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Exploring a Practical Teaching Model for Architectural Heritage Surveying Based on Outdoor Experience Classes in Coastal Villge Areas of Jiaodong

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Abstract: *By adopting an on-site experiential classroom approach to contemporary architectural heritage surveying courses, this study explores the distinctive and cultural characteristics of local heritage from a human-centered perspective. This methodology aims to transcend traditional, experience-based surveying skill development, thereby enhancing historical aesthetic thinking and practical skills within the framework of new engineering education. This reform of experiential learning in heritage surveying courses focuses on enhancing students' practical skills, critical historical thinking, and digital transformation capabilities. This research establishes a sense of architectural responsibility aligned with contemporary multidimensional societal demands, expanding the scope of contemporary historical learning through distinguish perspectives and pathways.*

Keywords: *Outdoor Experiential Learning; Architectural Heritage; Surveying Practice; Coastal Village Areas of Jiaodong*

1. Introduction

The rapid advancement of digital technology and the widespread adoption of artificial intelligence have shaped contemporary university students' learning environment with characteristics of digitalization, autonomy, and internationalization. Benefiting from diverse knowledge acquisition channels, students exhibit active thinking and strong self-directed learning abilities. However, the information explosion has led to information overload and fragmented knowledge, resulting in issues such as inattention in traditional classrooms, addiction to mobile and computer games, and a lack of meaningful social activities. Students are developing online dependency through frequent information exchange. Influenced by digital media, they lack practical social experience, significantly reduce learning efficiency, and face physical health issues like irregular schedules and sleep disorders. Experiential Teaching, originating in the 1970s, emphasizes student-centered learning where participants gain professional knowledge through hands-on experience, fostering critical thinking and practical skills. While traditional classroom experiential teaching requires extensive contextual support and can suffer from low efficiency due to distractions, this approach has seen widespread adoption in education in recent years, effectively boosting student engagement throughout the learning process[1]. Architectural heritage surveying inherently offers the advantage of outdoor experiential learning, enabling specialized training to precisely target educational objectives. Therefore, by integrating outdoor experiential teaching into the architectural heritage surveying practicum using coastal villages in Jiaodong as a case study, four objectives are pursued:

a) Using architectural heritage as a point of engagement, this program integrates hands-on physical and sensory experiences with on-site surveying activities. It enables students to comprehensively grasp the historical significance and cultural essence of traditional architectural heritage through direct immersion and practical engagement within historic built environments.

b) By fostering collaboration and mutual learning, this program enhances students' teamwork skills, thus contributing to their emotional development and mental well-being.

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c) Breaking free from the limitations of traditional lecture-based classrooms, students explore outdoor architectural spaces within the iconic coastal cultural region of Jiaodong and engage with historical environments. This approach sparks curiosity and a desire for discovery, promoting emotional release and alleviating academic stress.

d) Participate in surveying and research practices for local historical buildings to cultivate a sense of social service and awaken students' sense of social responsibility toward preserving contemporary traditional culture[2].

2. Practical Application of Outdoor Experience Classes in Architectural Heritage Surveying

2.1 The historical process of experiential education

As a pioneer of experiential education, American educator David Kolb proposed the four-stage experiential learning cycle in the 1980s which including: concrete experience, reflective observation, abstract conceptualization, active engagement. Within this framework, concrete situations are essential for facilitating interactive communication and practical transformation throughout the participatory process[3]. These four learning stages form a cyclical system, enabling the progression from theoretical conception to problem-solving. Learners transition from passive absorption to active engagement, and this theoretical approach remains widely applied across diverse educational disciplines today. Consequently, outdoor experiential classrooms aim to immerse students in authentic historical heritage environments, where they complete the entire process of on-site experiential surveying. This facilitates a more intuitive understanding of architectural heritage's historical context, cultural value, and artistic characteristics, thereby enhancing students' cultural literacy and conservation awareness. Integrating sensory experiences into teaching helps students effectively connect historical theory with practical activities. Students are required to synthesize knowledge from multiple disciplines—including architectural history, surveying, and descriptive geometry—while adapting to the actual conditions of the site[4]. This approach enhances their hands-practice-on skills and adaptability on-site, facilitating the transfer and innovation of knowledge and skills. Students master fundamental methods and techniques for architectural heritage investigation, documentation, and surveying through hands-on practice. This approach aligns with the educational philosophy of knowledge serving society and represents an innovative requirement for contemporary engineering education to cultivate talent that meets local needs[5].

2.2 The transformation of experiential education in heritage practice

In recent years, the widespread adoption of new technologies such as satellite positioning and navigation, 3D scanners, drones, and AI modeling has significantly enhanced the efficiency of traditional heritage surveying. The experiential classroom aims to transform early-stage physical space measurement and mapping into contemporary multidimensional skill development[6]. On the technological dimension of digitalization, the integration of digital surveying data facilitates visualization, big data, and AI services for future heritage conservation, thereby improving the digital efficiency of contemporary heritage preservation (see Figure 1). In the realm of cultural heritage transmission, field-based experiential learning enables students to delve from environmental perception into local contextuality. This process involves uncovering indigenous knowledge, identifying the driving forces of contemporary history and culture, and forging new perspectives on cultural transmission and preservation. Through breakthroughs in multidimensional learning and experiential layers, combined with new technological methods, we reinforce the correct understanding of non-renewable historical heritage resources demanded by the times. This process emphasizes critical thinking, evaluating potential errors through practical experience, and adjusting strategies in a timely manner through on-site communication and anthropological investigation. This establishes a problem-solving mindset rooted in the contextual environment of the field. Along future career and interest development paths, flexible historical practice environments—inevitably intertwined with complex factors of natural conditions and human activities—provide objective conditions for cultivating students' complex problem-solving abilities and psychological resilience. This deepens individuals' role in cultural transmission within societal development and strengthens the cultivation of social responsibility t. Outdoor experiential learning creates a non-traditional, mutually reinforcing educational environment. It encourages educators and students to collaboratively explore creative, interactive, and inspiring learning models within the context of real-world, dynamic challenges.

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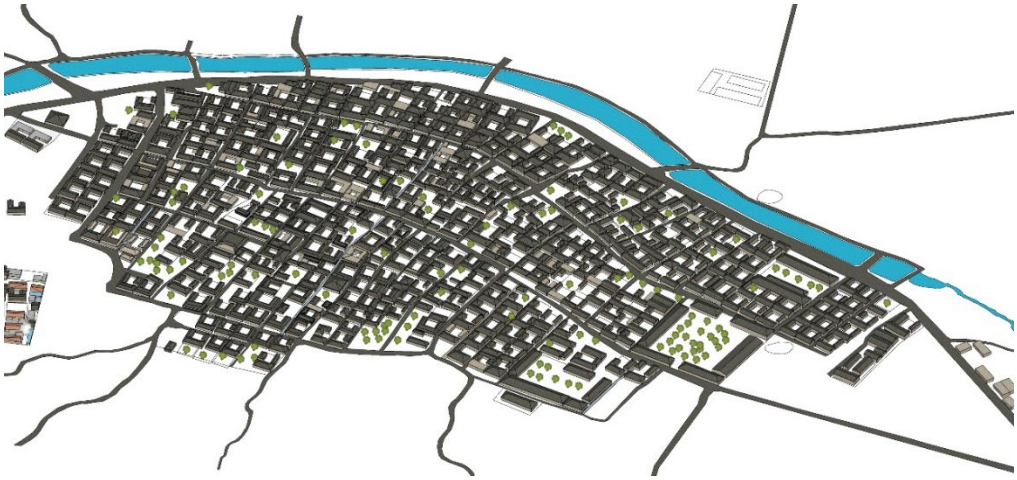

Figure 1: Schematic Diagram of Digital Modeling for a Typical Rural Village in Jiaodong

3. Methodological Reflections on the Outdoor Heritage Practice Classroom Model

3.1 Construct the practical experience education model

The development of an experiential outdoor classroom model for architectural heritage surveying aims to leverage natural historical heritage elements. Through field investigations and hands-on activities, students gain deeper understanding and mastery of architectural heritage surveying knowledge and skills while cultivating traditional cultural awareness and sound values. This approach establishes a shift from traditional *dimensional surveying* toward exploring *spatial narratives*, explicitly aiming to awaken students' intrinsic positive appreciation for historical and cultural aesthetics. It focuses on internalizing surveying knowledge and mastering skills through experiential learning. Methodologically, it breaks away from the traditional homogeneous approach to surveying architectural space samples. Instead, it selects representative and educationally valuable architectural heritage sites based on their locality, distinctiveness, and cultural significance as objects for practical teaching (see Figure 2). This transformative practice model emphasizes goal-oriented and problem-oriented approaches. Centered on students, it achieves multidimensional outcomes through specialized surveying themes aligned with the New Engineering perspective. While enhancing digital and visual information on architectural heritage's historical context, architectural styles, and structural characteristics, it fosters innovative outcomes that address contemporary societal issues such as cultural decline and the preservation of local heritage through coursework[7].

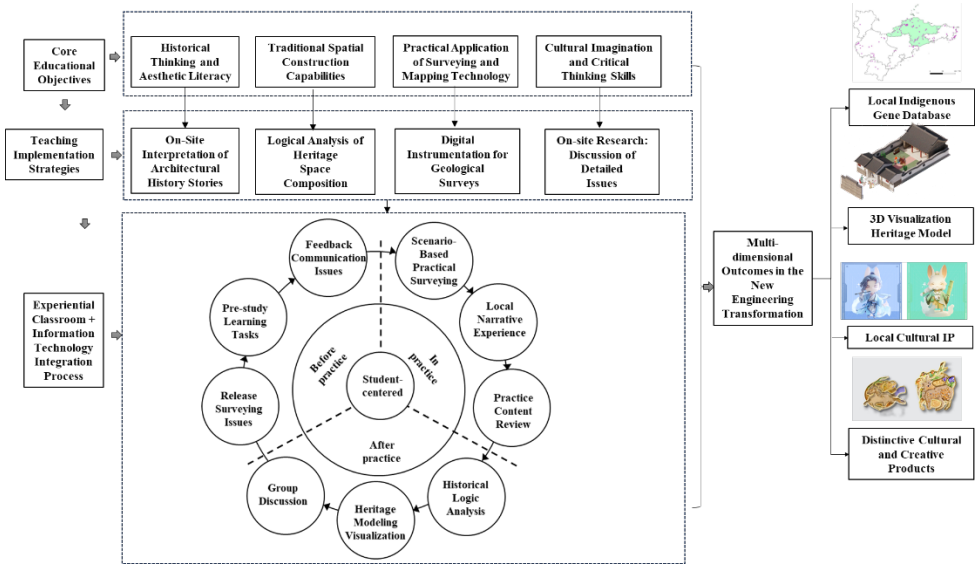

Figure 2: Framework for Constructing an Outdoor Experience Classroom Teaching Model for Historical Heritage Surveying Based on the Case of Coastal Villages in Jiaodong

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3.2 Reflections on Outdoor Teaching Models in the Context of New Engineering Education

The Architectural Heritage Surveying course is closely linked to contemporary rural revitalization and cultural revitalization needs, playing a pivotal bridging role in the preservation and development of traditional cultural heritage. Under the contemporary new engineering discipline framework, which emphasizes interdisciplinary approaches, aligning with societal demands, encouraging innovation and entrepreneurship, and prioritizing industry-education integration, the course's outdoor experiential teaching model must demonstrate foresight and problem-solving awareness. The course encompasses a broad range of knowledge, spanning architecture, history, philosophy, art, and politics. Through on-site experiences, it connects deeply with local traditional culture, humanistic contexts, and social issues, integrating multidisciplinary theories. In terms of course objectives, it must transcend a linear progression from "understanding" to "knowing how to do," fostering practical application skills that evolve from "tracing origins" to "targeted solutions." Based on outdoor experiential learning, and aligned with the development plans and objectives of new engineering disciplines, the following four dimensions require further critical consideration in teaching reform:

a) Establish a macro-historical perspective that extends from individual architectural heritage research to holistic consideration of historical landscapes and environments. The wisdom and approaches of traditional craftsmanship, rooted in local character, cultural identity, and historical continuity, can be leveraged to enhance contextual historical research methodologies.

b) From the completion of surveying and mapping drawings to the accumulation of heritage materials in designated areas, this initiative fosters innovative thinking to address urgent social issues and revitalize traditional culture, enabling multi-faceted architectural heritage design and creation.

c) The course examines the concept of "dwelling" through thematic studies of traditional architecture, investigates the cultural migration of residential forms from a non-utilitarian standpoint, and analyses the cultural significance of human settlements within their regional contexts.

d) The course aims to foster social awareness and integrate theory with practice. It examines architectural heritage within its historical context alongside policies like rural revitalization, thereby expanding the methodologies students use to conserve heritage and design contemporary regional spaces.

3.3 Refine teaching methods and broaden instructional dimensions

Surveying historical architectural heritage involves not only the structures themselves but also their natural surroundings, social contexts, and cultural traditions. Outdoor experiential classrooms serve as platforms for interpreting and exploring the core and peripheral aspects of traditional culture within their holistic historical landscapes. By reducing the constraints and excessive theoretical indoctrination inherent in indoor classrooms, this approach employs positive forms of on-site narrative exchange to enhance students' understanding of traditional historical practices. This process places high demands on instructors' historical literacy and on-site teaching capabilities. It requires targeted, guided, and inspiring field instruction to stimulate students' curiosity for knowledge exploration and problem-solving thinking. It transforms passive knowledge transmission into active discovery and absorption of new insights, expanding historical understanding beyond textbooks. Therefore, reforming and transitioning to this model necessitates a clear alignment with the learning process and social life, as well as with the nation's historical and cultural heritage preservation and development efforts. Building upon experiential learning in real-world outdoor settings, the practical process integrates local contexts and environments to prompt students to reflect on contemporary cultural preservation issues. By engaging in hands-on activities and sensory experiences, complex and obscure historical theories are made relatable and accessible, serving as a foundation for professional knowledge, skills, and future career development.

Beyond traditional architectural surveying software applications and building model creation, the outdoor experiential classroom integrates surveying discoveries, exchanges with local conservation scholars, drone aerial photography, and village resident interviews. For each segment, students develop plans based on their chosen heritage topic, transitioning from passive learners to active planners and implementers. This fosters genuine proactive engagement, fully unleashing their curiosity and exploratory drive through local immersion. At the teacher level, a multi-faceted guidance model is provided, including multidisciplinary teacher mentorship, real-time on-site progress tracking, post-activity reviews, online information exchange, and multimedia resource sharing. Teachers shift from the forefront to a supporting role, granting students greater autonomy. Under the Outcomes-Based Education (OBE) framework, this approach guides students toward outcome-oriented learning. Using architectural

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heritage as a medium and outdoor experiences as an entry point, this approach strengthens the interaction between students, teachers, and knowledge, enhancing the appeal of history education. The reform's starting point lies in expanding from specific points to broader contexts, breaking free from rigid theoretical frameworks, improving the coherence of curriculum knowledge, extending the scope of disciplines, and promoting the comprehensive development of students' thinking and individuality.

4. Conclusions

The path to preserving historical heritage within the context of contemporary Chinese traditional culture remains arduous, requiring continuous refinement and updating of knowledge systems through practical application. Traditional classrooms excel at systematically imparting theoretical knowledge, yet overly rigid instructional models can stifle students' active thinking and enthusiasm for knowledge exploration. Research on reforming outdoor experiential learning through historical heritage surveying courses reveals that experiential approaches must continually align with future societal development goals and the objective laws of student learning cognition. During instruction, diverse thematic models should be employed to tap into students' intrinsic motivation for learning based on their needs. For outdoor experiential teaching, future efforts should strengthen teachers' guiding role by addressing practical societal issues like cultural revitalization[8]. This requires fully embracing student-centered principles, enhancing teachers' capacity for innovation in outdoor experiential teaching, and adapting flexibly to multidimensional thematic curricula and actual architectural heritage content. Concurrently, rigorous management of course components is essential to establish systematic threads and pathways across different subject models, ensuring effective advancement of teaching objectives. Furthermore, teaching effectiveness and evaluation systems should be refined through in-depth social needs assessments to ensure the rationality and practical applicability of teaching models.

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References

[1] Li Zhiyao. (2020) "Exploration and Practice in Teaching the Foundational Course 'Function and Experience' in Spatial Design". Decoration, 1, 134-135.
[2] Vacca, Giuseppina. (2023) 3D Survey with Apple LiDAR Sensor—Test and Assessment for Architectural and Cultural Heritage. Heritage, 6(2), 1476-1501.
[3] Thuy Thanh TranCA, Christian Herzig. (2024) Team roles and challenges in experiential learning in sustainability accounting education: A four-stage learning cycle. Accounting Education, 1-28.
[4] Irene De La Torre Fornes. (2023) Javier Cortina Maruenda, David Marcos González. Knowing the architectural heritage through graphic survey: the castle of Ademuz. Disegnare con, 16(30), 1-26.
[5] Liu, X.; Zhang, Y.; Li, Y.; Zhang, A.; Li, C. (2023) Exploring Village Spatial Patterns for Sustainable Development: A Case Study of Diqing Prefecture. Sustainability 2023, 15, 16362.
[6] Ming Guo, Xiaoke Shang, Jiawei ZhaoCA,et al. (2025) Digital twin models for architectural heritage conservation[J]. Journal of Building Engineering, 112, 113792.
[7] Xiaoke Shang, Ming Guo, Guoli WangCA1,et al.(2025)Behavioral model construction of architectural heritage for digital twin[J]. npj Heritage Science, 13(1).
[8] Liu, X.; Li, Y.; Wu, Y.; Li, C. (2022) The Spatial Pedigree in Traditional Villages under the Perspective of Urban Regeneration—Taking 728 Villages in Jiangnan Region, China as Cases. Land, 11, 1561.