

Study Room of University under the Background of Characteristic Culture: Research on Interior Space Environment Design

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Abstract

Ningxia, located in northwestern China, has a long history and is home to multiple ethnic groups, boasting a rich cultural heritage. With the development of modern education, effectively integrating and showcasing this multiculturalism in university study spaces, particularly at Northern Nationalities University, has become an important issue. The design of study rooms must not only meet functional requirements but also reflect and convey the cultural characteristics of the region.

This study employs literature reviews and field investigations to explore how to integrate the multicultural elements of Ningxia into the design of study rooms, ensuring that these designs meet modern educational needs while also showcasing the unique regional culture. The findings reveal that incorporating Ningxia's multicultural elements not only enriches the cultural atmosphere of the study rooms but also significantly enhances students' learning experiences and cultural identity. Furthermore, specific design techniques, such as optimizing spatial layouts and cleverly integrating cultural elements, can effectively promote communication and cooperation among students, enhancing the functionality and aesthetics of the learning environment.

The study's implications suggest that culturally inclusive design strategies can serve as a model for other universities, contributing to regional cultural preservation, inclusive education, and sustainable campus development.

Keywords: Ningxia Culture; University Study Rooms; Interior Space Design; Cultural Identity; Inclusive Education

Introduction

Ningxia, located in the northwestern part of China, is a region inhabited by multiple ethnic groups, whose rich cultural heritage marks it as an integral part of Chinese culture. Historically, Ningxia was a crucial passage on the Silk Road, which not only diversified its cultural styles but also formed a distinctive local culture (Wang & Zhou, 2022). Against this cultural backdrop, Northern Nationalities University has taken on the important mission of preserving and promoting local ethnic culture. However, as times evolve, effectively integrating and showcasing these cultural heritages within the modern educational environment poses a significant question.

Particularly, university study rooms—a key learning space—must not only meet functional needs but also reflect and convey the cultural characteristics of the region. As a significant institution in Ningxia, Northern Nationalities University carries the responsibility of inheriting and promoting Northern ethnic cultures. Currently, however, the design of study room interiors at Northern Nationalities University faces several challenges (Wang, 2022). Firstly, the issue of cultural conflict and integration is particularly pronounced. Ningxia's multi-ethnic nature demands that designs balance the cultural traits of various ethnic groups, avoiding the overemphasis on one ethnic element while neglecting others—a significant test for designers. Secondly, the balance between functionality and aesthetics is crucial. Study rooms primarily serve a learning function; integrating local cultural elements without compromising functionality, thereby enhancing the space's aesthetics and cultural atmosphere, is equally important. Finally, a deep understanding of user needs is vital; designs must cater to the specific needs of different students, requiring extensive and deep user research.

In addition, it is essential to acknowledge that interior space environmental design is not merely a visual or decorative process but a systematic and human-centered approach that considers user behavior, space function, psychological needs, and environmental sustainability. As Yuan Xilin and Feng Huiying (2009) pointed out, interior spatial layout—especially in learning environments like electronic reading rooms—can significantly affect the efficiency of information use and emotional experience. In the context of university study rooms, space planning must prioritize both learning effectiveness and psychological comfort.

Furthermore, behavior patterns play a crucial role in how students interact with learning spaces. Zheng Yin and Li Jingyuan (2009) emphasized that student behaviors in shared spaces such

as dormitories and study rooms directly influence spatial design effectiveness. Therefore, designers must observe and analyze students' behavior patterns to ensure the interior environment aligns with actual use scenarios, creating functional zones that accommodate individual study, group work, and relaxation.

Additionally, Liu Aixing (2010) argued that environmental design in educational spaces should be rooted in users' activities and cultural identity. Especially in multi-ethnic regions, design should reflect shared cultural values while respecting diversity. This approach helps students develop a stronger emotional connection with the learning space, fostering a more inclusive and engaging educational environment.

These challenges underscore the importance of research into the interior space design of study rooms at Northern Nationalities University under the cultural backdrop of Ningxia. The significance of the research is manifold: through sensible design, it can better promote and inherit Ningxia's culture, allowing more people to understand and recognize the culture of the region. A conducive learning environment can significantly enhance the educational experience for university students, creating a comfortable, quiet, and study-friendly environment, thereby improving learning efficiency and outcomes. Moreover, excellent design can foster interaction among students from different cultural backgrounds, enhancing mutual understanding and respect, and helping to build a harmonious campus cultural environment. The students at Northern Nationalities University come from various ethnic groups; their interaction and learning within the study rooms create a unique cultural atmosphere.

This study not only enriches and develops the campus culture of Ningxia and Northern Nationalities University but also serves as a model and catalyst for advancement in the broader field of university interior design. Interior design, a comprehensive discipline involving architecture, environment, and art, through in-depth study of the specific environment of study rooms, can explore more innovative design ideas and methods. These outcomes can provide references for other universities, promoting development across the field. Therefore, the study of interior space design of study rooms at Northern Nationalities University under the backdrop of Ningxia culture is not merely an academic exploration but also a cultural responsibility. Through this research, we can solve specific design problems and, more broadly, promote cultural inheritance and innovation, contributing to the sustained development of campus and societal culture.

Research Objectives

1. To study the integration of Ningxia's multi-ethnic cultural elements in study room designs to meet modern educational needs and showcase regional cultural uniqueness.
2. To research the spatial layout and decorative elements of study rooms, reflecting Ningxia's historical and cultural characteristics and promoting communication and cooperation among students.
3. To investigate the strategies for applying Ningxia's ethnic culture in university study room interior designs, enhancing cultural identity and learning experiences through specific design techniques.

Literature review

1. Ningxia Culture

Ningxia, as an autonomous region in China, possesses a rich and unique historical culture. The traditional culture of Ningxia includes various forms such as Helan shadow puppetry, Hui paper cutting, Hui folk instruments, and Hui attire, all of which are valuable cultural heritages of the Ningxia Hui Autonomous Region. For example, Helan shadow puppetry is an ancient form of shadow play that narrates the historical stories and folklore of the Ningxia region and is a traditional culture of Ningxia (Yang et al., 2024).

According to Li Baoguo (2009), Ningxia's cultural richness is a result of long-term historical development and ethnic interaction, which collectively shaped its distinctive cultural landscape. In terms of ethnic culture, Islam plays a significant role in Ningxia, where it is a predominant cultural force. Islamic attire, music, dance, paper cutting, and shadow puppetry all reflect the life customs and aesthetic preferences of the Muslim population. Culinary traditions, especially dishes like hand-grabbed lamb, are widely favored across communities, indicating the cultural depth embedded in daily life.

It is reported that the Hui population accounts for approximately 35% of Ningxia's total population, making it the only Hui Autonomous Region in China (He & Gao, 2023). The long-standing history of Ningxia's Hui culture, dating back to the Tang dynasty, is evident in traditional music, dance, and architecture. Li Baoguo (2009) also points out that Ningxia's multicultural traits result from centuries of migration and cultural fusion, forming a unique regional identity. Ningxia's folk songs and

musical instruments embody localized forms of narrative art and performance aesthetics that continue to influence modern cultural expressions.

2. Interior Space Environment Design

Interior space environment design is an art and technical activity that transforms the interiors of buildings into fully functional, comfortable, and aesthetically pleasing spaces that meet people's needs. It focuses not only on the functional use of space but also encompasses aesthetics, culture, and psychology. According to Wang Huasheng (2008), successful interior environmental design relies on spatial harmony, user behavior alignment, and contextual culture. The goal is to create an environment that is both practical and aesthetically valuable.

The design must meet users' basic needs—such as studying, working, and resting—while ensuring space efficiency and convenience (Cho & Suh, 2023). As socio-economic development progresses, people's demands and aesthetic expectations for interior spaces are rising. Design is no longer just about decoration but a reflection of cultural values, mental well-being, and social interaction (Daghistani, 2023).

Interior space design integrates disciplines like architecture, environmental art, and furniture design. Wang Huasheng (2008) emphasizes that understanding users' psychological needs and habits is central to creating emotionally resonant spaces, especially in learning or collaborative settings. Good space design requires thoughtful division of areas, seamless movement lines, and clear functional orientation to support both usability and experience quality.

3. University Study Room Interior Space Design

University study rooms are critical learning spaces for students, and their interior design directly impacts learning efficiency, emotional engagement, and cultural belonging. Ting Gao and Peng feiJi (2024) argue that human-centered design is essential in shared study spaces, where users' needs are dynamic and diverse. A well-designed study room should ensure good lighting, air quality, rational space division, convenient facilities, and a comfortable atmosphere.

Key aspects of interior design include style, lighting, color, acoustics, and ergonomics. Designers must balance functional zoning (such as individual desks, group discussion areas, and rest zones) with aesthetic harmony (Sun, 2021). For instance, the integration of greening elements and flexible furniture can enhance both environmental quality and spatial adaptability.

In addition, Ting Gao and Peng feiJi (2024) highlight the importance of adaptability in shared learning environments, where spatial flexibility supports collaboration, independent study, and rest. Layout design must account for behavioral diversity and allow for personalization while maintaining order and inclusiveness. By addressing physical and emotional comfort, design can positively impact student motivation and academic outcomes.

Research Methodology

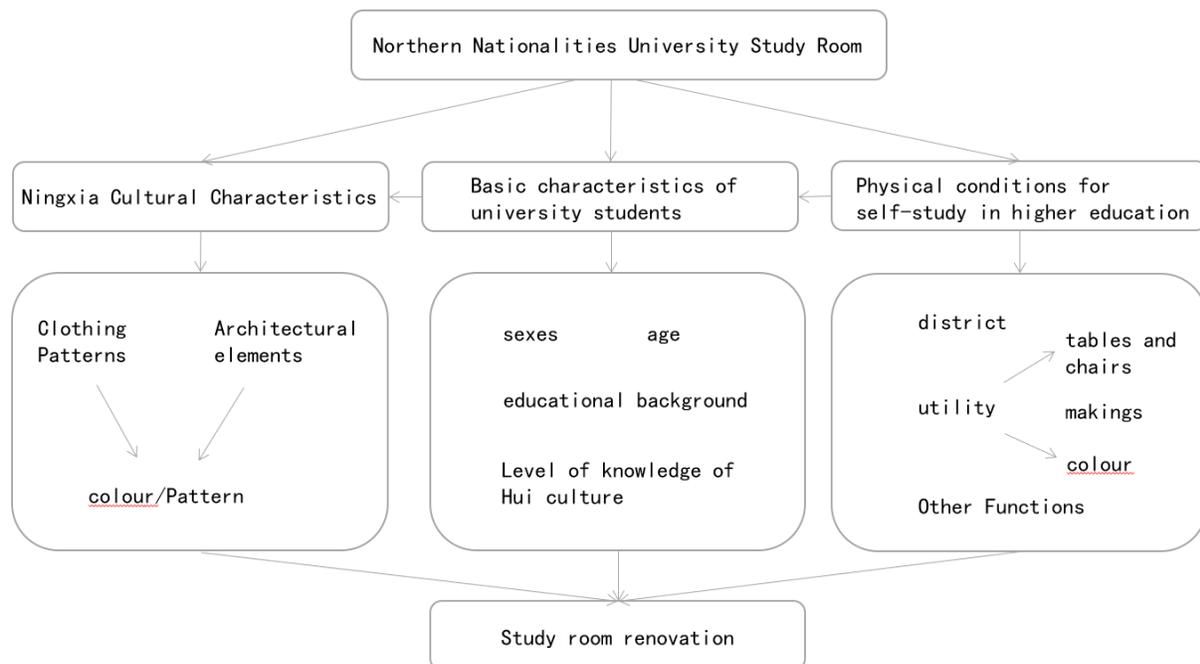


Figure 1 Conceptual Framework (source: Created by researchers, 2024)

Research Methodology

1. Literature Review Method

This involves systematically collecting, analyzing, and interpreting existing literature to gain a deep understanding of the research topic. This method helps researchers build theoretical frameworks, determine the current state and trends of the study, and identify gaps and issues within the research field. This study begins by exploring the history and characteristics of Ningxia's multi-ethnic culture and its representation in modern interior design through a literature review. Additionally, it systematically reviews related interior design theories and cases, especially those involving

multicultural and educational space design, to construct a theoretical framework for study room design. Moreover, by analyzing domestic and international research achievements in similar fields, this study identifies the methods and effects of applying Ningxia's ethnic elements in modern interior design.

2. Field Investigation Method

Involves directly visiting the research site to observe, record, and analyze activities to obtain firsthand data and insights. This method helps researchers deeply understand the actual conditions of the subject matter, enhancing the empirical foundation and applicability of the research. To gain a deep understanding of the current interior design status of study rooms at Northern Nationalities University and its impact on students' learning and cultural experiences, this study conducted field visits to several study rooms at the university. Observations were made on the spatial layout, materials used, color choices, and decorative elements, providing empirical support for subsequent design improvements.

Research Results

1. Principles of Interior Space Design in Study Rooms Under a Multicultural Background

At Northern Nationalities University, a multicultural academic institution, the interior space design of study rooms is not only an art of spatial arrangement but also a practice of cultural expression and ethnic unity. When designing study rooms, it is crucial to consider both the rich ethnic cultural characteristics of Ningxia and the demands of modern education, ensuring that the design meets functional requirements while also reflecting the region's cultural uniqueness and historical depth.

1.1 Emphasizing Ethnic Unity

Study rooms, as essential places for students' daily learning, not only influence their educational outcomes but also serve as vital showcases of the university's commitment to ethnic unity. The interior space design of study rooms at Northern Nationalities University should fully reflect this unity, displaying the cultural features of various ethnic groups. The design can incorporate elements from different ethnicities, such as patterns, colors, and furniture, to create an atmosphere of multicultural integration. It is also important to respect and include all ethnic cultures, avoiding any cultural conflicts or discrimination. Designs should respect the cultural characteristics of each ethnicity,

using spatial layouts and decorative elements to depict scenes of harmonious coexistence, reflecting the university's characteristic of ethnic unity.

1.2 Focusing on Functionality and Comfort

The interior design of study rooms should not only cater to students' learning needs but also focus on comfort, creating a quiet and comfortable learning environment. Colleges should plan the spatial layout judiciously, taking into consideration factors like lighting and ventilation to enhance the quality of the indoor environment. The space layout of study rooms should be thoughtfully organized. Classroom seating should minimize disruptions and create a comfortable learning space. It could combine individual seating and group discussion areas to accommodate different learning needs. Considerations should include student height and comfort, selecting appropriate desk and chair heights, and ensuring enough room space for students to move around (Cheng et al., 2019).

Furthermore, lighting and ventilation in study rooms are also crucial. Good lighting can alleviate visual fatigue and enhance learning efficiency. Natural light can be increased through transparent windows or skylights. Good ventilation ensures indoor air quality, reducing the transmission of bacteria and viruses. A well-designed ventilation system or window layout can ensure proper air circulation. The interior design of study rooms should also focus on comfort, employing soft lighting, comfortable seating, and appropriate temperature settings to create a conducive learning environment. Additional human-centered designs, such as bookshelves and storage cabinets, can make it easier for students to store books and other items.

Lastly, the design of study rooms should also consider sound insulation. Using soundproof materials on walls, floors, and ceilings can minimize external noise interference, creating a quiet study environment (Li Qian, 2022).

2. Design Concepts for Study Room Interior Space Under a Cultural Background

2.1 Spatial Layout

The spatial layout should center on ethnic unity, dividing the study room into multiple functional zones, including study areas, communication areas, and rest areas. The study area can adopt a modular design to meet the diverse learning needs of students. The communication area can feature multifunctional conference rooms and discussion corners to promote student interaction and cooperation. The rest area can be equipped with comfortable seating and relaxation corners, providing students with a space to unwind and rejuvenate.

2.2 Decorative Elements

Incorporate elements of Ningxia's historical and cultural heritage into the study room's interior design, such as Xi Xia script and Islamic patterns, using art installations and wall paintings. Modern design techniques can abstract these traditional elements, infusing the space with both artistic and contemporary vibes.

2.3 Lighting and Color

The interior design of the study room should prioritize natural lighting and artificial lighting design to create a comfortable learning environment. Warm and serene color palettes, such as beige and light blue, can be used, complemented by wooden furniture and decorations to evoke a sense of natural harmony and tranquility.

2.4 Greenery

Incorporate green plants, such as potted plants and hanging baskets, into the interior design of the study room. This not only beautifies the environment but also purifies the air and enhances the comfort of the learning space. Additionally, greenery can help alleviate student stress and improve learning outcomes.

Under the cultural backdrop of Ningxia, the interior space design of study rooms at Northern Nationalities University should reflect ethnic unity, highlight Ningxia culture, focus on functionality and comfort, and blend modernity with tradition. Through thoughtful spatial layout, decorative elements, lighting and color schemes, and the integration of greenery, the study rooms can be transformed into spaces that embody ethnic characteristics and modern flair, providing students with a comfortable and efficient learning experience.

3. Implementation Strategies for Incorporating Ningxia Ethnic Culture into University Study Room Interior Design

3.1 Incorporating Traditional and Cultural Elements

Integrating traditional elements of Ningxia's ethnic culture into the design, such as screens, lattice windows, and couplets, showcases the charm of Ningxia's ethnic culture. This approach enhances the cultural depth of the study room and strengthens students' identification with and inheritance of Ningxia's ethnic culture.

Strategies for Incorporating Ningxia Ethnic Culture:

Using Traditional Architectural Elements: Incorporate elements from traditional architecture, such as upturned eaves and wooden structures, to reflect the characteristics of Ningxia's ethnic culture.

Integrating Traditional Art Elements: Include traditional paintings, sculptures, and paper-cutting art in the study room decorations to enhance the cultural atmosphere.

Employing Traditional Furniture: Use traditional furniture, such as wooden desks, chairs, and bookshelves, to allow students to experience the charm of traditional culture while studying.

Creating Ningxia Ethnic Culture Themed Areas: Set up themed areas displaying ethnic costumes, crafts, and other cultural artifacts, enabling students to gain a deeper understanding and appreciation of Ningxia's ethnic culture.

Organizing Ningxia Ethnic Culture Activities: Regularly hold cultural activities, such as traditional festival celebrations and ethnic music appreciation sessions, to enrich students' learning experiences.

Conducting Study Support Through Ethnic Culture: Use cultural resources to provide study support, such as inviting ethnic culture masters for lectures, allowing students to learn and carry forward Ningxia's ethnic culture.

Integrating traditional elements is significant for enhancing the cultural atmosphere and learning experience in study rooms, fostering a deeper cultural identity among students. These strategies transform university study rooms into important venues for preserving and promoting Ningxia's ethnic culture and cultivating students with a strong sense of ethnic pride.

3.2 Blending Modern Innovative Design

Combining Ningxia's ethnic cultural elements with modern design principles is crucial for enhancing the interior environment of university study rooms. This fusion balances cultural heritage with modern aesthetics and functionality.

Modern Innovative Design Strategies:

Simplicity, Functionality, and User Experience: Create a space that is not overly complex but rich in cultural connotations. Use simple lines and modern materials to create a relaxed and conducive learning environment, while subtly incorporating traditional elements like patterns and

colors. For example, use Ningxia's characteristic blue and gold tones in the walls, representing the vast sky and golden desert, and reflect ethnic art styles in decorations and furniture (Sun, et al.,2015).

Technology Integration: Enhance learning experiences with advanced technology. Equip study rooms with smart lighting systems that adjust brightness automatically, wireless charging stations, and high-speed internet. Use AR or VR technology to create interactive learning environments that provide immersive experiences in Ningxia's history and culture.

Flexible Space Utilization: Design study rooms with flexible layouts to accommodate various learning activities, such as group discussions, seminars, or quiet study sessions. Consider movable partition walls and multifunctional furniture to allow students to reconfigure spaces as needed.

Implementing these design strategies will make study rooms favorite places for students, stimulating their interest in learning and cultural pride.

3.3 Ecology and Environmental Protection

Emphasizing ecology and environmental protection in the design by using green materials reflects the concept of sustainable development. As higher education institutions, universities play a crucial role in promoting cultural heritage and environmental awareness.

Strategies for Emphasizing Ecology and Environmental Protection:

Promoting Green Environmental Ideals: Advocate for green environmental ideals through education and practice, reminding students to save electricity and water, reduce paper waste, and use eco-friendly stationery to foster good environmental habits.

Creating a Green Study Environment: Use environmentally friendly materials in the interior decoration to create a green and comfortable study environment. Encourage students to participate in campus greening activities to enhance their environmental awareness.

Organizing Environmental Theme Activities: Regularly host environmental theme activities, such as Earth Day and World Environment Day, to guide students in focusing on ecological protection and participating in environmental practices.

Emphasizing ecology and environmental protection in study room designs contributes to cultivating students with a strong sense of cultural heritage and environmental consciousness, reinforcing the role of study rooms as vital spaces for both learning and cultural transmission.

3.4 Human-Centered Design

Focus on student needs by optimizing space layout and creating a convenient and comfortable learning environment. Study rooms should provide a quiet and comfortable space while integrating Ningxia's ethnic culture, reflecting human-centered design.

Human-Centered Design Strategies:

Student-Centered Design: Start from the needs of students. Provide designated areas for different study activities, such as quiet study zones, discussion areas, and rest areas, each equipped with appropriate facilities. For example, quiet zones should have soundproof partitions and comfortable reading chairs, while discussion areas should have movable seats and whiteboards to encourage interaction.

Enhancing Study Experience: Include advanced technological facilities and ample resource support, such as high-speed wireless internet, charging stations, and the latest study technologies. Ensure proper lighting, temperature control, and sufficient natural light to reduce eye strain and increase learning efficiency. Implement a reservation system to allow students to book seats in advance, reducing waiting times.

Humanized Management: Implement flexible management practices, such as adjusting the open hours of study rooms based on student needs, especially during exam periods. Ensure proper maintenance for a clean and tidy study environment.

These human-centered design strategies ensure that study rooms provide a supportive, efficient, and culturally rich environment, fostering a conducive atmosphere for both academic and cultural growth.

Discussion

This study investigates the interior space design of university study rooms under the influence of Ningxia ethnic culture through a literature review and field surveys. The findings indicate that appropriately integrating ethnic cultural elements can enhance the cultural atmosphere of study rooms and improve students' learning experiences and cultural identity. This research has significant theoretical and practical implications.

1. Integration of Multicultural Elements

The study confirms the feasibility and necessity of incorporating Ningxia's multi-ethnic cultural elements into the design of study rooms. Field surveys reveal that current study room designs often neglect cultural elements, resulting in monotonous spaces lacking cultural depth. By introducing ethnic patterns, traditional furniture, and other cultural elements of Ningxia, the study rooms become culturally rich, welcoming, and attractive. This design approach fosters mutual understanding and respect among students from diverse ethnic backgrounds, promoting cultural integration and harmony on campus.

Li Baoguo(2009) emphasized that the promotion of regional cultural identity through space design plays an important role in cultural continuity, especially in multi-ethnic areas like Ningxia. These findings are consistent with Li Qian (2022), who argues that the integration of local cultural symbols in public space design strengthens emotional belonging and regional recognition.

2. Importance of Spatial Layout

The research emphasizes the critical role of spatial layout in promoting student interaction and collaboration. Creating different study zones, such as communication and relaxation areas, and considering the psychological effects of lighting and colors, helps shape learning environments that are both effective and comfortable. This balance between functionality and aesthetics is essential in modern study room design.

Cheng et al. (2019) found that multi-functional layout planning and modular furniture increase usage rates and satisfaction levels in university study rooms, which aligns with this study's observation that a flexible and culturally responsive layout enhances user experience. Similarly, Ting Gao and Peng feiJi (2024) highlighted the importance of human-centered and adaptable design in shared study spaces, reinforcing the need for personalized and inclusive environments.

3. Enhancing Cultural Identity and Learning Experience

Field surveys and student interviews show that students feel more engaged and proud when their learning environment reflects their cultural background. Therefore, combining cultural elements with modern design concepts, such as using contemporary materials and interactive technologies, is a practical strategy. These findings support Sun et al. (2015), who suggest that well-designed study spaces not only improve study efficiency but also contribute to a positive academic identity.

Conclusions

This study concludes that integrating Ningxia's multi-ethnic cultural elements into university study room design not only showcases regional identity but also meets modern educational needs. Culturally rich spatial layouts and decorative elements enhance both functionality and cultural atmosphere, while thoughtful design strategies deepen students' cultural identity and learning experience.

However, the study has certain limitations. The research was limited to a single university, and mainly relied on qualitative analysis. Future studies should include more diverse institutions, adopt mixed research methods, and test design strategies in real settings to verify their effectiveness.

By applying these approaches, study rooms can become important spaces for both learning and cultural preservation, supporting inclusive education and regional cultural inheritance.

Suggestions

1. General Research Suggestions

Promote Cultural Integration in Education: Educational departments and local governments should formulate policies that encourage multicultural integration, such as providing financial support and technical guidance to help universities implement cultural integration designs in study rooms and other learning spaces. Policies should specifically encourage the use of local cultural elements to promote students' understanding and respect for local culture.

Enhance Cultural Sensitivity in Interior Design:

Design schools should increase course content that emphasizes cultural sensitivity and diversity in interior design, educating future designers on effectively integrating traditional cultural elements into modern space designs. Governments and industry associations can offer training and resources to designers, helping them better apply multicultural concepts in their design practices.

Strengthen Multi-Stakeholder Collaboration:

Universities should collaborate with businesses and local cultural institutions to jointly develop and implement design projects for study rooms and other educational spaces. Such partnerships can provide additional resources like funding, technology, and cultural assets, collectively promoting cultural diversity in campus design.

2. Suggestions for Further Research

In-Depth Study of Cultural Elements on Learning:

Conduct research on the long-term effects of the redesigned study rooms at Ningxia University, focusing on their impact on students' learning motivation, engagement, and cultural identity. This research should use both qualitative and quantitative methods, such as surveys, interviews, and behavioral observations, to gather comprehensive data. Conduct comparative studies to explore how different universities integrate local cultural elements into their study room designs and the varied impacts of these design strategies on student populations. This will help identify the most effective cultural integration design practices and strategies.

Sustainable Design Methods:

Further explore sustainable design principles and practices in the design of university study rooms, focusing on how to use local eco-friendly materials and technologies to reduce environmental impact while enhancing the cultural display. This research should aim to develop practical guidelines for creating sustainable and culturally rich learning environments.

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