developed through aggregation that privileged pedestrian movement and the human scale.

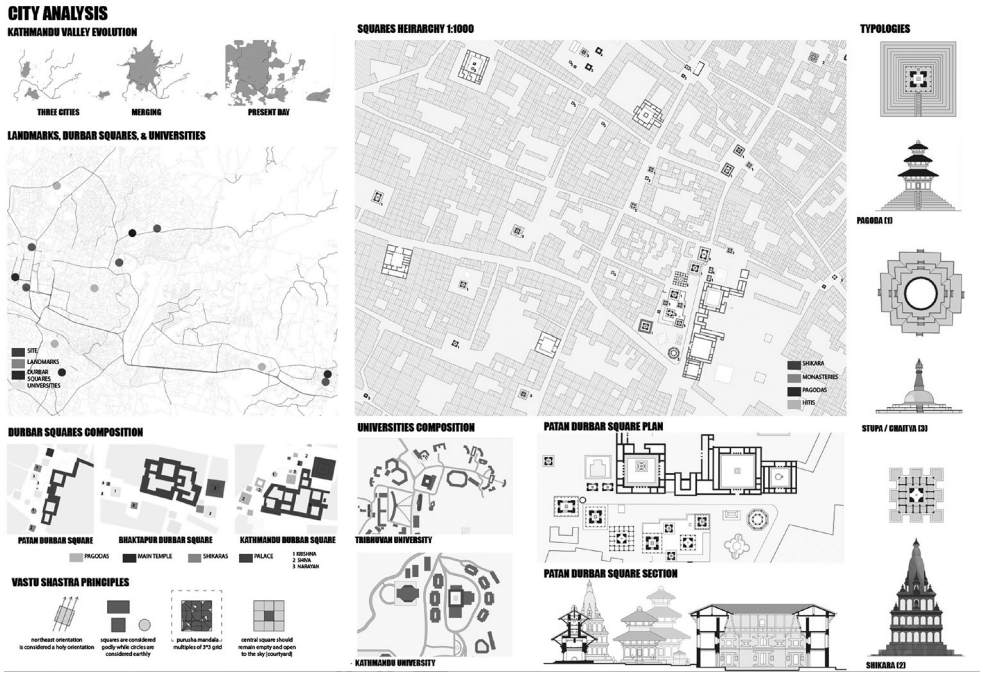
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[1] N. Gutschow, *Architecture of the Newars. A History of Building Typologies and Details in Nepal, 3 vols., Serindia*, Serindia Publications, Chicago 2011, pp. 21–56; S.R. Tiwari, *The Brick and the Bull: An Account of Handigaon, the Ancient Capital of Nepal*, Himal Books, Kathmandu 2010, pp. 33–74.

[2] A. Rossi, *The Architecture of the City*, MIT Press, Cambridge, MA 1982, pp. 40–61; G. Caniggia, G.L. Maffei, *Architectural Composition and Building Typology*, Alinea Editrice, Fierenze 2001, pp. 15–38; G. Grassi, *La costruzione logica dell'architettura*, Electa, Milano 1983, pp. 45–63; A. Petruccioli, *After Amnesia: Learning from the Islamic Mediterranean Urban Fabric*, ICAR, Bari 2007, pp. 9–28.

[3] N. Gutschow, *op. cit*., pp. 21–58.

The city unfolds through discovery rather than immediate visual control; orientation comes less from monumental axes than from recurring situations grown familiar through repeated experience. Kathmandu's identity thus resides as much in moving through the city as in its physical morphology.[4]



Ill. 1. The historic centre of Kathmandu shows the principal urban typologies. Source: Merna Ashraf, Dima Mohammed, 2025 (student group, Design Studio VII, Summer Semester, academic year 2025/2026)

Among these recurring situations, the Durbar Square is the most significant urban type: traditionally tied to royal authority and religious life, it functions as a civic centre, ceremonial space and place of everyday encounter, its significance lying in the relationships between open space, surrounding buildings and public life rather than in its perimeter monuments. Entering a Durbar Square produces a sudden expansion of space after the compression of surrounding streets, a sequence of arrival and visual openness that reinforces orientation and collective identity, making the square principal civic reference point of the city.[5] If the Durbar Square represents Kathmandu's collective scale, the *bahal* and *bahi* embody its neighbourhood dimension: courtyards mediating between street life

[4] R.I. Levy, K.R. Rājopādhyāya, *Mesocosm: Hinduism and the Organisation of a Traditional Newar City in Nepal*, University of California Press, Berkeley 1990, pp. 109–154; S.R. Tiwari, *op. cit.*, pp. 45–81.

[5] W. Korn, *The Traditional Architecture of the Kathmandu Valley*, Ratna Pustak Bhandar, Kathmandu 1976, pp. 52–89; Nepal. Dept. of Housing, Building and Physical Planning, *Kathmandu Valley: The Preservation of Physical Environment and Cultural Heritage: A Protective Inventory*, C. Pruscha (coord. and prod.), 2 vols., Anton Schroll & Co., Vienna 1975, selected chapters.

and the domestic sphere, where social interaction, religious activity and everyday routines coexist. Their importance derives less from formal composition than from organising communal life through proportioned open spaces. Passing from the street into a *bahal* is a gradual transition from movement to permanence, from the public realm to neighbourhood intimacy, illustrating how typologies structure experience through spatial thresholds rather than physical barriers.[6] The pedestrian street is another fundamental component of this structure: rather than mere infrastructure, streets connect the city's diverse urban types, their narrow, changing alignments limiting visual fields to encourage progressive discovery. Small shrines, wells, and commercial activities enrich these routes, so the city is experienced as a series of interconnected episodes rather than a single panoramic composition.[7] This sequential organisation extends to the Newar urban block, whose compact morphology integrates residential, religious and productive activities within a coherent framework, buildings defining street and courtyard edges while contributing to environmental performance through shade and enclosure. The block's experience thus depends not on isolated façades but on the continuity linking architecture to collective open space.[8] Equally significant is the relationship between the city and the Kathmandu Valley's landscape: unlike modern expansions imposed through rigid planning, the historic settlement adapts continuously to the terrain, elevation changes creating new perspectives that reinforce orientation. Architecture and landscape thus appear complementary, reinforcing Kathmandu's strong sense of place.[9] These observations suggest that Kathmandu's experience emerges not from individual monuments but from enduring urban typologies that organise movement, encounter and collective life – with the city teaching architecture through spatial relationships rather than formal language, thereby revealing the principles underlying the methodology developed in the following chapters.

3. FROM EXPERIENCE TO DESIGN: A RESEARCH-BY-DESIGN METHODOLOGY

Architectural design is frequently presented as a linear process where analysis precedes design and culminates in a formal proposal – risking the mechanical application of analytical data. The methodology here proposes a different understanding: design as a continuous process in which experience, interpretation, and invention are complementary stages of a single epistemic process. Experience is therefore not the conclusion of architectural practice but its point of departure.[10] This research was developed within the Design Studio at the German University in Cairo, investigating how architectural knowledge could emerge from the critical interpretation of Kathmandu rather than from predetermined models.

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[6] N. Gutschow, U. Kölver, *Ordered Space: Concepts and Functions in a Town of Nepal*, Franz Steiner Verlag, Wiesbaden 1975, pp. 41–86.

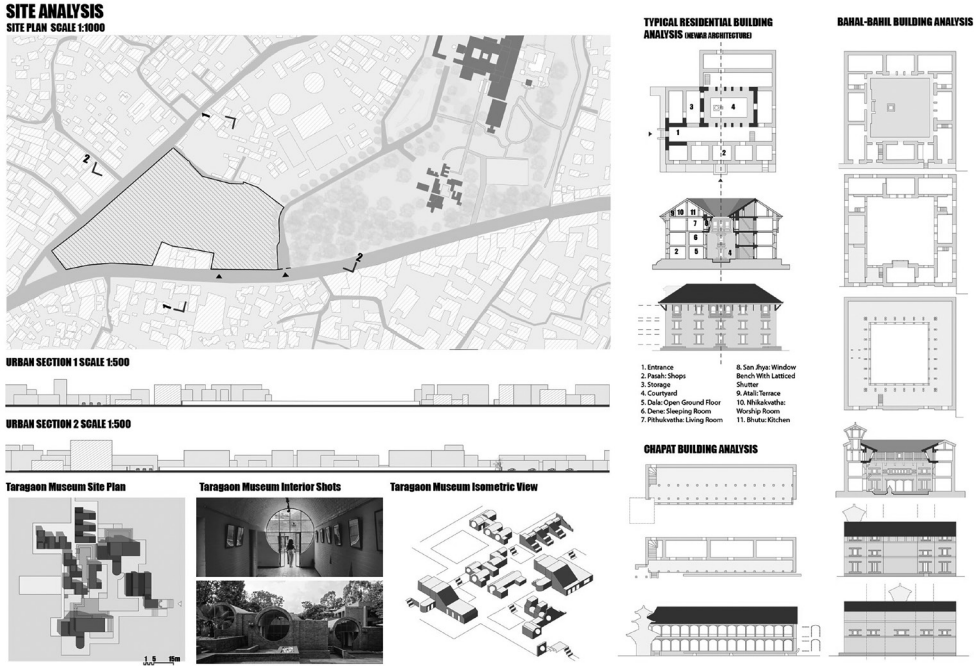
[7] N. Gutschow, *op. cit.*, pp. 94–136; D.N. Gellner, *Monk, Householder, and Tantric Priest: Newar Buddhism and Its Hierarchy of Ritual*, Cambridge University Press, Cambridge, MA 1992, pp. 87–112.

[8] S.R. Tiwari, *op. cit.*, pp. 91–126.

[9] C. Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*, Rizzoli, New York 1980, pp. 18–39; C. Pruscha, *op. cit.*, selected chapters.

[10] D.A. Schön, *The Reflective Practitioner: How Professionals Think in Action*, Basic Books, New York 1983, pp. 49–69.

Instead of beginning with the programme, students first understood the city through observation and interpretation; the project was generated by experience rather than abstract strategy. The first stage consisted of experiencing the city. Field visits and systematic observation enabled students to grasp Kathmandu's spatial structure beyond its historical description, recognising situations that cannot be understood through maps alone. Moving between streets, courtyards and squares gradually revealed the organisational logic of the Newar city, establishing the foundation for the analysis that followed.[11] The second stage transformed experience into analytical knowledge through drawing. Rather than a purely representational technique, drawing became the principal instrument of understanding: figure-ground studies, sections, circulation diagrams and typological analyses abstracted the city's complexity into coherent spatial relationships, distinguishing permanent structures from contingent forms. Students thus moved from observing buildings to recognising the typologies organising collective life within Kathmandu.[12]



Ill. 2. Research methodology: from experience to architectural design. Source: Merna Ashraf, Dima Mohammed, 2025 (student group, Design Studio VII, Summer Semester, academic year 2025/2026)

The third stage consisted of typological interpretation, aimed not at classifying buildings stylistically but at identifying the organisational principles embedded in Kathmandu's urban structure. Durbar Squares were interpreted as civic condensers; the *bahal* became the model for spaces of social interaction and learning; pedestrian streets, sequential systems organising

[11] N. Gutschow, *op. cit.*, pp. 21–94; S.R. Tiwari, *op. cit.*, pp. 33–91.
[12] G. Caniggia, G.L. Maffei, *op. cit.*, pp. 47–82.

movement and discovery; and the urban block, a strategy for integrating functions within coherent ensembles. Typology thus became a framework transforming experiential observations into principles rather than precedents.[13] The final stage translated these principles into the campus design, emerging as a synthesis rather than an autonomous act: instead of reproducing traditional Newar architecture, students reinterpreted Kathmandu's urban relationships. Public squares became gathering spaces; courtyards became learning environments; routes structured movement; and topography informed the masterplan. The resulting proposals demonstrate that continuity between historic city and contemporary architecture is achieved through reinterpretation rather than imitation.[14] The methodology also invites broader reflection on architectural education. Digital modelling and artificial intelligence have transformed architectural production and expanded formal exploration; yet these tools cannot replace the experience of place as the foundation of knowledge. Observation, drawing and typological interpretation remain indispensable, while digital tools support design rather than determining it. Experience, interpretation, and design are thus successive phases of a single process: experiencing the city reveals its order, interpretation transforms it into knowledge, and design translates that knowledge into new spatial configurations. The campus is presented not as the outcome of an exercise but as the expression of a process in which experience becomes invention.

4. TRANSFORMING URBAN EXPERIENCE INTO ARCHITECTURAL FORM

The International University Campus emerged from the conviction that educational architecture should be a continuation of the city's spatial experience rather than an autonomous object. Rather than reproducing Kathmandu's architectural language, the project reinterprets the experiential qualities of its urban typologies for a contemporary academic environment, emphasising spatial rather than stylistic continuity, with the campus transforming experiential knowledge from the historic city into configurations that accommodate present-day educational practices.[15] The design process consequently shifted attention from the individual building towards the urban environment: rather than isolated objects connected by circulation, the masterplan is a sequence of interconnected public spaces, learning environments and landscape systems generating academic life, adopting the logic of the historic city, where experience derives from the relationships among streets, squares, courtyards and neighbourhoods rather than individual monuments.

4.1. THE EXPERIENCE OF ARRIVAL

Every city possesses moments of arrival that establish orientation and construct spatial identity. In Kathmandu, this role is fulfilled by the Durbar Squares, whose generous civic spaces

[13] A. Rossi, *op. cit.*, pp. 40–61; A. Petruccioli, *op. cit.*, pp. 27–51.
[14] G. Grassi, *op. cit.*, pp. 55–78; R.P. Dober, *Campus Planning*, Reinhold Publishing Corporation, New York 1963, pp. 45–78.
[15] A. Rossi, *op. cit.*, pp. 40–61; A. Petruccioli, *op. cit.*, pp. 27–51.

emerge unexpectedly from the compact urban fabric and become points of reference for collective life. The campus reinterprets this sequence by replacing the traditional ceremonial square with a contemporary academic forum: visitors first encounter a generous public space serving as a place of orientation, gathering and intellectual exchange. The central square thus becomes the symbolic threshold between city and university, affirming its civic character rather than its separation from the surrounding context.[16]



Ill. 3. Master plan of the International University Campus. Source: Merna Ashraf, Dima Mohammed, 2025 (student group, Design Studio VII, Summer Semester, academic year 2025/2026)

4.2. LEARNING THROUGH THE COURTYARD

The bahal is one of Kathmandu's most enduring urban typologies, organising community life through the relationship between enclosed open space and surrounding buildings. Rather than reproducing its form, the project reinterprets this organisational principle: learning spaces are arranged around interconnected courtyards that provide daylight, natural ventilation, and opportunities for informal interaction, extending educational activity beyond the classroom and encouraging spontaneous encounters among students and staff. The courtyard thus becomes not simply an environmental device but the principal spatial framework organising the experience of collective learning.[17]

[16] R.I. Levy, *op. cit.*, pp. 183–229; W. Korn, *op. cit.*, pp. 81–106.
[17] N. Gutschow, U. Kölver, *op. cit.* pp. 63–92; N. Gutschow, *op. cit.*, pp. 95–132.



Ill. 4. Central academic square. Source: Merna Ashraf, Dima Mohammed, 2025 (student group, Design Studio VII, Summer Semester, academic year 2025/2026)

4.3. MOVEMENT AS SPATIAL EXPERIENCE

Movement across the campus follows the same sequential logic observed in Kathmandu's historic centre. Instead of wide vehicular avenues, the project prioritises pedestrian routes connecting successive public spaces through gradual changes in scale, enclosure and landscape, so the campus is experienced as a continuous sequence rather than a collection of independent buildings. Walking becomes an architectural act in which discovery, orientation and encounter are progressively constructed; academic life is understood not as isolated destinations but as a continuous urban experience generated through movement.[18]

4.4. ACADEMIC NEIGHBOURHOODS

Traditional Newar neighbourhoods combine domestic, religious and productive functions within compact urban units organised around collective open spaces. The campus adopts a comparable strategy, grouping faculties, research centres, student residences and communal facilities into interconnected academic clusters that each maintain their own identity while remaining integrated through shared public spaces and pedestrian connections, encouraging interdisciplinary interaction while preserving a human scale consistent with

[18] C. Norberg-Schulz, *op. cit.*, pp. 18–39.

the experiential qualities of the historic city, producing recognisable academic communities whose identity derives from their spatial relationships rather than anonymous institutional buildings.[19]

4.5. ARCHITECTURE AND LANDSCAPE

One of Kathmandu's most distinctive characteristics is the continuous dialogue between urban form and the surrounding valley, where variations in topography create shifting relationships among architecture, landscape and distant mountains. The masterplan adopts this approach by allowing buildings to follow the terrain rather than an abstract geometric order: public spaces become terraces overlooking the landscape, and environmental performance and spatial experience become inseparable. The landscape is understood not as residual space but as an active participant in academic life, contributing to comfort, orientation and identity.[20] The resulting campus demonstrates that the reinterpretation of urban typologies extends beyond questions of form: squares, courtyards, streets, and neighbourhoods become spatial devices that generate new experiences of learning and collective life, thereby establishing continuity with Kathmandu through reinterpreting its experiential structures rather than through stylistic imitation. Architecture thus continues the city by reinterpreting its experience.

5. ARCHITECTURE AS EXPERIENCE: TOWARDS A TYPOLOGICAL DESIGN METHODOLOGY

This research proposes that architectural experience should be understood not only as the consequence of design but also as its origin. Contemporary discourse generally associates experience with the perception of completed buildings, yet often overlooks its role during the design process itself. The Kathmandu campus suggests an alternative: experiencing the city as the first stage of architectural knowledge and the foundation of design.[21] This shift matters for urban typology. Traditionally an instrument for classifying historical settlements, typology takes on a different significance when rooted in direct spatial experience, as this research in Kathmandu demonstrates. The Durbar Square, the *bahal*, the pedestrian street and the Newar neighbourhood are approached not as models to reproduce but as experiential structures that organise movement, encounter and collective life; their value lies in the relationships they establish among people, space and the city. Typology thus becomes an operative framework transforming experience into architectural knowledge.[22] This also contributes to the debate on campus design. Many recent developments adopt planning models derived from functional efficiency, producing campuses detached from the surrounding city, with buildings becoming autonomous rather than encouraging collective life. By contrast, the Kathmandu project conceives the university as a civic institution

[19] D.N. Gellner, *op. cit.*, pp. 101–135.
[20] S.R. Tiwari, *op. cit.*, pp. 147–183; R.P. Dober, *op. cit.*, pp. 85–114.
[21] J. Pallasmaa, *The Eyes of the Skin: Architecture and the Senses* (3rd ed.), Wiley, Chichester 2012, pp. 9–28; C. Norberg-Schulz, *op. cit.*, pp. 5–24.
[22] A. Rossi, *op. cit.*, pp. 40–61; G. Caniggia, G.L. Maffei, *op. cit.*, pp. 93–118; A. Petruccioli, *op. cit.*, pp. 27–51.

embedded within the urban structure, where learning extends beyond classrooms into streets, courtyards and landscape, and academic life depends as much on public space as on individual buildings.[23] This methodology also suggests an alternative approach to architectural education. Digital technologies have transformed architectural representation, yet cannot replace the critical interpretation of place: observation, drawing and typological analysis remain indispensable, while technology supports reasoning rather than replacing the experiential encounter with the city. The Design Studio demonstrated that analytical drawing actively constructs understanding by revealing the spatial principles embedded within the built environment.[24] This concept of experience extends beyond sensory perception into an epistemic process through which architecture is investigated and transformed into design, resonating with the typomorphological tradition of Muratori, Caniggia and Rossi: architectural continuity emerges through reinterpreting enduring spatial relationships rather than opposing tradition and modernity. The campus thus represents an experimental demonstration of how a historic city's experience can generate a contemporary project without formal imitation, with squares becoming academic forums, courtyards learning environments, and streets spaces of encounter, confirming that innovation comes from reinterpreting rather than abandoning historical structures. This methodology may be transferred beyond Kathmandu: every historic city possesses its own spatial experiences; a project can begin with the interpretation of those structures rather than abstract composition, architectural experience thus becoming both the origin of knowledge and the medium of continuity with the historical city.

6. CONCLUSIONS

This research has investigated how the experience of a historic city can serve as the foundation for contemporary architectural design through the reinterpretation of its urban typologies. Using the International University Campus in Kathmandu as a case study, the paper has argued that design should begin not with abstract compositional principles or predetermined functional models but with the critical experience of place: observation, movement, drawing and typological interpretation are the successive stages through which experiential knowledge becomes architectural form. Kathmandu's urban identity resides not in the preservation of individual monuments but in the continuity of spatial relationships that organise collective life – Durbar Squares, courtyards, pedestrian streets and urban blocks operate as interconnected typologies that structure orientation, encounter and social interaction, their value lying less in formal characteristics than in their capacity to generate meaningful spatial experiences. The historical city should therefore be understood not as a catalogue of forms but as a repository of spatial knowledge relevant to contemporary practice. The proposed campus demonstrates that these structures can be critically reinterpreted without formal imitation, translating Kathmandu's spatial intelligence into an educational environment in which public spaces, courtyards, pedestrian networks, and landscape become the principal generators of academic life, thereby establishing continuity with the historic city by reinterpreting rather than replicating its

[23] R.P. Dober, *op. cit.*, pp. 65–114.
[24] D.A. Schön, *op. cit.*, pp. 49–69.

architectural language. Beyond Kathmandu, the research proposes a broader methodological contribution: architectural experience should be recognised as an epistemic process through which architects acquire the knowledge needed to reinterpret a city's spatial logic, urban typologies becoming operative instruments mediating between the experience of place and the production of architecture – an alternative to methodologies relying exclusively on functional or formal criteria, reaffirming direct engagement with the cultural and spatial realities of the urban environment. In this sense, the paper contributes to the debate on Architecture and Experience by proposing that experience is not only the outcome of architecture but also its origin: knowledge emerges through encounters with the city. At the same time, design transforms that experience into new spatial configurations. The International University Campus should therefore be understood not as an academic institution but as a contemporary urban fragment generated through the reinterpretation of Kathmandu's experiential and typological structure – designing within historic cities requires architects to understand how they are experienced and continuously reinterpreted, not merely to analyse their physical form.

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