

Sustainable and Inclusive Educational Spaces: Interior Design Approaches Supporting Gender Equality in the GCC

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ABSTRACT

Educational facilities play a critical role in fostering inclusive learning environments and supporting the United Nations' Sustainable Development Goal 5 (SDG 5), which aims to achieve gender equality and empower all women and girls. Yet, the design of these spaces frequently overlooks gender-responsive considerations, especially regarding the unique cultural, religious, and social needs of Muslim women and women from the Gulf Cooperation Council (GCC) region. This study examines how interior design proposals can enhance the experiences of Muslim and GCC women in educational settings, utilising a visual analysis of selected case studies and projects. By rigorously examining spatial organisation, materiality, and design choices through a gender-sensitive lens, the research specifically explores how safety, privacy, comfort, and spaces for cultural practices are addressed—issues that are central to SDG 5's pursuit of equitable participation and well-being. Contributions from 40 female and 3 males interior designers are analysed, situating their work within broader debates on inclusivity and the right to equitable educational space for Muslim and GCC women. The findings generate insights into gender- and culture-specific spatial needs and inform targeted design recommendations that advance both supportive and equitable educational facilities. This research, therefore, contributes directly to the discourse and practical realisation of gender-responsive design for educational environments, and aligns with the vital goals of SDG 5 to create spaces in which all women, especially those from Muslim and GCC backgrounds, can thrive.

Keywords: Future Cities, GCC Region, Gender-Responsive Interiors, Inclusive Educational Spaces, Sustainable Design, Women Spaces.

INTRODUCTION

Interior design is increasingly recognised not only as an aesthetic practice but also as a social and cultural force that shapes everyday experiences. The environments we inhabit are never neutral—they embody values, reinforce hierarchies, and influence patterns of interaction (Dovey, 2014; Massey, 1994). Educational facilities, in particular, are highly formative spaces that play a significant role in shaping identities, safety, and learning experiences (Dudek, 2012). Yet, despite their impact, many academic interiors continue to perpetuate gendered exclusions and spatial inequalities (Spain, 1992).

In response, scholars and practitioners have called for more gender-responsive approaches to spatial design that acknowledge the differentiated ways in which women and men experience space, and that embed inclusivity into the architectural language of learning environments (Rendell, 1997; Kern, 2021). These perspectives align with broader feminist critiques of spatial practice, which emphasize the interrelationship between built form, cultural representation, and lived experience.

In alignment with these evolving discourses, this study emerges from a groundbreaking initiative launched in September 2023 at the University of Bahrain, where the author, as a member of the Gender Equality Committee, established the first academic design competition in Bahrain dedicated to women's spatial needs in higher education. The initiative invited interior design students to envision inclusive, culturally sensitive, and human-centered spaces for women within academic settings. The competition not only generated a valuable pedagogical platform but also positioned Bahrain as a regional leader in gender-responsive design. The three winning proposals were formally recognized by the university president during Bahrain Women's Day celebrations, affirming the institutional importance of gender-sensitive spatial innovation.

This paper builds on the visual and thematic analysis of 40 student design proposals submitted to the competition, exploring how interior design can either reinforce gendered exclusions or contribute to more equitable and emotionally supportive learning environments. The research is guided by the following aims. First is to assess the current quality of female design requirements within educational facilities. Secondly, it aims to rate the social, cultural, and design principles shaping spatial solutions for women in Bahrain's higher education context. And finally, to propose applicable design guidelines and alternatives for women's spaces within educational institutions.

LITERATURE REVIEW

Gender Studies and Livable Spaces

Gender studies have long argued that space is socially constructed and fundamentally shaped by power relations (Lefebvre, 1991; Massey, 1994). Feminist theorists have highlighted how spatial practices both reflect and reproduce gender inequalities, while also offering opportunities for transformation (Rendell, 1997). The notion of livable spaces refers to environments that allow individuals, particularly women and marginalized groups, to feel safe, included, and empowered. Kern (2021) suggests that feminist approaches to city and building design seek to claim space in ways that make everyday life more equitable, while Spain (1992) underscores how historically gendered spatial arrangements have reinforced exclusion in institutions such as schools, workplaces, and public facilities. In interior design, this framing challenges practitioners to go beyond functionality and aesthetics toward socially responsible spatial practice.

Social and Cultural Values that Govern Interior Design

Interior design does not occur in a vacuum; it reflects wider social and cultural frameworks. As Dovey (2014) notes, built form mediates power and identity, embedding social values—including gender norms—into everyday environments. Likewise, Scott Brown (1989) critiques the architectural profession itself for sustaining gender biases, both in representation and design priorities. Burns and Brown (2020) further argue that the lack of women's voices in architectural and interior design history has shaped both discourse and practice, limiting inclusivity. Alzeer (2019) also notes the availability of 'Hot', 'Cold' and 'Me' spaces in higher education, especially in Middle Eastern universities, as gender-sensitive spaces. Understanding how cultural expectations can shape interior design is therefore critical for addressing the ways in which exclusions become normalized through spatial arrangements, materiality, and symbolic forms.

Educational Spaces and Facilities from a Gender Perspective

Educational facilities serve as crucial spaces of learning, identity formation, and socialization. As Dudek (2012) highlights, the design of schools and educational spaces goes beyond accommodating activities—it expresses cultural ideas about education. When viewed through a gender lens, educational spaces often reveal inequalities: spatial layout, circulation patterns, and symbolic markers reproduce gender hierarchies (Spain, 1992). Feminist educational theorists argue that school design affects not only academic access but also feelings of safety, belonging, and empowerment for different user groups (Luke, 1994). Moreover, design pedagogy has increasingly included service-learning projects in which interior design students collaborate with schools to create socially responsive proposals (Guerin & Thompson, 2004). Crucially, inclusive design approaches, such as universal design, emphasize that educational environments should address the needs of all learners—including individuals with disabilities or neurodiverse conditions—ensuring equity and inclusion (Preiser & Ostroff, 2001).

Middle Eastern Context and Muslim Women's Needs in Educational Spaces

In the Middle Eastern context, the intersection of gender, culture, and religion adds further dimensions to the relationship between women and educational spaces. Muslim women, many of whom wear the veil negotiate environments that are shaped not only by pedagogical demands but also by cultural expectations regarding modesty, privacy, and family roles (El Guindi, 1999; Ahmed, 2011). Women might classify spaces according to their activity into 'Hot', 'Cold, and 'Me' spaces (Alzeer, 2019). Within higher education, women often balance their identities as students with responsibilities as wives and mothers, which can mean their spatial and social needs are overlooked in educational design (Abu-Lughod, 2013). For example, the provision of spaces where women can breastfeed, rest while temporarily uncovered, gather socially for conversation, or attend to personal well-being can significantly impact their comfort and participation in academic life (Mernissi, 1987; Karim, 2008). Attention to these socio-cultural factors is essential in creating inclusive, gender-responsive educational facilities that acknowledge women not merely as learners but as individuals with embodied, cultural, and relational needs.

METHODOLOGY

This research adopts a Research through Design (RtD) methodology, treating student design proposals as speculative yet analytically rich artifacts for investigating gender-responsive spatial strategies in higher education (Pais, 2014). The data were drawn from 40 interior design proposals submitted to "Lahun" — Bahrain's first national student design competition dedicated to women's spaces in academia, initiated in September 2023 by the University of Bahrain's Gender Equality Committee under the author's coordination. The competition provided a structured platform to explore culturally grounded, human-centered design concepts, focusing on three key typologies: university nurseries, women-only salons, and female rest and retreat areas, alongside a few supplementary proposals addressing coworking and concept-store spaces. Visual submissions—including plans, renders, and design narratives—were collected, catalogued, and thematically coded using PowerPoint and NVivo. Designs were evaluated by two faculty researchers and reviewed by three professional jurors to identify best practices and recognize three winning entries, ensuring methodological rigor and design excellence. To guide this process, a custom visual analytical framework was developed, integrating Panofsky's interpretive model (Bal, 2003) and established architectural research methods (Groat & Wang, 2013). The analysis examined each proposal across six interrelated dimensions. These dimensions are spatial organisation, Privacy and visibility, materiality and aesthetics, social function, and cultural symbolism. Refer to figure 1.

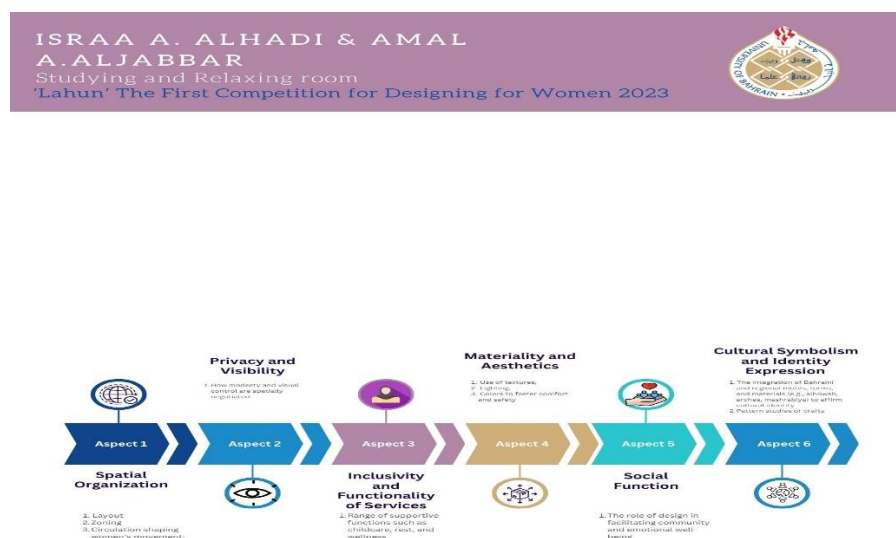


Fig. 1 Aspects of the visual analytical framework. Source: Author.

ANALYSIS AND DISCUSSION

This study set out to investigate how interior design can respond to women's functional and emotional needs in educational environments in Bahrain, using speculative student proposals as research artifacts. The competition—the first of its kind nationally, launched in September 2023 under the Gender Equality Committee at the University of Bahrain—encouraged students to design inclusive, culturally sensitive, and supportive women's spaces. The results, analyzed through six dimensions seen in Figure 1, reveal how interior design can operate as a powerful medium for gender inclusion, identity expression, and emotional wellbeing.



Fig.2 Samples of design proposals of nursing rooms and studying zones

The nursery and breastfeeding space proposals exemplified in Figure 2 showcased an evolved understanding of the challenges faced by student-mothers and faculty. Rather than treating these areas as purely functional, students created multifunctional environments—integrating workstations, hidden beds, ergonomic furniture, and hygiene amenities. The integration of lockable doors, opaque glazing, and zoned spatial layouts reflected a desire to provide safety, autonomy, and discretion, resonating with Rendell's (2000) framing of female spatial experience as dependent on control and comfort. Moreover, sensory elements like soft lighting and acoustic treatments demonstrated an awareness of emotional needs. These proposals affirmed the potential of design to create spaces of support, not surveillance, where care and study coexist fluidly.

In women-only salons, students addressed privacy, cultural identity, and emotional wellbeing simultaneously. Salons were conceptualized not merely as grooming spaces but as sanctuaries for social bonding and self-expression, rooted in traditions of female-only environments. Proposals like those by Fadak and Fatima Madan employed fogged glass, mashrabiya, and traditional arches, transforming cultural motifs into design strategies that visually signal comfort and belonging. Some designs, such as Asala Saleh and Zahra Alhayki's, innovatively connected grooming with wellness zones, reinforcing the idea that self-care in academic settings extends beyond appearance—it becomes a mode of empowerment and identity affirmation.

The retreat and wellness zones represented perhaps the most emotionally sensitive typology, offering students space to rest, reflect, and recharge. These proposals foregrounded neurodiverse needs, using biophilic elements, natural textures, soft color palettes, and modular seating to evoke tranquility and healing. Projects like "Reclaiming Balance" and "State of Serenity" explored how sensory design—through light, texture, scent, and sound—can create environments that promote mental health. Kawther Ahmad's courtyard-inspired design drew directly from Bahraini vernacular traditions, demonstrating how cultural symbolism can reinforce emotional comfort and continuity with place.

Across all categories, students demonstrated an implicit grasp of feminist spatial theory—particularly the reconfiguration of public/private boundaries, and the integration of emotional and social needs into physical space (Spain, 1992; Kern, 2021). Whether designing for care, grooming, or rest, the proposals consistently negotiated between functionality and symbolism, echoing Bal's (2003) model of layered visual meaning. The use of traditional forms and materials in contemporary layouts suggests a desire to anchor gendered space within cultural familiarity, not abstraction.

Ultimately, these proposals illustrate that even speculative student work can contribute meaningfully to national conversations on gender equity, design justice, and educational policy. The competition offered more than just a pedagogical exercise—it became a platform for reimagining campus life from women’s perspectives, offering scalable and culturally grounded alternatives for future spatial planning in Bahrain and the wider GCC that were studied as cases. Thus creating an essential ‘women-only interior zone’ that can be classified for them and titles *Lahun*’ which means for women’ in Arabic.

CONCLUSION

Across all three spatial typologies—nurseries, women-only salons, and rest and wellness zones—the designers’ proposals demonstrated an exceptional blend of cultural sensitivity, emotional awareness, and functional innovation of women’s spaces *Lahun zones*’ within University campus. These attributes, often neglected in conventional institutional design, reflect a new generation of interior designers who are attuned to the realities of women’s lived experiences in academic settings. Evaluated through a feminist and human-centered lens, these proposals go beyond addressing functional requirements; they actively challenge patriarchal spatial norms, offering an alternative architectural narrative that centers women’s autonomy, care needs, and cultural identity.

This discussion also affirms that speculative design, particularly when rooted in rigorous analytical frameworks and visual interpretation methods, can serve as a powerful research method—producing not just ideas, but actionable and inclusive spatial strategies. These student-led visions offer a locally grounded response to SDG 5: Achieve gender equality and empower all women and girls, particularly through Target 5.c, which emphasizes the adoption of sound policies and enforceable legislation for the promotion of gender equality at all levels. By reframing design as a tool of social justice, this study illustrates how academic competitions, when coupled with critical pedagogies, can inform gender-responsive policy, educational reform, and future campus planning in Bahrain and across the GCC. The insights generated through these proposals are not merely academic exercises—they are early blueprints for a more equitable built environment that acknowledges and celebrates the diverse spatial needs of women.

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