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REINVIGORATING CULTURAL MEANING THROUGH SPATIAL EXPERIENCE: A TRIADIC MODEL FOR PLACE-BASED ARCHITECTURAL LEARNING

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ABSTRACT

Historical cultural environments are a repository of values and symbols that pass down across generations through spatial experiences. Despite their intellectual and cultural potential, their role in fostering belonging and identity has declined; they are often viewed as silent landmarks, isolated from lived experiences. This highlights the need for an integrated model that makes spatial experience a stimulating process for reinvigorating the meaning inherent in historical contexts and reconnecting the new generation with their cultural roots. This research aims to explore how cultural meaning in historical contexts can be reactivated through spatial experience. To achieve this, the study proposes a triadic model – physical encounter (PE), emotional connection (EC), and imaginative projection (IP) – as a framework. The study adopted a qualitative approach that explores a learning experience consisting of two interactive phases, one within a historical and cultural context, preceded by a formal educational environment, to track the transformations of the interpretive patterns. Students from the Department of Architecture are involved in this process, producing visual storytelling outputs analyzed by 'MAXQDA Analytics Pro'. The results indicate that spatial experience enhanced spatial awareness and deepened their emotional response by transforming sensory impressions into symbolic meanings. Comparative pre-post analysis showed that after the on-site immersion, more spatial awareness (SA), atmospheric response (AR), symbolic meaning (SM), and transformative visualization (TV) became intensified, indicating more intense experience. Emotional Connection was a mediating dimension between embodied perception and imaginative reinterpretation, and transition of learning was realized through a multidimensional and not a linear process. Imagination contributed as a dynamic dimension, shifting towards context-rooted visualization. The research provides an interpretive framework that demonstrates how spatial experience can be transformed into a means of reinvigorating cultural meaning and enhancing awareness of identity. The triadic model represents an effective tool in education and training.

Keywords: spatial experience, cultural meaning, place-based learning, architectural sketching, Al-Madrasah Al-Mustansiriya, MAXQDA analysis

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INTRODUCTION

Architecture is not just an entity that can be seen; it is also a place where our senses, emotions, and imaginations come together to create meanings. Thereby, spatial experience is an essential way of understanding architecture, offering a deeper perception than its physical or visual appearance (Kastenholz et al., 2020; Pallasmaa, 2024; Saxena & Sehgal, 2024). Recent research has shown that theoretical models or physical observation alone aren't sufficient to improve spatial awareness. However, through a combination of physical presence, multisensory interaction, and emotive engagement, architecture integrates the brain, memory, and social interaction and thus assists perceptual and cognitive understanding of the built environment (Banaei et al., 2017; Baradaran Rahimi et al., 2018; Gregorians et al., 2026; Lee, 2022; Presti et al., 2023; Spence, 2020).

In historical cores of cities, context holds a special significance. It is perceived not only in its architectural characteristics but also in its cultural and social dimension and for what it is as a repository for individuals' memory and identity (Hamza et al., 2021; Mohammad-Moradi et al., 2020; Navickienė, 2020). However, such contexts are often introduced as lifeless settings, incapable of expression, and separated from lived experience. They are perceived as abstract entities without an awareness attitude toward them. This narrow view restricts their educational and cultural potential and stops them from being able to contribute to the development of a sense of belonging and to expanding symbolic meaning (Bo & Abdul Rani, 2025; Wong, 2024). Recent studies have highlighted the fact that historical sites take their significance from embodied experience and the imaginative richness of individual and collective engagement rather than from physical reconstruction (Liang et al., 2023; Savoie et al., 2025).

Previous research has investigated different aspects of spatial experience, such as sensory perception, emotional connection, and symbolic representation. However, an understanding of how these dimensions are interrelated as an integral and interdependent process and as well as an element in education, has been relatively rarely considered in the literature. This gap underlines the necessity for further inquiry into spatial experience as an enriched process able to accomplish reconstructions of relationships between new generations and cultural meanings inherent in historical contexts. This study addresses this gap by proposing a three-phase model of spatial experience – *physical encounter (PE), emotional connection (EC), and imaginative projection (IP)* – to explore the potential for reinvigorating the cultural meaning via spatial experience.

LITERATURE REVIEW

There is an increasing awareness of the importance of analyzing the ways in which learners engage with place in architectural education, particularly in relation to historical awareness. Contemporary research highlights the limitations of approaches that rely solely upon visual observation or abstract modes of reasoning and underpins pedagogies that are rooted in embodied, affective, and interpretative modes of experience (Salama, 2015). From this perspective, place-based learning (PBL) provides an integrated foundation. Sobel (2005) underscores that meaningful knowledge emerges through learners' tangible engagement with their immediate surroundings, where sensory and emotional awareness play central roles. His method aligns well with Kolb's (1984) experiential learning theory, which proposes that learning is a cyclic process that requires an individual to distill their direct experience into a deeper, reflective conceptual level. Similarly, Vygotsky's (1978) sociocultural theory emphasizes socially mediated interactions in real-life situations as an essential part of the internalization of new knowledge.

Place-based learning is a form of pedagogy whose outcomes arise from the integrated spatial experience. When it is used in relevant contexts, this method of learning extends beyond the acquisition of knowledge to include cultural awareness. While Huang and Chang (2017) show how historic towns can change students' sense of place, Waite (2013) demonstrates

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how cultural contexts shape learners' relationships to place. Kurpis and Hunter (2017) emphasize how empathy and cultural intelligence are developed via experiential engagement in local contexts. Working in historic sites improves design sensitivity and fortifies students' cultural awareness, particularly in architectural education (Montgomery, 2020; Özeren & Özeren, 2025; Yeler, 2020). All together, these studies state that place-based learning provides architecture students a comprehensive spatial experience that strengthens their relationship to their cultural heritage and reinvigorates cultural meaning.

This review explores three interconnected conceptual directions: the sensorial foundations of place-based learning, the experiential attachment of place, and the imaginative representation of spatial experience. This study views these aspects as overlapping components within a holistic framework for comprehending how learners perceive, engage with, and reinterpret culturally meaningful surroundings. The three aspects provide the framework for recognizing a gap in the literature and proposing a comprehensive learning paradigm.

Sensorial foundations of place-based learning

Approaches that prioritize immersive spatial experience and bodily engagement have replaced abstract, theory-driven models in architectural learning (Banaei et al., 2017; Salama, 2015). This change in education is a result of a growing realization that places are lived environments with sensory, cognitive, and emotional components rather than just visual constructs to be examined (Presti et al., 2023). Therefore, it is commonly accepted that first-hand experience with the place is crucial for developing spatial awareness (Montgomery, 2020).

Central to this discourse is the distinction between abstract space and meaningful place. Tuan (1977) describes space as undefined openness, whereas place embodies familiarity, rootedness, and identity. Norberg-Schulz (1980) pushes this thought further, thinking of inhabitation as being part of a place, defined by a sensorial experience of materiality, texture, light, and form. This state of being is understood through embodied presence rather than detached observation. Pallasmaa (2024) reinforces this embodied perspective, asserting that architectural experience arises from multi-sensory perception. He characterizes space as something we come to know through our ears, skin, muscles, and entire bodily awareness. Architecture, in this sense, becomes a field of resonance that extends beyond sight into the domains of sound, temperature, and tactile feedback. Andersen (2024) contributes to this discourse by proposing that meaningful spatial engagement occurs through immersive situations in which cognitive and emotional responses are triggered through physical interaction with the environment. These viewpoints agree that embodied, *multisensory engagement* – instead of abstraction – is how space acquires meaning.

Beyond immediate sensory input, *spatial understanding* also involves an awareness of structure, proportion, boundary, and material presence. Norberg-Schulz's (1980) notion of environmental character suggests that form and substance shape perception and identity. Lewicka (2011) adds that repeated exposure to a place builds spatial familiarity through memory, perception, and behavior. In support of this, Manzo (2005) points out that meaning is created through lived interaction over time rather than just shape. These theoretical insights are corroborated by empirical local work from Al-Alwan et al. (2022), whose study of architectural form and layout demonstrates how environmental structure affects human cognition and perception in significant ways. Similarly, empirical research in Baghdad indicates that openness and transparency in learning environments enhance attention and discussion, whereas restricted and inflexible conditions tend to reduce involvement (Al-Muqaram et al., 2017). Collectively, these aspects emphasize that spatial features are not passive conditions but active variables that influence multisensory perception and spatial awareness. This embodied comprehension is further enhanced by *movement*. According to Seamon (1977), place is enacted through bodily routines like

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walking and self-orientation. He asserts that "synergistic relationality," defined as the continuous interplay of individuals, environment, and experience, provides a framework for understanding place compared to analytical relationality, as noted in Larsen's (2020) review of Gieseking (2013), similarly, shows that movement and navigation led to the improvement of spatial memory and mapping, particularly when individuals create mental images of space through wayfinding. The integration of *multisensory perception* (seeing, touching, hearing, smelling), awareness of *spatial form and structure*, and the *bodily navigation* of architectural space are all included in this dimension, which corresponds to the first stage of the proposed triadic model *(Physical Encounter – PE)*. The following section shows the influence of emotions on the change of sensory perception.

Experiential attachment to place

The depth of spatial experience is elevated when individuals create strong emotional ties with their environments. In this way, memory, identity, and symbolic relations manifest in the internalization of places, in constant transcendence of the superficiality of immediate perception (Lewicka, 2011). Rooted in environmental psychology, this perspective posits that space gains its meaning over time through lived experiences, emotional engagement, and reinterpretations, rather than solely through physical occupancy (Manzo, 2005). Phenomenological approaches regard place as a lived whole created not only by its physical characteristics but also by the existential and emotional responses such a place evokes. Schulz adds that the material phenomenology of place – its substance, texture, and form – constitutive of a specific spatial identity and gets inscribed in one's personal and cultural memory (Norberg-Schulz, 1980).

One of the earliest ways individuals relate to place is through the *atmosphere* of the environment – the subtle, sensory-based impression created by light, sound, material, and spatial configuration. These environmental cues influence emotional tone, producing feelings such as calm, tension, intimacy, or discomfort. Pallasmaa (2024) argues that such atmospheres are absorbed not just visually, but through embodied awareness, establishing an immediate emotional frame of reference. Thampanichwat et al. (2025) highlight that architectural atmospheres promote mindfulness by improving awareness, attention, and emotional engagement. Manzo (2005) reinforces this by noting that emotional reactions are frequently shaped by the affective tone of the environment itself, setting the stage for deeper attachment.

As individuals repeatedly interact with a place, this initial response can evolve into *a sense of belonging*. This form of connection is multifaceted, involving psychological comfort, cultural identity, and social integration. Scannell and Gifford (2010) conceptualize this as an interplay between personal identity, physical environment, and the lived experience of place over time. Lewicka (2011) supports this dynamic view, emphasizing that repeated engagement through routines and meaningful experiences helps anchor individuals in place, both cognitively and emotionally. Seamon (1977), by contrast, warns of the risks of homogenized environments, arguing that the loss of unique spatial identity undermines the possibility of forming such meaningful bonds.

At its most developed level, attachment manifests in *symbolic meaning*, where a place comes to represent personal narratives, collective histories, or emotional milestones. In this transformation, architecture no longer serves only a functional or aesthetic role – it becomes a repository for memory, imagination, and ritual significance (Pallasmaa, 2024). Manzo (2005) believes that locations gain symbolic meaning through experiential engagement – not due to inherent attributes, but because they symbolize values, identities, or stories about the past. The local research supports this perspective, demonstrating that the memory of the place and its sensory attributes evoke emotional responses that influence perception and enhance collective attachment to that place (Aljbury & Al-Maamourihory, 2020; Fadhil & Al-Slik, 2022).

This pathway – from environmental *atmosphere* to *belonging*, and finally to *symbolic meaning* – represents a synthesized structure drawn from multiple disci-

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plinary insights. While no single framework presents these stages as a unified sequence, they emerge consistently across the work of scholars such as Manzo, Lewicka, Scannell and Gifford, and Pallasmaa, whose contributions reveal the layered ways in which *emotional relationships* with place are cultivated over time. This dimension corresponds to the second stage of the proposed triadic model (*Emotional Connection – EC*), which creates the foundation for comprehending how imagination reconfigures spatial significance.

Imaginative representation of spatial experience

Imagination holds a central position in shaping how individuals interpret and emotionally engage with spatial environments. In architectural education, it functions not only as a creative act but also as a reflective and cultural process that enables learners to move beyond surface-level observation and project new meanings onto place (Greene, 2000; Thayer-Bacon, 2010). The literature situates imagination as a vital tool for exploring symbolic, narrative, and affective dimensions of space – often mediated through sketch and visual representation (Gieseking, 2013; Rose, 2016). More recently, Sioli et al. (2021) shows how students' engagement with local, social, and historical aspects of place can be enhanced by fostering spatial imagination in architectural education through classes that blend analysis and creative reinterpretation.

Maxine Greene (2000) frames imagination as the ability to view reality as open to possibility. She emphasizes that imaginative engagement disrupts passive perception and opens avenues for uncovering hidden meanings, allowing learners to encounter familiar settings in unfamiliar ways. Rather than being relegated to fantasy, imagination – in her view – constitutes a perceptual awakening; in other words, it becomes a source of "wideawakeness" that invites reinterpretation and empathy. Thayer-Bacon (2010) posits imagination as an ethical and critical driver for learning, inherently connected to epistemological openness. This perspective encourages the questioning, reframing, and reimagining of spatial and cultural contexts, reflected through narrative reconstruction, symbolic exploration, and visual composition.

A prominent theme in the literature is the generative capacity of *creative invention*. Goldschmidt's (2003) concept of "backtalk" captures how the act of sketching prompts an evolving dialogue between the learners and their own ideas, often giving rise to unanticipated spatial configurations. Gieseking's (2013) work on mental sketch maps complements this, showing how visual representations blend memory, perception, and imagined possibilities. In this context, learner sketches with imagined elements demonstrate how their mind actively redefines a place. Ingold (2011) also redefines drawing not as a representational object but as thinking with movement where perception is developed through movement in the very act of tracing lines. In that sense, drawing becomes a physical form of exploration as opposed to a static visual representation, which supports the interpretative and experiential aspects of spatial learning.

Another key conceptual thread relates to *narrative composition*. Rose (2016) highlights how visual description enables learners to construct spatial understanding as a journey or sequence of experiences rather than as a static form, and Thayer-Bacon (2010) emphasizes storytelling as a transformative cognitive practice. Fareed and Amer (2025) show that the sketches made by participants, whether they were detailed or symbolic representations, show how imaginative visual representation can bring back lost heritage and encourage deeper cultural engagement. In architectural sketching, this may convey movement, changing perspectives, and layered scenes, illustrating a dynamic and evolving narrative of a place.

The literature also emphasizes the *transformational* power of imagination, whereby symbolic coding, metaphor, or visual abstraction reinterpret spatial meaning. Pallasmaa (2024) underscores that architectural understanding emerges through multisensory and poetic immersion, while Manzo (2005) emphasizes the interplay of memory and emotion in shaping place-based meaning. Fakhrulddin et al.

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(2023) further illustrate how cultural narratives, such as folktales, reimagine urban space through symbolic resonance, reinforcing collective identity. In the context of a learner's sketch, these transformative strategies appear in stylized forms, cultural motifs, and expressive visual languages that reshape the place as a personal and emotional landscape.

Collectively, these insights define *imagination* as a dynamic and interpretive potential that enables learners to engage space not merely as it is, but as it might become. By employing visual media – especially sketching – as a method of reinterpretation, learners articulate new layers of meaning that move beyond physical form into symbolic and cultural expression. This dimension corresponds to the third stage of the proposed triadic model (*Imaginative Projection – IP*).

Taken together, these strands indicate that a more integrative framework is required to be able to explain how the perceptual, emotional, and imaginative levels should work together as a unified learning process. In line with this, the current research analyzes this integrative structure in a heritage-based learning environment, which follows the unfolding and interaction of these three aspects in consecutive stages of student involvement. This operationalisation makes the conceptual frame to be tested as not just a theoretical suggestion, but as a model of interpretation, based on empirical analysis.

RESEARCH GAP AND CONTRIBUTION

While numerous studies have explored the role of sensory perception, emotional attachment, and imaginative engagement in architectural education, most have done so in isolation. Table 1 presents a three-dimensional model of the above-mentioned aspects raised by the current research as *physical encounter (PE), emotional connection (EC), and imaginative projection (IP)*, respectively. Research in this area has typically focused on discrete dimensions – whether emphasizing the value of experiential immersion, the affective qualities of place, or the cognitive potential of drawing and reinterpretation – without fully examining how these elements operate as an integrated process in heritage learning contexts.

Table 1. Previous Studies According to the Three-Dimensional Model

Model Phase	Core Indicator	Supporting Scholars/ Sources
Physical Encounter PE	Multisensory Perception (MP)	(Pallasmaa, 2024), (Andersen, 2024), (Spence, 2020)
	Spatial Awareness (SA)	(Norberg-Schulz, 1980), (Lewicka, 2011), (Al-Alwan et al., 2022)
	Movement Interaction (MI)	(Larsen, 2020), (Gieseking, 2013)
Emotional Connection EC	Atmospheric Response (AR)	(Pallasmaa, 2024), (Manzo, 2005)
	Sense of Belonging (SB)	(Scannell & Gifford, 2010), (Lewicka, 2011), (Seamon, 1977)
	Symbolic Meaning (SM)	(Pallasmaa, 2024), (Manzo, 2005)
Imaginative Projection IP	Creative Invention (CI)	(Goldschmidt, 2003), (Gieseking, 2013)
	Narrative Structuring (NS)	(Thayer-Bacon, 2010), (Rose, 2016)
	Transformative Visualization (TV)	(Greene, 2000), (Fakhrulddin et al., 2023), (Pallasmaa, 2024)

Source: own elaboration.

Although frameworks such as experiential learning and phenomenological perception have contributed to educational discourse, few studies have synthesized these perspectives into a cohesive model that reflects how meaning is constructed through active presence, affective memory, and imaginative projection.

Additionally, the emphasis in architectural pedagogy often leans toward either technical proficiency or theoretical abstraction, leaving a gap in how affective, interpretive, and culturally grounded dimensions of learning are cultivated. This creates a disconnect between students' lived experience of historical places and their ability to engage with these spaces in ways that foster identity, creativity, and spatial understanding.

To fill this gap, this research provides a three-phase model for spatial learning as a unified framework for discussing learners' relationships with the architecture

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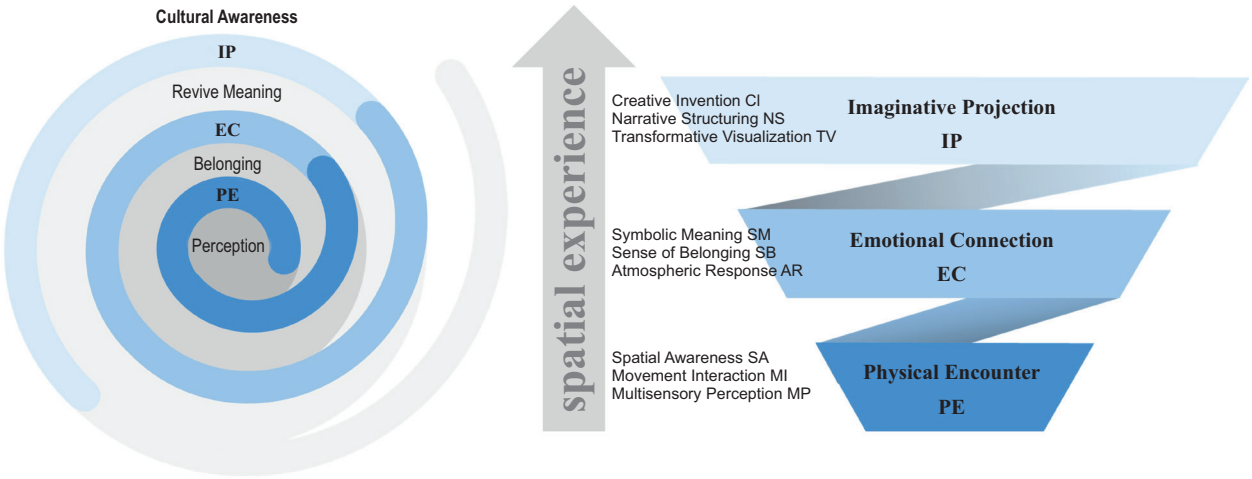

Fig. 1. Outlines the Conceptual Framework of the Proposed Three-Phase Learning Model
Source: own elaboration.

of history. It is based on physical encounter, emotional connection, and imaginative projection. The model offers a new way of thinking about how embodied learning can be used to revive cultural meaning. Instead of being a static background, the place is shown as an active player in shaping how knowledge, identity, and imagination come together during the learning process. Fig. 1 illustrates that this contribution seeks to enhance architectural learning and reinvigorate cultural meaning through integrated spatial experience.

RESEARCH METHODOLOGY DESIGN

This study utilizes a qualitative, experimental methodology based on a multidimensional framework. It aims to investigate how spatial experience, influenced by cultural context and imaginative engagement, enhances students' architectural comprehension and symbolic reinterpretation of historical settings, integrating visual storytelling, structured site immersion, and comparative analysis of student-imaginative sketches.

The methodological framework is divided into three phases: Physical Encounter (PE), Emotional Connection (EC), and Imaginative Projection (IP). These phases informed the research design, data collection, and interpretation towards an integrated framework to understand the effects of physical presence, emotional response, and creative visualization on architectural learning in place--based contexts and contribute to the reinvigoration of cultural meaning.

Case study

The selected place for this study is *Al-Madrasah Al-Mustansiriya*, a culturally and architecturally meaningful heritage complex in the historic core of Baghdad. The madrasa, which was established in the 13th century, is widely regarded as one of the earliest institutional models of higher education in the Islamic world, distinguished by its enduring pedagogical legacy and structured academic spaces. Fig. 2 shows Al-Madrasah Al-Mustansiriya.

Its central courtyard, characterized by a traditional open-air layout, was chosen as the spatial focal point due to its relevance to both the research aim and the course content (Landscape Design). As a historically layered and climatically adaptable space, the courtyard offers students an authentic location to explore environmental, emotional, and symbolic dimensions of architecture. The local studies emphasize the role of Islamic courtyards in fostering a sense of belonging, the significance of geometric patterns in expressing cultural identity, and the function of cultural third

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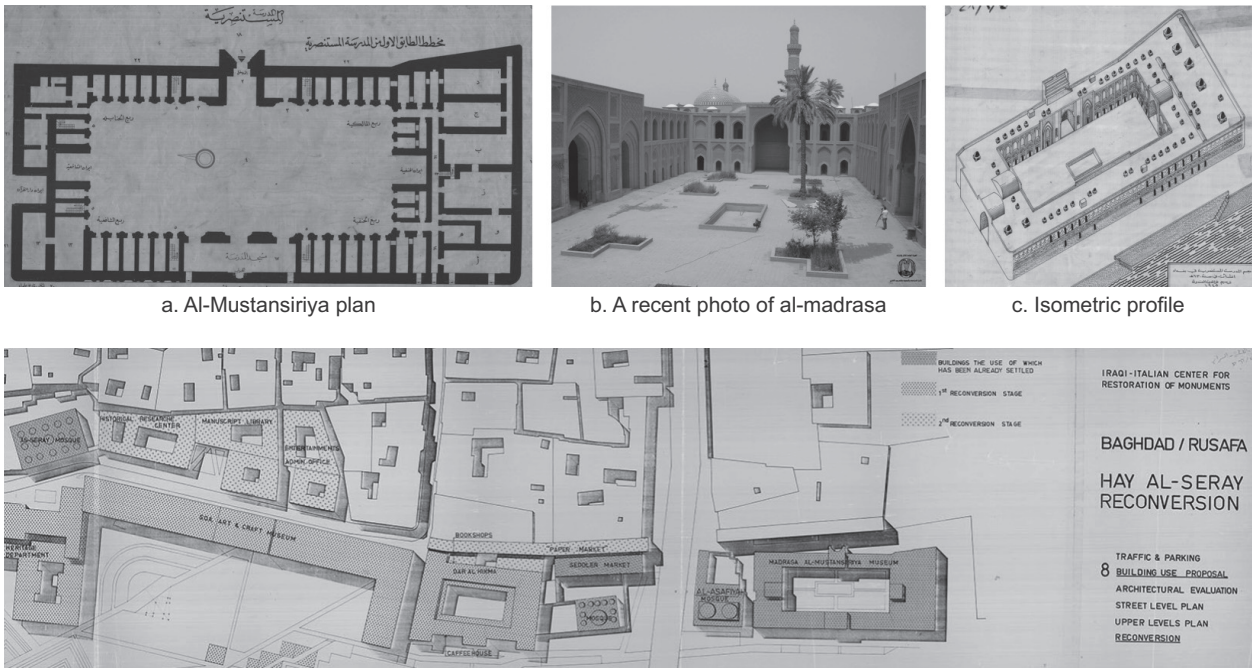

a. Al-Mustansiriya plan b. A recent photo of al-madrasa c. Isometric profile

d. Al-madrasa within the urban fabric

Fig. 2. Al-Madrasa Al-Mustansiriya
Source: The Iraqi State Board of Antiquities and Heritage (SBAH) (unpublished archival material, 2024).

places in anchoring memory and sustaining identity (Al-Shami et al., 2023, 2024; Al-Soudani & Al-Assadi, 2024; Khalid et al., 2021). This context supported the application of the three-phase model: initial physical immersion, affective engagement, and story reimagining.

Sample size

The study targeted an intentional sample of 58 fourth-year architectural students enrolled in the 'Landscape Design' course at the University of Baghdad during the second semester of the academic year 2024/2025. This group was selected due to their direct involvement with the course content, which aligned with the research's aim of transforming an educational activity into a place-based learning experience grounded in how courtyards are used in architecture. The research experience consisted of two phases: before and after the visit. 39 out of 58 participants attended the pre-visit assessment, while 28 enrolled in the guided field visit. The final sample included 22 students who completed both phases of the experience and ensured that the learning cycle was consistent. They generated visual outputs at both phases, enabling comparative analysis within the PE-EC-IP framework.

The selection of fourth-year students was pedagogically intentional, as they had sufficient design experience and conceptual vocabulary to engage with the courtyard not only as observers but also as imaginative interpreters. Their academic positioning allowed the activity to operate at the same time as a research tool and a curricular improvement. As Merriam and Tisdell explain, "Purposive sampling is based on the assumption that the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned." (Merriam & Tisdell, 2016). Accordingly, the sample could use the triadic framework in a useful way.

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Data collection

The data collection process was conducted in two main phases, designed and controlled by the researcher in collaboration with faculty members teaching the Landscape Design course. The activities were embedded within the course framework as an educational intervention aimed at enhancing students' spatial and cultural awareness through direct experience and creative learning.

Phase 1: *Pre-Visit* Lecture and Assessment, Visit, 24.03.2025. An interactive theoretical lecture was delivered by the researcher, centering on Islamic garden and courtyard design, with Al-Madrasah Al-Mustansiriya presented as an important case study. The lecture integrated visual materials – including photos and videos of al-Madrasa – to prepare students for the site visit.

After the lecture, students completed a structured questionnaire including cognitive, emotional, and behavioral dimensions (see Appendix: Pre-Visit Spatial Storytelling Questionnaire). They also generated three visual interpretations of the madrasa courtyard, based on the presented materials. These sketches reflected preliminary mental forms and symbolic relationships associated with indicators of Symbolic Meaning (SM) and Creative Invention (CI).

Phase 2: *On-Site Visit* and Sketch Activity Visit, 07.04.2025. The field visit was planned with formal approval and conducted by the researcher, three course teaching staff and the heritage director at the site. Students began with a guided exploration of the madrasa's architectural spaces, including the courtyard, arcades, and interior spaces. This initial walkthrough utilized the concepts of Multisensory Perception (MP) and Atmospheric Response (AR) by means of direct spatial immersion. Immediately following the tour, students participated in an on-site drawing task (see Appendix: Post-Visit Spatial Storytelling Questionnaire). Under supervision, each student selected three spatial positions to visualize the following:

1. Describe their first perceptions when they entered the madrasa.
2. Imagine walking toward the center courtyard through corridors.
3. Visualize them in the courtyard.

Students were given instructions to imagine themselves as scholars in the 13th century at Al-Madrasah Al-Mustansiriya and express their impressions through symbolic storytelling. These outputs provided material for tracing shifts across the triadic model: Physical Encounter (PE), Emotional Connection (EC), and Imaginative Projection (IP). The resulting sketches – produced first in a mediated classroom context, then during live spatial experience – enable comparison between abstract perception and direct engagement. The study was able to take a look at how place-based learning helps with cultural understanding and reinterpreting symbols. Fig. 3 shows part of the field visit to Al-Madrasah.

a. Pre-Visit Task b. On-Site Tour c. On-Site Visit Task

Fig. 3. Architectural Students' Pre-Post Visit
Source: Photographed by Author, 2025.

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Data analysis technique

The analysis followed a multidimensional qualitative approach using MAXQDA Analytics Pro, guided by the three-phase conceptual framework. A codebook was created to reflect the model's nine indicators: MP, SA, MI; AR, SB, SM; CI, NS, TV. These indicators were used to interpret how students transitioned from physical interaction to emotional reflection and imaginative reinterpretation.

Drawings were digitized and categorized by phase and participant. Visual and textual content – including spatial arrangement, symbolic elements, and supplementary comments – was examined and coded hierarchically. This enabled the comparative analysis of changes across learning stages and facilitated parallel interpretation across the data set.

The method of analysis integrates inductive reading with structured coding. Drawings were regarded as symbolic artifacts through which experiential and affective learning could be externalized. As Rose (2016) notes, visual interpretation requires attending to both formal elements and embedded cultural meanings. Eisner (2008) similarly emphasizes that sketches show unspoken forms of knowing based on memory, sensation, and spatial awareness.

All student responses and visual materials were anonymized using numeric identifiers to ensure participant confidence, in alignment with study ethical regulations. No identifying information was included in the findings, and access to coded data was limited to the researcher. Formal permissions for the site visit were obtained through coordination with the Department of Architecture and the College of Engineering, with approvals granted by the Iraqi State Board of Antiquities and the Baghdad Antiquities Inspectorate.

RESULTS

Data scope and coding framework

This section presents the coded outcomes for students' sketches and comments (N = 22, anonymized as R1–R22, where R = Response) throughout the pre- and post-visit phases. The analysis was conducted in MAXQDA 24 utilizing the triadic model of Physical Encounter (PE), Emotional Connection (EC), and Imaginative Projection (IP), which was operationalized through nine indicators: Multisensory Perception (MP), Spatial Awareness (SA), Movement Interaction (MI), Atmospheric Response (AR), Sense of Belonging (SB), Symbolic Meaning (SM), Creative Invention (CI), Narrative Structuring (NS), and Transformative Visualization (TV); refer to Figs. 4 and 5. Coding was concurrently applied to sketches and written annotations, as visual and verbal modes often complemented each other; for instance, spatial

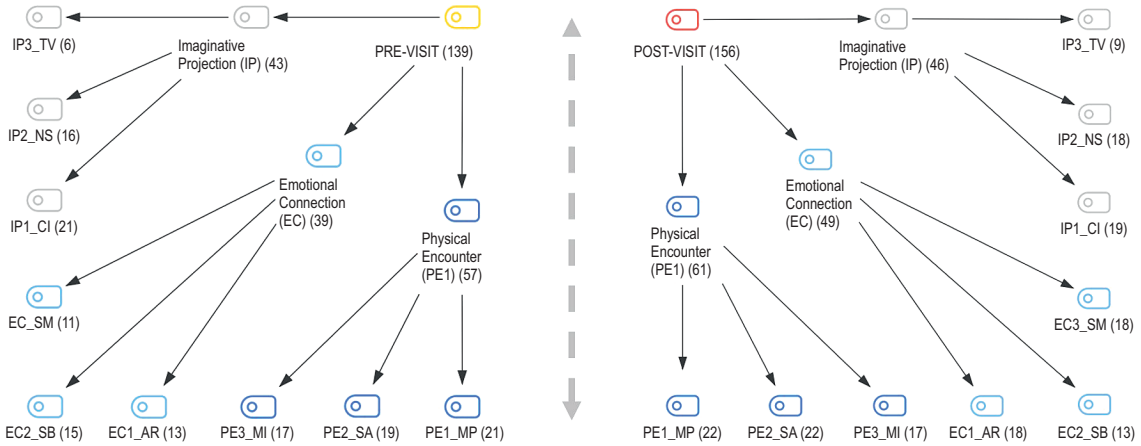

Fig. 4. Hierarchical Code-Subcodes Model (PRE-POST)
Source: own elaboration based on software program @MAXQDA 24.

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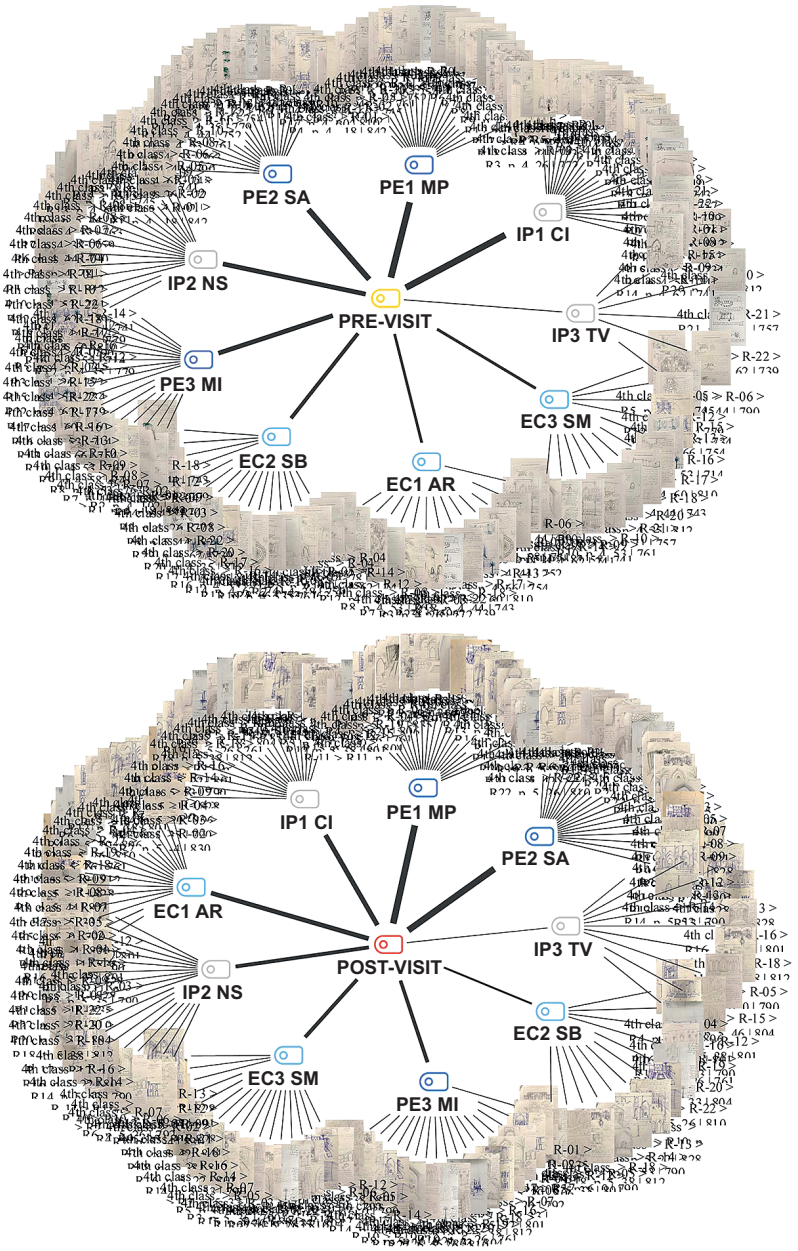

Fig. 5. Code-Subcodes-Segments Model (PRE-POST)
Source: own elaboration based on software program @MAXQDA 24.

features were typically conveyed through drawings, while affective tones appeared more explicitly in written comments.

During the coding procedure, frequency was differentiated from weight. Frequency refers to how often an indicator appeared across the dataset, whereas weight indicates the intensity of its expression within a coded segment. Weights were allocated on a three-point scale (1 = weak, 2 = moderate, 3 = strong), indicating the clarity and depth of an indicator's manifestation in a sketch or comment. Indicators not observed were not coded. Frequencies indicate

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the extent of distribution, while weights serve as the primary basis for evaluating experience depth and for interpreting transitions in expression.

Pre-post differences are first summarized at both the triad and indicator levels, followed by interpretation using the quadruple pattern grid (Imaginative/Realistic × Narrative/Descriptive).

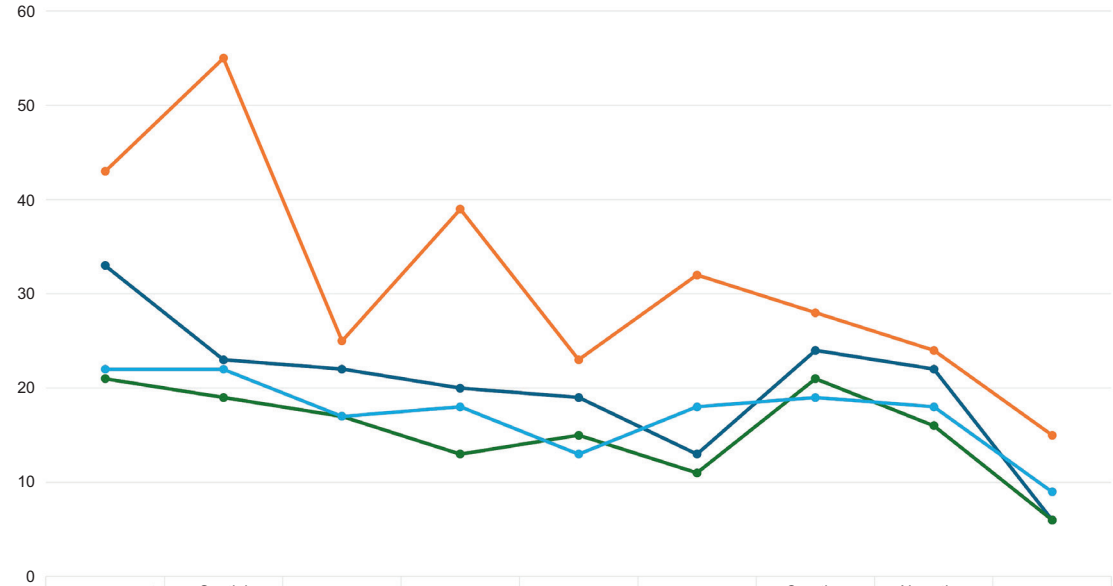
To make the results easier to read, the results are presented in three parallel analytic levels: (1) aggregate pre-post shifts in the PE-EC-IP indicators, (2) the student-level variation and expressive transition pathways, and (3) a specific interpretive synthesis to show the mediating role of emotional connection (EC) in the transitions.

Pre-Post shifts across indicators

At the aggregate level, the total number of coded segments increased marginally (139 pre-visit compared to 156 post-visit). The weight distribution indicates more substantial changes in experiential depth (182 pre-visit compared to 284 post-visit); refer to Fig. 6 (for comprehensive weight distributions per student, consult Appendix, Table A1). Physical Encounter (PE) exhibits the most pronounced overall growth, mostly propelled by Spatial Awareness (SA), which recorded the most significant weight gain (+32; 33 to 55), followed by Multisensory Perception (MP) (+10; 33 to 43), although Movement Interaction (MI) changed marginally (+3; 22 to 25).

In Emotional Connection (EC), the most significant changes were observed in Atmospheric Response (AR) (+19; 20 to 39) and Symbolic Meaning (SM) (+19; 13 to 32). In contrast, the Sense of Belonging (SB) had a decrease in frequency (15 to 13) and exhibited just a slight gain in weight (+4; 19 to 23), suggesting a more complex dynamic.

Imaginative Projection (IP) maintained equilibrium overall, but with an internal redistribution: Transformative Visualization (TV) increased notice-



	Multisensory Perception	Spatial Awareness	Movement Interaction	Atmospheric Response	Sense of Belonging	Symbolic Meaning	Creative Invention	Narrative Structuring	Transformative Visualization
Weight-PRE	33	23	22	20	19	13	24	22	6
Weight-POST	43	55	25	39	23	32	28	24	15
Frequency-PRE	21	19	17	13	15	11	21	16	6
Frequency-POST	22	22	17	18	13	18	19	18	9

Fig. 6. Summarizes PRE-POST Weights and Frequencies by Indicator
Source: own elaboration based on software program @MAXQDA 24.

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ably (+9; 6 to 15), Narrative Structuring (NS) showed a modest increase (22 to 24), and Creative Invention (CI) lowered in frequency (21 to 19) while weight showed a negligible raise (24 to 28).

There are various interpretive patterns that can be extracted from these results. The increase in SA demonstrates how students were able to perceive spatial composition, scale, and ordering beyond what could be deduced from pre-visit perception. This was made possible by the students' direct contact with the madrasa. The reduction in CI demonstrates how architectural reality limited free imaginative invention. Encountering detail, proportion, and materiality, students emphasized architectural precision over speculative improvements. This demonstrates the shift from imagination to interpretation that is anchored with context.

The muted profile of SB may indicate that belonging necessitates more than a single encounter; although students verbally stated enjoyment and familiarity during the visit, the absence of everyday activity in the site and their concentration on architectural detail diminished the overt expression of belonging in sketches and annotations.

In contrast, AR and SM demonstrate how direct, multisensory presence and symbolic resonance enhanced the emotional dimension of experience. The stability of MI implies that movement was recognized but not emphasized, while the consistency of NS indicates that some students sustained narrative imagination while others transformed toward descriptive precision. The significant increase in TV signals a positive change: imagination shifted from free-form invention toward contextually anchored visualization, integrating creative interpretation with architectural reality.

Collectively, these results confirm that weights serve as a more dependable measure of experiencing depth compared to raw frequencies. The most meaningful learning effect is not merely the rise of coded segments but the intensification of specific indicators, particularly SA, AR, SM, and TV, indicating that students engaged with the place more deeply on the visit.

Student variation and expressive patterns

A detailed analysis at the student level uncovers varied experiential pathways (refer to Fig. 7). For Spatial Awareness (SA), 45.5% of students (10/22) recorded a weight increase of +2, while 54.5% (12/22) showed an improvement of +1, supporting its status as the strongest spatial controller. In Atmospheric Response (AR), 59.1% (13/22) were enhanced by +1, whilst merely 4.5% (1/22) declined. In Transformative Visualization (TV), 40.9% (9/22) improved positively, though 18.2% (4/22) declined, indicating an inconsistent but significant imaginative effect. Individual students expressed their spatial experience with diverse combinations of indicators, as shown by the distributions, indicating that the cohort did not improve consistently.

This difference, in pedagogical terms, becomes a success for place-based learning. Students who showed more imaginative invention prior to the visit tended to use that imaginative preparatory work to propel the meaning of the place after the visit. Conversely, some showed active imagination during the visit, but in a transformed way, from free invention to symbolic visualization related to the real context. The PE-EC-IP model demonstrates the integrated function of imagination, validated by two pathways: pre-visit imagination leading to spatial conception and on-site imagination developing into symbolic reflection.

A quadruple grid was used to categorize the students' expressions to classify the various responses: Imaginative-Narrative (IN), Imaginative-Descriptive (ID), Realistic-Narrative (RN), and Realistic--Descriptive (RD) (refer to Table 2). The primary transition transpired from IN to RN, when enhanced PE (particularly SA and MP) anchored narratives more securely in the actual place. A secondary transition occurred from IN to RD, resulting in enhanced PE, whereas narrative sequencing continued to be weak. Stability was noted; some students deepened their work within the same category (e.g., IN to IN, RN to RN), suggesting reinforcing rather than categorical change.

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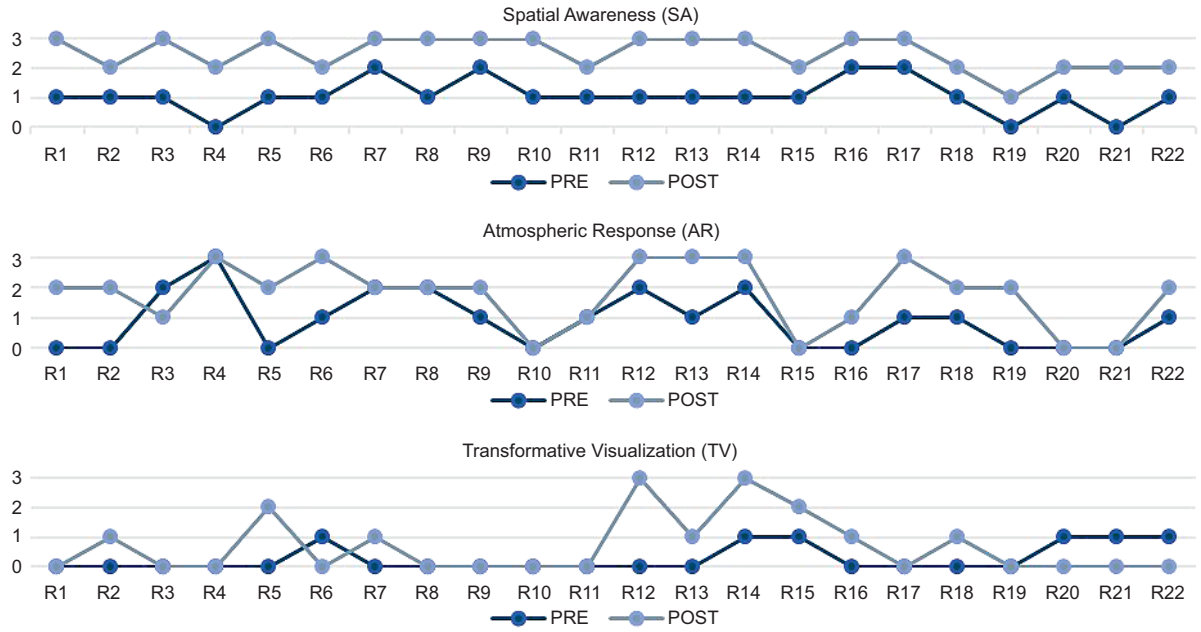

Fig. 7. Student Variation Indicators
Source: own elaboration based on software program @MAXQDA 24.

Table 2. Students' patterns and transitions

Pre	Post	Transition	Number	Percentage	Student response
IN	RN	IN-RN	6	27.3	R2, R4, R6, R8, R18, R22
IN	IN	IN-IN	6	27.3	R5, R12, R13, R14, R15, R16
IN	RD	IN-RD	5	22.7	R3, R9, R11, R20, R21
RN	RN	RN-RN	3	13.6	R1, R10, R17
IN	ID	IN-ID	1	4.5	R7
0	RN	0-RN	1	4.5	R19

Source: own elaboration.

Exemplary instances highlight these patterns. R18 transitioned from a picturesque, symbolic pre-visit imagination to a post-visit attachment, describing the madrasa as "a second home," exhibiting how EC (AR and SB) mediated meaning-making. R21 moved from an imagined water-clock monument connected to the Tigris to a focused depiction of architectural detail, reflecting the replacement of CI by SA. R14 sustained an imaginative-narrative mode throughout both phases and still enhanced it with richer sensory and spatial awareness following immersion, showing a combined increase of IP and PE. In comparison, R10 remained within a realistic-narrative framework while enhancing the depiction of light, temperature, and airflow, showing the reinforcement of PE with a stable NS structure. Figs. 8 and 9 show the transition classification.

Viewed through the PE-EC-IP model, these student-level variations illustrate that experiential learning does not follow a singular linear path. On the other hand, emotional connection (EC) shapes how physical encounter (PE) and imaginative projection (IP) combine in each case, resulting in either transition or reinforcement. The presence of various expressive pathways, anchored either in imaginative continuity or in realistic consolidation, highlights the model's ability to address both convergence and divergence in students' learning pathways.

In Fig. 8, the rows are associated with each transition pathway (e.g., IN-RN) that gives PRE (left) and POST (right) configurations. The central node is the phase, and the surrounding nodes are the model indi-

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cators, and the thickness of links is the frequency of occurrence (frequency-based mapping). PE, EC and IP components are colour coded and the node R. documents of each indicator are student.

Emotional mediation in experiential transitions

The emotional dimension (EC) demonstrated the most significant increase in weights, despite small frequencies, highlighting its mediating role rather than a mere categorical label. This corresponds with theoretical insights. Pallasmaa (2024) underscores atmosphere as an embodied impression that anchors architectural meaning, Scannell and Gifford (2010) emphasize belonging as an aggregate effect of repeated encounters, and Manzo (2005) situates symbolic meaning in the lived affective allocation of place. Together, these perspectives explain why EC operates as the catalyst that deepens or stabilizes transitions across the PE-EC-IP model.

Of the three EC indicators, Atmospheric Response (AR) and Symbolic Meaning (SM) exhibited the most significant weight increases (+19 and +19, respectively), while Sense of Belonging (SB) revealed a more fragmented profile, characterized by a frequency drop and a modest weight increase. This muted depiction of SB can be understood within the context of the visit; while students verbally conveyed satisfaction and familiarity during the fieldwork, their drawings and written comments often referred to a site lacking daily activity or social function. Belonging, therefore, may require repeated visits and active engagement for complete expression.

Unique instances further illustrate how EC mediated between perception and imagination. R3 began with imagined sounds and atmospheres but offered no post-visit comment, a proposal that emotional involvement was felt but not especially expressed. R5 shifted from symbolic sketches of the courtyard fountain and palm tree to a more spatially grounded observation of light and seating, showing how atmosphere redirected imaginative attention. R9 provided pre-visit depictions of study and prayer activities but remained silent afterward, reflecting how the absence of lived activity limited the expression of belonging. R12 transformed the initial symbolic imagery of fountains and palm trees into enriched post-visit sketches that incorporated curtains, vegetation, and ritual elements, highlighting the deepening of symbolic meaning.

Collectively, these instances illustrate that experiential learning is fundamentally reliant on emotional connection (EC). Emotional engagement translates sensory impressions into attachment and symbolic significance, while imagination directs these emotions towards enhanced spatial awareness. The interaction of emotion and imagination serves as the catalyst for learning; it revives cultural meaning, enhances place awareness, and contextualizes architectural knowledge within both embodied perception and symbolic depth. (For further details of students' sketches, see Appendix, Table A2).

Fig. 10 generalizes these dynamics to a two--dimensional expressive matrix that is characterized by the imaginative-realist (vertical) and narrative-descriptive (horizontal) axis. Concentric circles represent the levels of increasing intensity of the experiences, and the directional arrows are the main transition paths that were found in the pre-post analysis. The percentage values are equated with proportional distribution of each transition type. The diagram is an integrative classification based on the frequency-based findings in Tables 2, which creates the possibility of the mediating role of EC being tracked visually across the expressive field.

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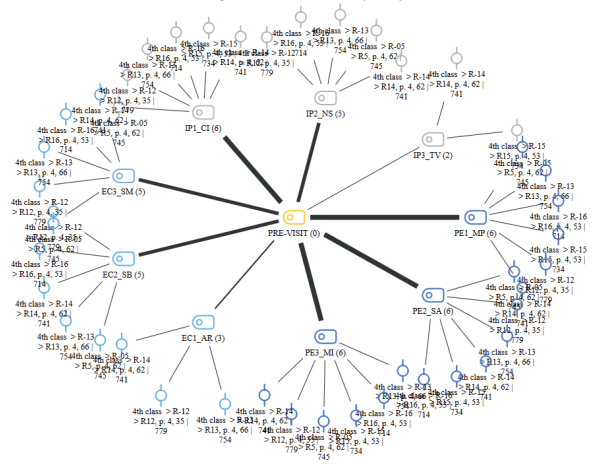
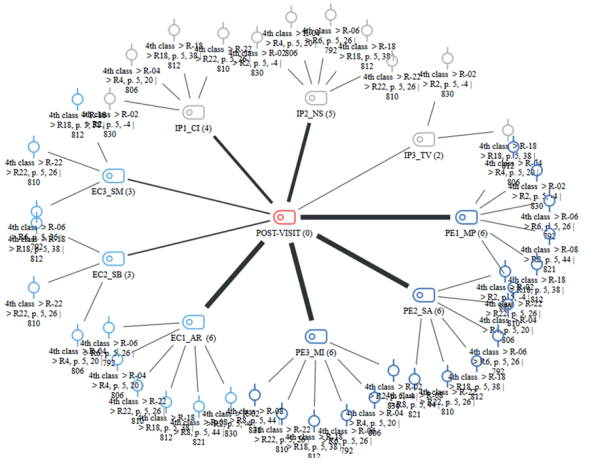
IN-RN

Imaginative – Narrative (PRE)

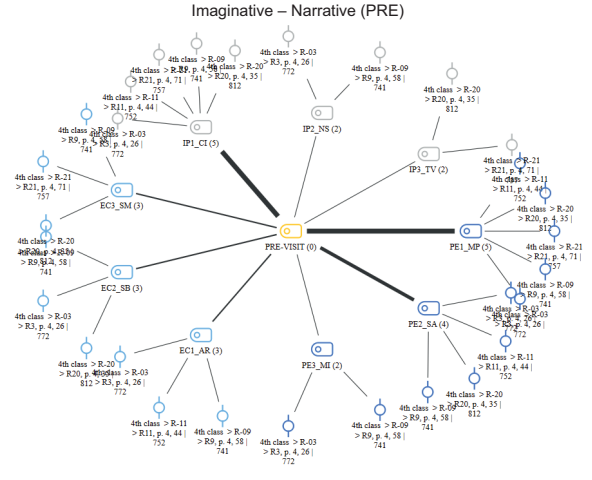


Realistic – Narrative (POST)

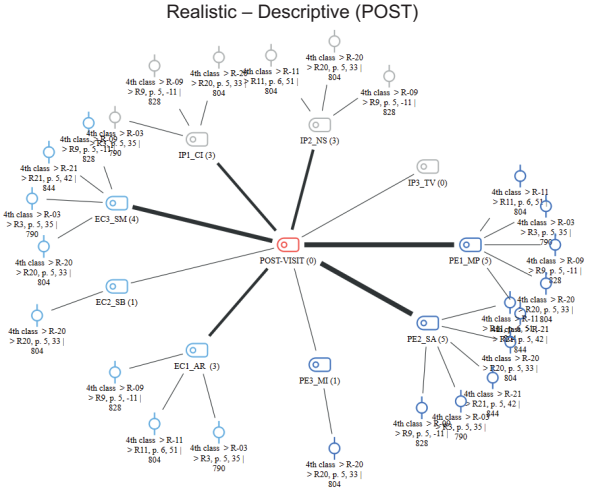


IN-RD

Imaginative – Narrative (PRE)

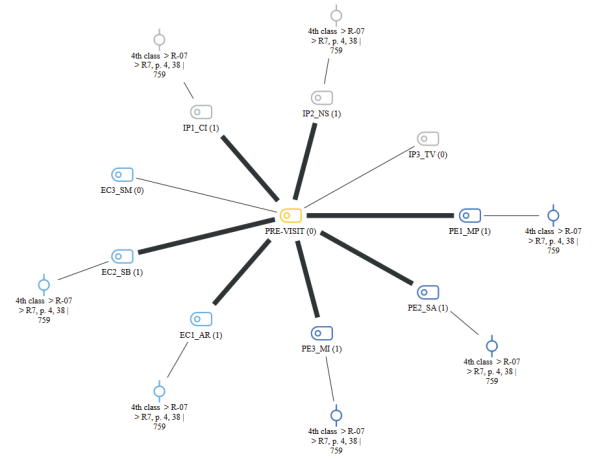


Realistic – Descriptive (POST)

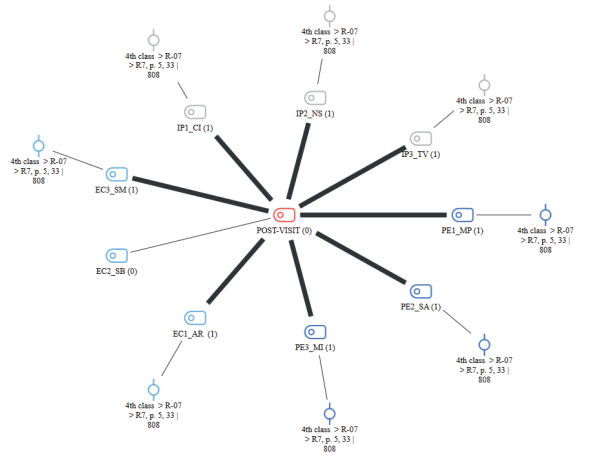


IN-ID

Imaginative – Narrative (PRE)



Imaginative – Descriptive (POST)



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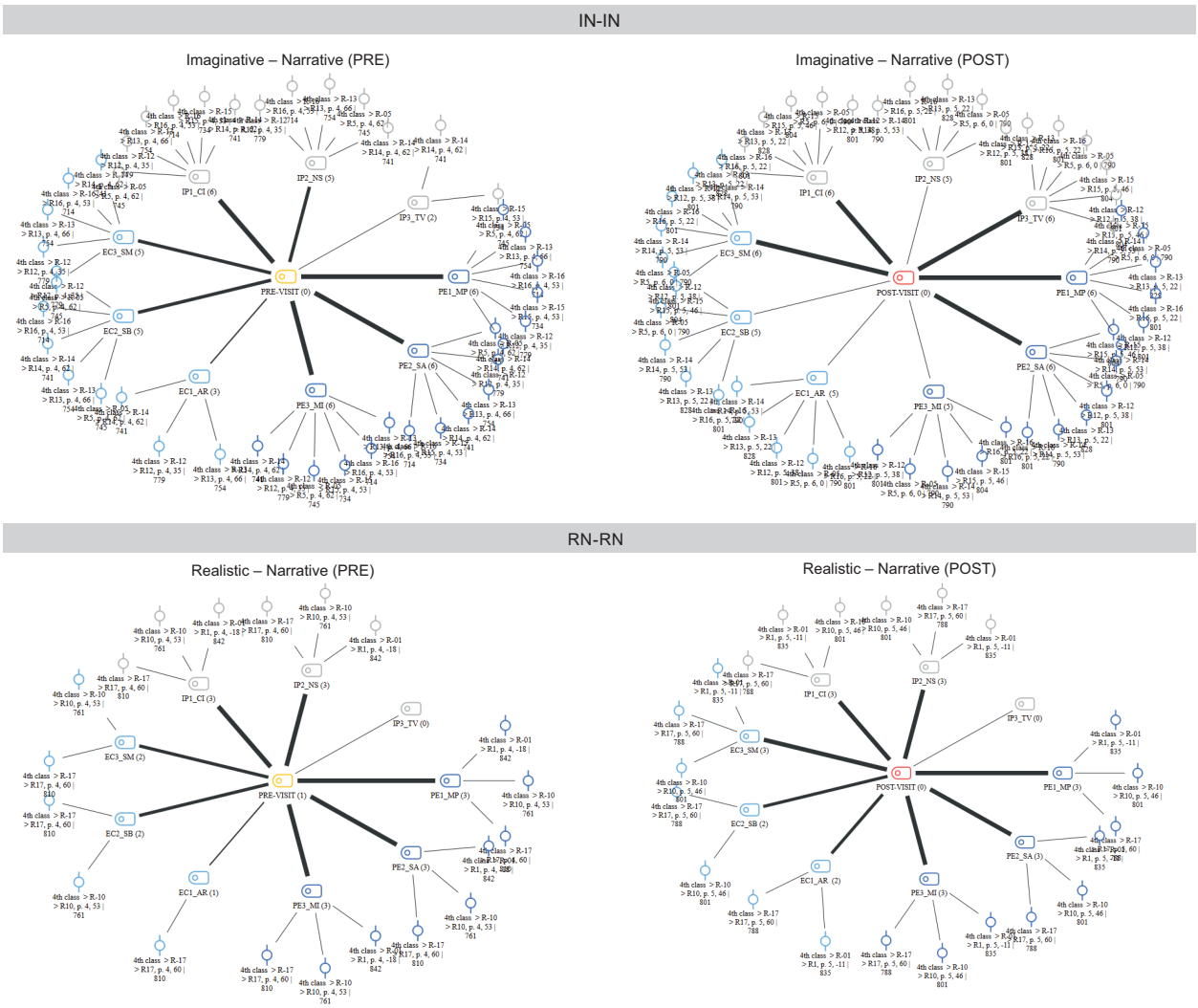

Fig. 8. Student Transition Classification based on the Frequency of Codes Analysis (PRE-POST Comparative Network Maps)
Source: own elaboration based on software program @MAXQDA 24.

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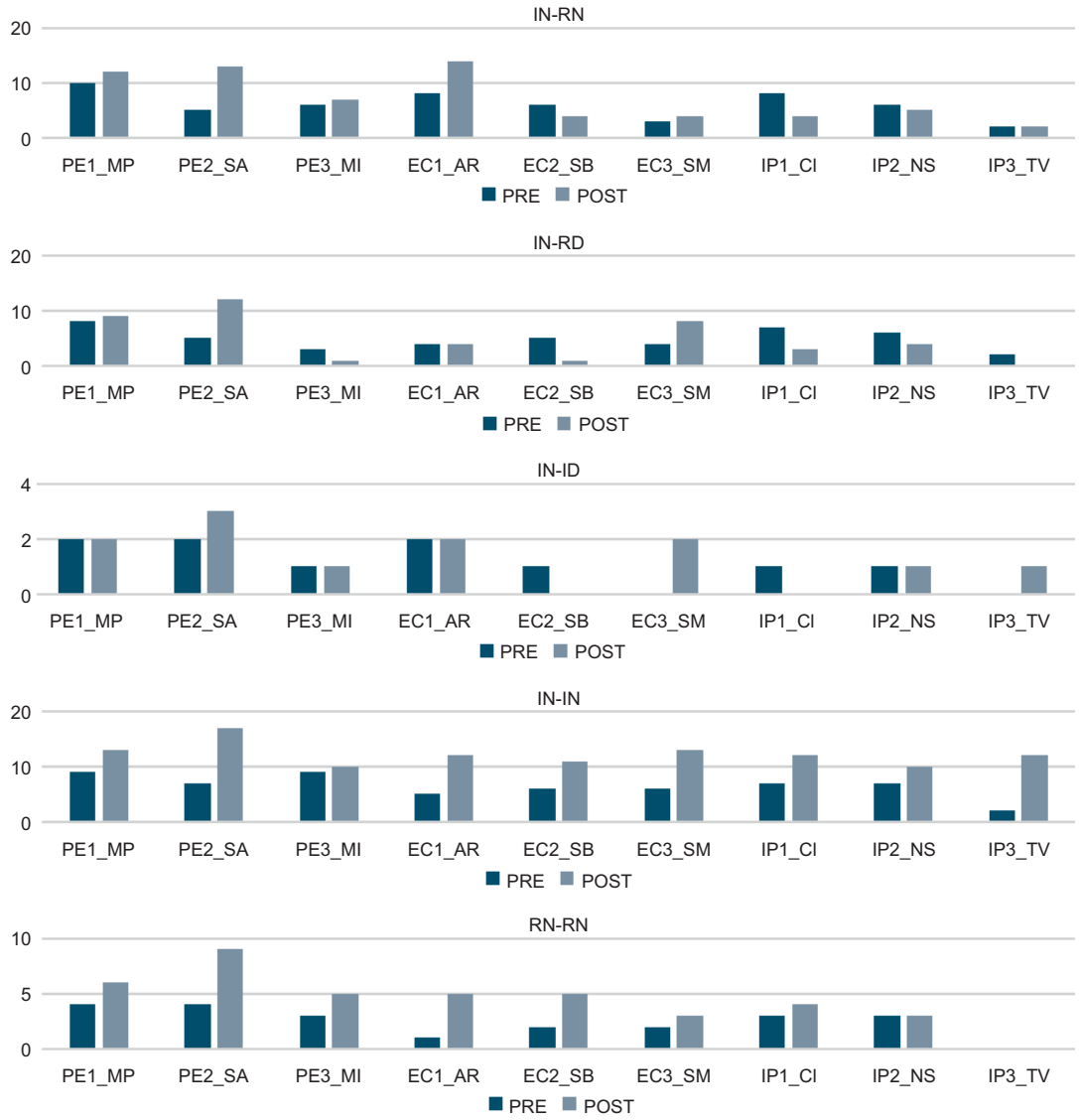

Fig. 9. Student Transition Classification Derived from Code Weight Analysis
Source: own elaboration based on software program @MAXQDA 24.

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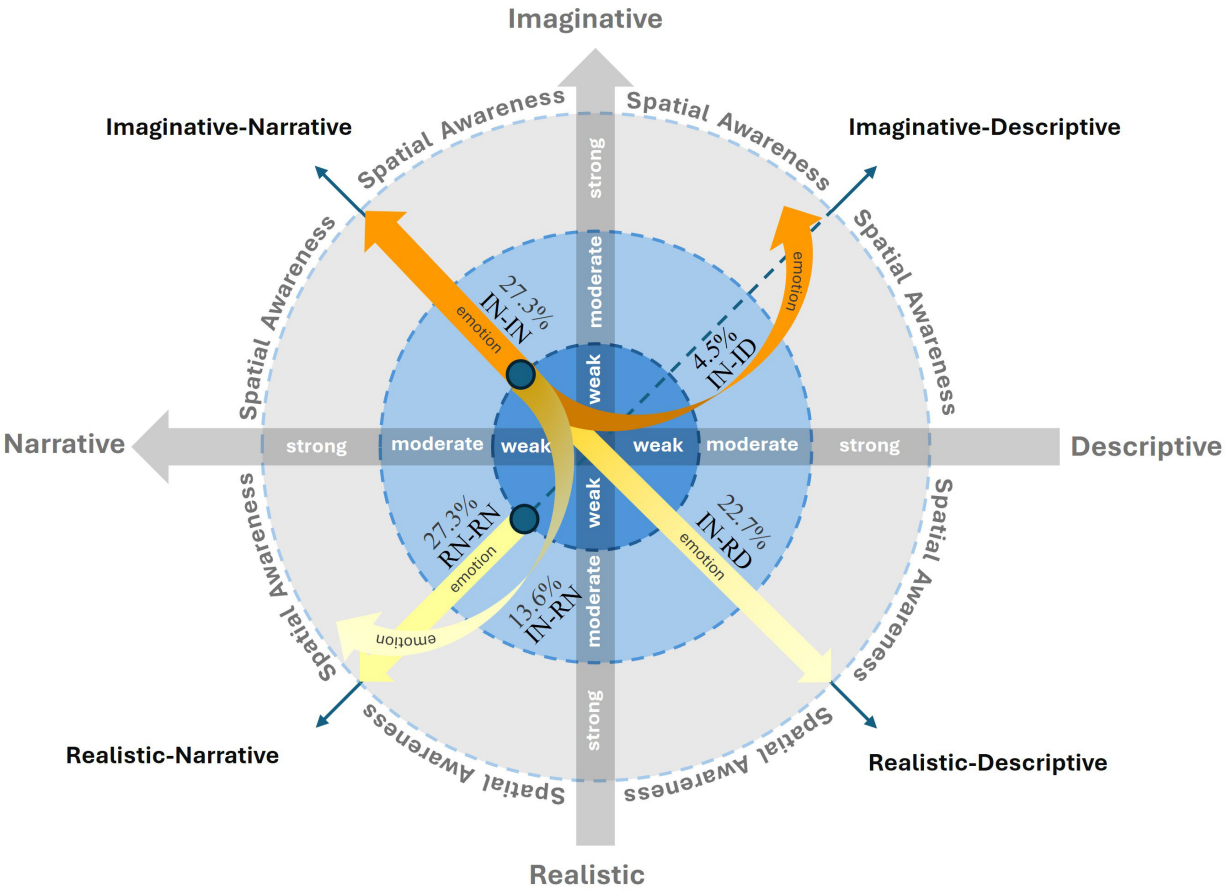

Fig. 10. Integrative Classification of the Expressive Transition Patterns of Students (PRE-POST)
Source: own elaboration.

DISCUSSION

The results confirm a conceptual view of spatial experience as an organized, mutually reinforcing process instead of a grouping of discrete perceptual, affective, or imaginative reactions. PE-EC-IP framework proves that considerable involvement with heritage spaces occurs as a result of the dynamic interplay of embodied perception, emotional mediation, and imaginative reinterpretation. In this framework, Emotional Connection (EC) is not a simple affective layer, but a mediating process that either stabilizes or diverts between perception and projection. This proves the integrative logic of the triadic model and explains the internal consistency of its stages.

The methodological distinction between the frequency and weight is vital in explaining the depth of experience. Although distribution patterns suggest the existence of indicators throughout the cohort, weight differentiation displays the qualitative enhancement of engagement. Such digressive analysis can give a more refractive understanding of transformation, which proves that experiential learning is not characterized by a numerical growth as much as by an increase in certain perceptual and symbolic levels.

Pedagogically, the findings emphasize the usefulness of a planned on-site exposure to architectural education. Direct physical experience does not repress imaginative activity, but articulates and contextualizes it, transforming the creative outpouring into the

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spatial-based and symbolically enhanced interpretation. This implies that the heritage contexts might also serve as living pedagogical places that combine perception, emotion and imagination as part of one learning process.

On a broader level, the work places historical sites as not mere passive backgrounds that can be observed, but rather active participants in the process of architectural consciousness and cultural identity creation. The spatial experience when arranged and explained based on an integrated model turns out to be a catalyst of reconnecting the learners with embodied knowledge and contextual identity.

Fig. 10 is a synthesis of the five most common transition pathways of a two-dimensional expressive matrix, which is characterized by Narrative-Descriptive (horizontal) and Imaginative-Realistic (vertical) axes. The concentric circles are stages of intensity of experience (weak-moderate-strong), whereas arrows depict the relative direction of the transition between the expressive quadrants of the students. The percentage values are related to the distribution of types of transitions, which have been determined in Table 2. With this integrative visualization, the emotional dimension (EC) can be comprehended not as a definite category, but as a mediating process that influences movement in the expressive field.

CONCLUSION

The cultural meaning of historic places can be reinvigorated through spatial experience, as this study shows. An interpretive framework was provided by the triadic model – Physical Encounter (PE), Emotional Connection (EC), and Imaginative Projection (IP), which explain how perception, emotion, and imagination work together to convert individual engagement into cultural awareness.

The results show that being physically present helped students understand spatial organization and architectural detail better. Emotional connection acted as a bridge that turned sensory impressions into emotional and symbolic connections. Imagination emerged as the most dynamic dimension, manifesting in two complementary stages: prior to the visit as free imagination open to possibilities, and after the visit as symbolic imagination anchored in architectural reality. Instead of moving in a straight line, learning paths of students were developed as multidimensional activities that were influenced by the multiple configurations of perception, emotional, and imagination. Even though this changed, imagination was still a powerful tool for making meaning in both phases. It activated the emotional side and added depth to the symbols, especially when combined with heightened sensory perception from direct experience.

There are two impact domains that are especially important. Educationally, the model illustrates how architectural learning can go beyond abstract theory and integrate experiential, creative, and participatory practices. Culturally addressing and involving students in heritage sites through their senses, emotions, and imagination strengthens their sense of self and inspires them to take an active role in the preservation and reinterpretation of their heritage. The findings also highlight the importance of long-term interaction by indicating that certain indicators, most notably the sense of belonging, necessitate frequent or prolonged engagement with place. In this sense, the historic courtyard was not perceived as a static architectural object, but as a living and experientially permeable situation with the ability to create new cultural identities.

The study's overall findings support the idea that experiential and imaginative approaches can act as catalysts for reinvigorating cultural meaning, ensuring that historic places continue to excite and educate future generations.

Author contributions: The authors have approved the final version of the article. The authors have contributed to this work as follows: A.F. developed (Conceptualization, Methodology, Data collection, Formal analysis, Software, Visualization, Writing – original draft), H.A.S.A. (Supervision, Methodology, Writing– review & editing, Validation, Project administration).

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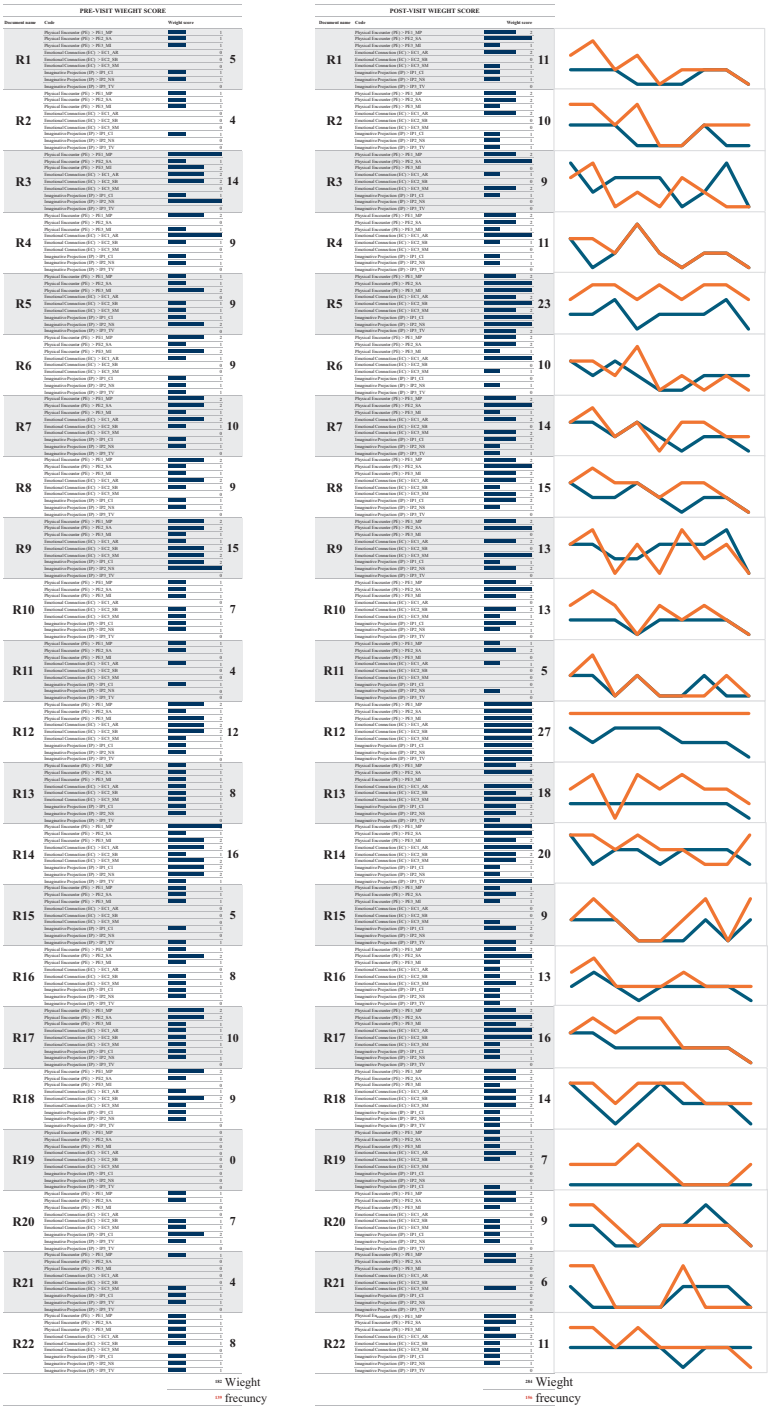
APPENDIX

Table A1. Comparison Between PRE- and POST-Visit Indicators Weights Score



Source: own elaboration based on software program @MAXQDA 24.

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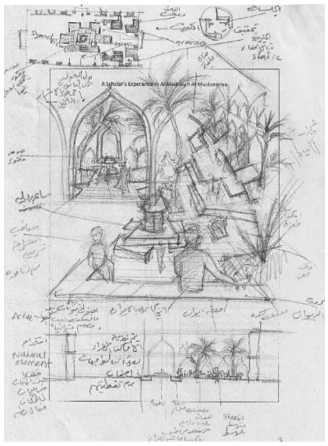
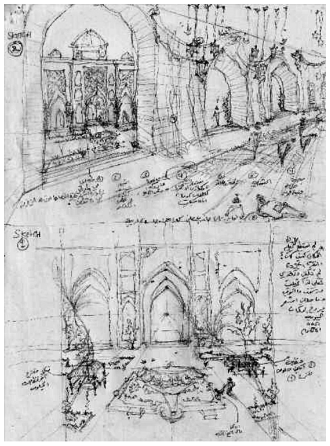
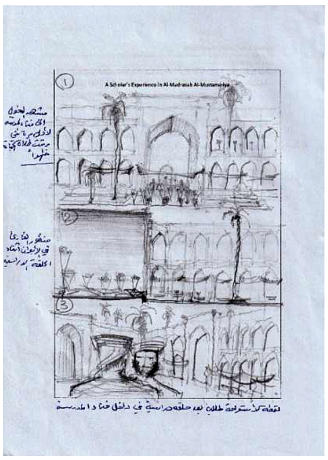
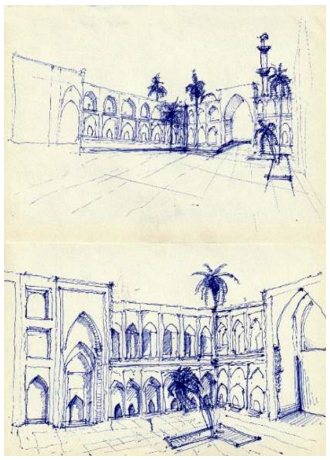
Table A2. Sample of students' sketches PRE-POST Visit

R-12		
	R12 – Pre-Visit Sketch 1: Upon entering, I see a fountain surrounded by trees and palm trees, a minaret, and light. Sketch 2: I'm sitting in the iwan – I see nearby rest benches, the sand clock, curtains, green areas, wind, and sounds. Sketch 3: Green spaces are planted away from the facades to avoid covering them-medium-height trees and decorative study benches surrounded by greenery. R12 – On-Site Visit Sketch 1: I couldn't help but imagine how the place might be. The plain visual was not enough to satisfy my mind, so I drew what I expected and what made me feel the soul of the place – vitality, life, care – canopies for seating, water spots for animals. Sketch 2: Flowing water at the entrance with short trees no taller than the decorative line to avoid obstruction – medium-height sparse trees, a bird fountain, turquoise or red curtains for special occasions, herbs, and a red prayer mat. Sketch 3: No drawing or comment.	
R-05		
	R5 – Pre-Visit Sketch 1: Upon entering the school, I encounter the large iwan, along with the water surface and the palm tree, which serves as a very distinctive focal point. Sketch 2: The large scale of the Iwan compared to the students. In this sketch, a sheikh is shown lecturing to a group of students. Sketch 3: Student gatherings, sitting around the water surface. R5 – On-Site Visit Sketch 1: No comment. Sketch 2: When climbing to the student residence area, I noticed the light entering from the door beneath the stairs. Sketch 3: The presence of palm trees and a central seating bench with shaded gathering areas.	
R-05		
	R9 – Pre-Visit Sketch 1: The first view of entering the school's courtyard during noon prayer. Sketch 2: A reader's perspective inside the Iwan during a study session. Sketch 3: A moment of student relaxation after a study circle in the courtyard. R9 – On-Site Visit Sketches 1, 2 & 3: No comments.	

Source: own elaboration based on students' sketches.

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24-3-2025

A Pre-Visit Assessment of Al-Madrasah Al-Mustansiriya

The purpose of this pre-test is to assess your prior knowledge of Al-Madrasah Al-Mustansiriya, which we will be visiting. You will also be required to make a visual storyboard that illustrates your imagination. This will assist us in comprehending how you interpret spatial experiences.

Demographic Questions:

Name: _____

Age: _____

Storytelling Theme: A Scholar's Experience in Al-Madrasah Al-Mustansiriya

Imagine yourself a student in the 13th century at Al-Madrasah Al-Mustansiriya. Show how the courtyard of the madrasa affects your learning, feelings, and bond with the place. Use drawings and short descriptions to illustrate your experience.

Task Overview

You'll create three basic sketches to express a story. Each drawing will focus on a specific experience and will include by an explanation caption.

Sketch 1: Arriving at the Madrasa
Imagine entering the madrasa for the first time.

- What landscape features are notable? (e.g., fountains, trees, shaded areas)
- How does the atmosphere impact your academic perception?

Sketch 2: Studying in the Iwan
visualize yourself sitting in the shaded iwan and learning or talking.

- How can the surroundings, such as water cooling or trees blocking sunlight, contribute in relaxation and concentration?

Sketch 3: Reflecting in the Courtyard
Imagine taking a break in the madrasa courtyard.

- What do you see regarding water, light, and plant interactions?
- How does this moment improve your attachment to the space?

Thank you for filling out this questionnaire. Your thoughts on what you learned and how you felt before visiting Al-Madrasah Al-Mustansiriya will help us explore how experiential learning in cultural place might affect your growth as an individual and student.

Research Instrument: Pre-Visit Spatial Storytelling Questionnaire

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7-4-2025

Site Visit Plan: Al-Madrasah Al-Mustansiriya

09:30_ 10:30 AM	Transportation	- Departure from the University campus to Al-Madrasah Al-Mustansiriya.
10:30_11:00 AM	Arrival and Entry	- A group walks into Al-Madrasah Al-Mustansiriya.
11:00_12:00 PM	Tour	- An explanation of the activity. - guided tour of Al-Madrasah Al-Mustansiriya
12:00_12:30 PM	Activity 1	- Hands-on activity
12:30_01:30 PM	Activity 2	- Interactive activity
01:30_02:30 PM	Return	- Returning to the University campus.

Activity 1 Post-Visit Storytelling Theme: Your Experience in Al-Madrasah Al-Mustansiriya

Now that you've explored Al-Madrasah Al-Mustansiriya, your story will center on how the materials, design, and surroundings shaped your knowledge, feelings, and relationship to its place.

Task Overview

Based on your tour, you will draw three sketches that reflect how the architectural and cultural value of the madrasa influenced your experience. Every drawing will come with a brief description that represents your thoughts and emotions.

Sketch 1: Entering the Madrasa

Describe your first perceptions when you entered the madrasa.

- Which landscape elements (e.g., entrance axis, vegetation, visual framing) do you imagine affecting your arriving experience?
- What is your vision for moving from the external environment to the inside courtyard?

Sketch 2: Discovering Shaded Paths

Think about moving through corridors.

- Imagine walking toward the center courtyard through corridors.
- How will shadow, filtered light from structures or plants, and space proportions effect your mobility and comfort?

Sketch 3: Arriving at the Central Courtyard

Visualize yourself in the courtyard.

- What water sources, plants, and pavement patterns do you expect?
- How do these elements promote calm, balance, and intellectual reflection?

Research Instrument: Post-Visit Spatial Storytelling Questionnaire

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