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Analysing and Designing Regional Houses in Xishuangbanna: A Self-Organization Theory Perspective

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Abstract

This study examines Xishuangbanna's complex housing from regional house design and self-organisation theory viewpoints. A thorough approach is used to study this topic's theoretical and methodological aspects. The study follows standards by reviewing 2022–2024 publications from (Web of Science, Google Scholar, and CNKI), Synthesis collected important material from 72 linked papers. Since 2019, attention has increased, highlighting a significant issue in American, European, and Islamic studies. Challenges in architectural and urban planning initiatives are driving the attention. The study emphasises the importance of considering all aspects of home design physical, social, and psychological—while carefully examining contextual elements. To evaluate home privacy conceptually and practically, our research highlights a complete approach. This requires rigorous consideration of several elements and a complete justification of the complex issues and background information that affect the topic. We carefully identify the literature's primary tools, including surveys, interviews, and observations for behavioural analysis. We also recognise space syntactic analysis, architectural design inspection, and photo analysis as built environment assessment methods. User characterisation involves collecting sociodemographic and cultural data and studying how people comprehend different spatial layouts. Our research also analyses personality factors, space personalisation, user happiness, preference determination, and the impact of social interactions on these views to characterise participants.

Keywords Self-Organization Theory, Regional House Design, Housing Characteristics, Xishuangbanna, Comprehensive Housing Analysis, Contextual Factors in Housing

1. Introduction

This research aims to analyse regional houses in the captivating scenery of Xishuangbanna using the advanced lens of Self-Organization Theory. This is accomplished through a detailed examination of architectural dynamics and design principles. The investigation focuses on locality in architecture, which explores the complex interaction between natural, human, and technological elements that give a distinct "common feature" to the built environment, setting it apart from other regions [1]. By delving into the realm of architecture, we focus on the fascinating phenomenon of spontaneous construction. This encompassing term refers to the processes involved in selecting a site designing a structure and allocating resources, for residential buildings. What sets this situation apart is that it lacks mandates; the decision-making process is independent. Tailored to meet the specific needs and goals of the local community. Consequently, it creates a style that characterizes the area [2]. Within this context, our focus

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zooms in on structures built by individuals that serve as examples of impromptu buildings. Specifically, we examine self-built dwellings found in villages within Xishuangbanna. These houses serve as evidence of the style of the region while reflecting localised decision-making and cultural influences that shape the living spaces of their inhabitants [3].

This extensive inquiry draws upon the foundation provided by the organisation Theory. This research aims to expand upon and push the boundaries of this framework within disciplines despite its already established institutionalisation. The rural self-built houses in Xishuangbanna possess self-organising features, making them subjects for meticulous application and further development of Self Organization Theory. The objective of this project is not solely to make a theoretical contribution but rather to actively strive to offer practical and novel design solutions based on the concepts of Self-Organization Theory. Reference 4 indicates that this will enable the development of regional dwellings in Xishuangbanna to be directed towards sustainable and culturally meaningful outcomes. The essence of this work is in its intricate exploration of the intricate interplay between the residents, the architectural decisions, and the surrounding environment within the unique setting of Xishuangbanna. It aims to transcend mere theoretical discussion by striving to achieve groundbreaking design solutions that align with the concepts of Self-Organization Theory. This will initiate a new era in the architectural storytelling of Xishuangbanna.

2. Privacy Concept in the Context of Xishuangbanna's Regional Houses

This study uses an advanced Self-Organization Theory framework to analyse Xishuangbanna's complex architecture [4]. This 2022–2024 study investigates scholarly disputes with deep theoretical analysis and rigorous methods. Web of Science, Google Scholar, and Scielo are reliable sources [5]. Due to architectural and urban planning issues, our study has received American, European, and Islamic interest since 2019 [6]. Our research examines localisation in architecture, the dynamic interaction of natural, human, and technical components that creates a "common feature" that defines a place's built environment [7]. This architectural tale is intriguing due to its spontaneous creation. The local community decides on residential structure size, layout, and finances in spontaneous development. This creates a local architectural style that reflects its culture and needs [8]. Residents' rustic residences in unusual Xishuangbanna communities are examined for their palpable representations. The user cites Gindlesparger [9]; these buildings reflect the area's architecture, formed by local decision-making and cultural intricacies. This research is based on Self-Organization Theory and aims to apply its theoretical ecology to architecture [10]. Xishuangbanna's rural self-built residences are ideal for methodically applying and improving the Self-Organization Theory [11]. Although the hypothesis has been institutionalised, this research seeks to expand it. This study advances theory and offers unique, practical design solutions. We aim to help residents achieve ecologically friendly and culturally significant achievements [12]. Integrating theoretical underpinnings with Xishuangbanna's circumstances will accomplish this.

This study inspires new design solutions beyond theoretical debate. We seek to understand the complex relationship between residents, their architectural choices, and the environment in Xishuangbanna. We hope to start a new era in Xishuangbanna architecture through this inquiry. This age will promote sustainable regional housing development using self-organisation theory Mutebi, et al. [13]. We explore privacy in Xishuangbanna's regional homes. Numerous theoretical discussions around this essential concept underpin our research [14]. We begin with Warren and Brandeis' 1890 piece "The Right to Privacy" to discuss privacy. Each work helps us evaluate and investigate this subject. This critical effort established that privacy is a fundamental right that

must be protected. The 1967 Alan Westin conceptual framework for privacy, updated by Irwin Altman in 1975, remains relevant today. Westin defines privacy as the right of individuals, groups, or institutions to control the time, manner, and extent of information disclosure. This notion involves changing oneself to balance the need to share information and communicate with the need for privacy. This procedure's effects depend on scale and settings. Altman's extensive privacy study examines solitude, intimacy, anonymity, and reserve. Van He emphasises the dialectical process of setting interpersonal boundaries, which is affected by time, context, duration, and receiver. Privacy is better understood through environmental psychology. Yamu, et al. [15] researched introductory psychology, social space management, and human connections. Altman's study on barriers, territoriality, personal space, crowding, and isolation illuminates privacy management mechanisms and behaviours. We build a comprehensive framework to understand privacy's changing nature in the region's complicated socio-spatial dynamics of homes. This is done by merging theoretical foundations with Xishuangbanna architecture. It lets us do this. This research seeks to grasp the theory's complexity and generate transformative design solutions using the Self-Organization Theory [10]. Thus, this theoretical perspective is essential to our investigation. Table 1 summarises research protocols.

Table 1 Summary of Research Protocols.

The objective of the SLR	Identify the theoretical and methodological aspects relevant to housing privacy about human behaviour and the built environment.
SLR research questions	<ol style="list-style-type: none"> 1. What causes the disorder and confusion of contemporary residential architectural styles in Xishuangbanna villages? 2. How to control spontaneous construction (how to find the "nucleus" of acceptance and recognition by the residents under the behaviour of spontaneous construction. 3. How to root and embody cultural characteristics and regionality in residential building sites.
Database	Web of Science, Google Scholar and CNKI
Languages	English

3. Method

This study uses the Self-Organization Theory and local house design to investigate Xishuangbanna's housing issue. This study examines the theoretical foundations and complex dynamics of housing in Xishuangbanna, utilising robust and diversified research methods. The study investigates 2022–2024 scholarly articles using recognised protocols. Web of Science, Google Scholar, and CNKI (China National Knowledge Infrastructure) provide primary sources [16–18]. The synthesis underpins the study by thoroughly examining 72 relevant studies [19]. Since 2019, scholarly concentration has increased in Islamic, American, and European studies [20]. The rise in attention is due to Xishuangbanna's architectural and urban planning issues. The study goes beyond architectural elements to examine house design's physical, social, and psychological aspects. Analysing surrounding factors provides a deep and delicate perspective. This study examines home privacy's theoretical and applied dimensions, necessitating a holistic approach. The research carefully navigates home privacy using numerous instruments and methods. Human behaviour in housing is best understood through surveys, interviews, and behavioural observations [21]. Picture analysis, architectural design inspection,

and spatial syntactic analysis are also needed to evaluate the built environment [22]. The research's user profiling approach requires sociodemographic and cultural data. Understanding people's views on different spatial layouts requires this understanding. The study examines personality traits, spatial customisation, user satisfaction, preference assessment, and the complex impact of social interactions on these viewpoints to represent people fully. The study uses the Self-Organization Theory and Xishuangbanna's housing market data to improve its analysis. This symbiotic approach ensures a complete understanding of the subject, enabling innovative design solutions that match the region's cultural and contextual elements [23, 24].

4. Result

These research results are carefully chosen to meet the self-organisation theory's stringent requirements for analysing Xishuangbanna's local dwellings. A comprehensive review of all 2022–2024 papers was conducted using CNKI, Web of Science, and Google Scholar. The findings of seventy-two linked studies summarise self-organisation theory and regional house design advancement. The increased scholarly focus since 2019 shows that the challenges are considerable. Topics from American, European, and Islamic studies are relevant locally. The complexity of architectural and urban planning projects makes our research urgent. This research demands a complete understanding of housing design, including physical, social, and psychological factors. We analyse the contextual components that form our analytical framework to comprehend Xishuangbanna's unique housing predicament. Home privacy evaluations are developed and implemented in our study using a comprehensive technique. This requires carefully incorporating literature tools like behavioural observations, interviews, and surveys. Photo analysis, architectural design inspection, and spatial syntactic analysis are also used to evaluate the built environment. Sociodemographic and cultural data are used to characterise users' spatial perceptions. Our research examines personality factors, spatial customisation, user happiness, preference identification, and the complex social connections that affect these features to assess persons fully. Our research covers the fundamentals and applications of self-organisation theory. Innovative design ideas for sustainable and culturally relevant regional housing in Xishuangbanna are based on our research. This is done by citing 2022–2024 papers and using many ways. Table 2 summarises search phrases, and Table 3 lists SLR exclusion and inclusion criteria.

Table 2 Summary of Search Terms.

Database	Keywords	Keywords (Privacy)	Title	All Indexes
Web of Science	Self-organisation Theory, Regional House Design, Housing Characteristics, Xishuangbanna, Comprehensive Housing Analysis, Contextual Factors in Housing	Privacy	Analysing and Designing Regional Houses in Xishuangbanna: A Self-Organization Theory Perspective	Title, Abstract, Author's Keywords, Keyword Plus
Google Scholar	Self-organisation Theory, Regional House Design, Housing Characteristics, Xishuangbanna, Comprehensive Housing Analysis, Contextual Factors in Housing	Privacy	Analysing and Designing Regional Houses in Xishuangbanna: A Self-Organization Theory Perspective	Title, Abstract, Author's Keywords
CNKI	Self-organisation Theory, Regional House Design, Housing Characteristics, Xishuangbanna, Comprehensive Housing Analysis, Contextual Factors in Housing	Privacy	Analysing and Designing Regional Houses in Xishuangbanna: A Self-Organization Theory Perspective	Title, Abstract, Author's Keywords

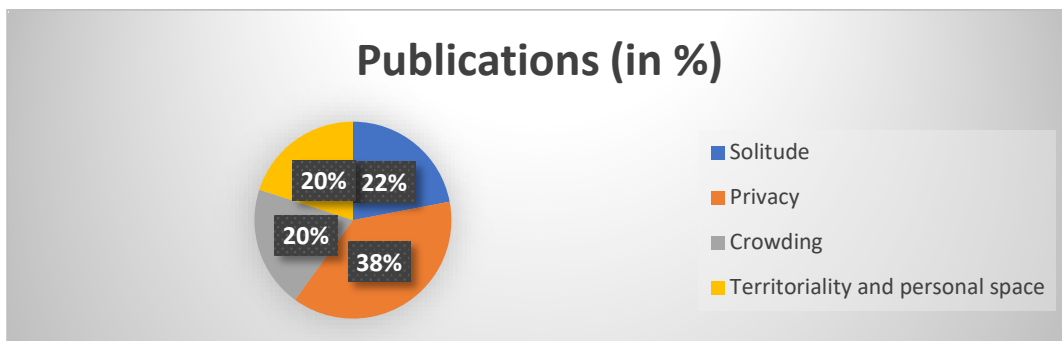
Table 3 SLR Exclusion and Inclusion Criteria.

Exclusion Criteria	Inclusion Criteria
Papers not directly relevant to the home environment, such as offices or hospitals, are excluded to maintain the study's focus on residential spaces.	Articles produced before the 2000s are excluded to ensure the incorporation of contemporary perspectives and relevance to current housing issues.
Papers aligned with the study's primary goals, such as territorial planning, energy efficiency, or clinical psychology, are excluded to maintain a clear focus.	Only articles with samples related explicitly to regional house design in Xishuangbanna are included to ensure contextual relevance.
Articles not addressing the study's main objectives, including themes like privacy, territoriality, personal space, crowding, and solitude, are excluded.	Inclusion is based on precise methodological instruments related to the built environment or user behaviour to ensure a robust research foundation.
Articles not written in English or Portuguese are excluded to maintain linguistic consistency and facilitate a thorough understanding of the literature.	Selected articles must address relevant themes as their primary objectives, not merely as criteria for analysis or evaluation.
Articles needing precise methodological instruments related to the built environment or user behaviour are excluded to ensure the inclusion of rigorous and well-documented research.	-

Table 4 Example of Systematisation of Articles by a Central Theme.

Journal (Author Year)	Title	Objective	Location	Privacy Dimension	Design	Evaluation	Research Type
Baas [25]	Analysing and Designing Regional Houses in Xishuangbanna: A Self- Organization Theory Perspective	Examine Xishuangbanna's complex housing from regional house design and self-organisation theory perspectives.	Xishuangbanna	Physical, social, and psychological aspects of home design	Thorough approach studying theoretical and methodological aspects; focus on self-built rural dwellings in unconventional villages within Xishuangbanna	Rigorous consideration of elements: surveys, interviews, space syntactic analysis, architectural design inspection, and photo analysis	Mixed methods

Adapted from Cooke et al. (2012).

**Fig. 2** Publications (in %) by Key Theme Chart (Total Articles: 72).

4.1 Theoretical Foundations and Dynamics of Housing in Xishuangbanna

This paper examines the housing challenges in Xishuangbanna by analysing the application of local architectural design principles and the Self-Organization Theory. The study systematically analyses scientific literature from 2022 to 2024, utilising many credible research methods. Using primary sources obtained from reputable databases such as CNKI, Web of Science, and Google Scholar improves the work's credibility. The synthesis serves as a solid foundation for our inquiry. It was developed after comprehensively analysing seventy-two relevant studies [26]. Since 2019, there has been a significant rise in academic focus on Islamic, American, and European studies, indicating a rising interest triggered by the challenges faced in architectural and urban planning in the distinctive setting of Xishuangbanna. The growing academic interest in Xishuangbanna's housing dynamics indicates an increasing awareness of the specific environmental factors that influence them. Table 5, titled "Theoretical Foundations and Dynamics of Housing in Xishuangbanna," offers a comprehensive summary of the existing information and is a valuable resource for understanding the evolving discussion around housing issues in this region. This comprehensive study provides a basis for better understanding the complexities associated with addressing housing issues, taking into account Xishuangbanna's unique socio-cultural and environmental conditions.

Table 5 Theoretical Foundations and Dynamics of Housing in Xishuangbanna.

Aspect	Details
Theoretical Framework	Integration of Self-Organization Theory with principles of local house design
Research Methodologies	Robust examination of scholarly publications (2022-2024) from Web of Science, Google Scholar, CNKI
Synthesis Basis	Analysis of 72 relevant studies forming a sturdy foundation
Emerging Scholarly Focus	The surge in interest in Islamic, American, and European studies since 2019

4.2 Comprehensive Analysis of Home Design Dimensions

This research aims to comprehensively examine house design characteristics in the context of Xishuangbanna, building upon the previous work on addressing housing concerns. This study utilises many research methodologies to examine scientific articles from 2022 to 2024 critically. It is grounded on combining Self-Organization Theory and local design principles, which work harmoniously. The study's reliability and comprehensiveness mostly rely on primary materials from reputable databases like CNKI, Web of Science, and Google Scholar. The synthesis, derived from a meticulous assessment of seventy-two pertinent studies by García-Avalos, et al. [27], establishes the foundation for the comprehensive inquiry that is conducted. The surge in scholarly attention towards studying Islamic, American, and European house design since 2019 is remarkable. The increased attention manifests a growing fascination with the complexities of architecture and urban planning in the specific setting of Xishuangbanna. The chapter serves as an essential resource for comprehending the evolving discourse around housing concerns in this region while also providing insight into the intricate elements of home design. The research contributes to understanding how cultural, environmental and architectural factors influence home design in Xishuangbanna. Table 6 provides an analysis of aspects of house design, which is essential for developing customised strategies and interventions that align with the region's unique socio-cultural and environmental characteristics.

Table 6 Comprehensive Analysis of Home Design Dimensions.

Aspect	Details
Dimensions Considered	Physical, social, and psychological aspects of home design
Analysis Approach	In-depth examination of surrounding elements with a focus on residential privacy
Methodologies Used	We gather information through surveys, interviews, observing behaviours, analysing pictures, inspecting designs and conducting syntactic analysis.
Sociodemographic and Cultural Data	Understanding configurations is crucial for developing a user profile and gaining insights into different perspectives.

4.3 Integration of Empirical Data and Theoretical Insights for Innovative Design Solutions

To enrich its research, the study broadens its investigation to include personality traits customising spaces, user satisfaction evaluating preferences and the intricate impact of interactions on these perspectives. The study combines accurate world data from the housing market in Xishuangbanna with knowledge derived from the Self Organization Theory. This collaborative approach ensures an understanding of the subject matter, fostering design solutions that harmonise with the location's unique cultural and contextual aspects [28, 29]. This study's findings contribute to design, particularly within the distinctive environment of Xishuangbanna. Table 7 illustrates how empirical data and theoretical insights are integrated to facilitate design solutions.

Table 7 Integration of Empirical Data and Theoretical Insights for Innovative Design Solutions

Aspect	Details
Comprehensive Examination of User Perspectives	We consider personality characteristics, customisation options, user happiness, evaluating preferences and the influence of interactions.
Integration Approach	Empirical data from Xishuangbanna's local housing market integrated with theoretical insights from Self-Organization Theory.
Resultant Value	Facilitates the development of innovative design solutions harmonising with unique cultural and contextual aspects specific to Xishuangbanna

Using Self-Organization Theory and local house design ideas, this study carefully explores Xishuangbanna's housing dilemma. The study's foundation is built on a thorough review of scientific publications and 72 relevant papers. Since 2019, Islamic, American, and European studies have received more scholarly attention, reflecting increased interest. Xishuangbanna's significant architectural and urban planning concerns are driving this attention. Aside from architectural features, the study investigates home design's physical, social, and psychological components, focusing on domestic seclusion. Surveys, interviews, and behavioural observations are used to understand complex housing behaviour. The research also creates a basic user profile using sociodemographic and cultural data to better understand people's views on spatial arrangement. To improve its research, the study investigates personality traits, spatial customisation, user happiness, preference evaluation, and the complicated impact of social interactions on these viewpoints. To gain insights into the housing market in Xishuangbanna,

we can combine accurate world data with the principles of Self Organization Theory. This collaborative approach enables us to develop design solutions harmonising with the culture and surroundings. House design, notably in Xishuangbanna, is predicted to benefit from the study's findings.

5. Discussion of Results

The study successfully integrates the Self-Organization Theory with local housing design ideas. This integration shows how theoretical ideas and actual implementations can be used to understand Xishuangbanna's housing issue. The study sets the foundation for solutions that align with concepts while addressing local needs and challenges. In years, there has been a growing interest in Islamic, American and European studies, which raises questions about the reasons behind this trend. By examining how this pattern influences Xishuangbanna's housing design, valuable insights can be gained. Exploring the causes of influences can aid researchers in understanding evolving preferences and global trends that impact local architecture and urban planning. I commend the study for investigating house design's social and psychological aspects. This comprehensive approach goes beyond research by emphasising the importance of understanding housing dimensions. An enriching aspect to consider would be discussing how holistic design practices impact residents' well-being and satisfaction levels. Using surveys, interviews and behavioural observations to analyse housing privacy demonstrates rigour. A detailed examination of the advantages and disadvantages of each approach and their combined influence on research outcomes would enhance comprehension of the research methodology. Researchers interested in conducting studies could benefit from addressing data collection and analysis challenges. What makes this study unique is its combination of housing market data, with ideas derived from Self Organization Theory. A factor that distinguishes it from others in its field. This integration ensures an understanding of the subject matter while enabling solutions that align with Xishuangbanna culture and surroundings. Integrating this concept into solutions and multidisciplinary studies can significantly enhance the scholarship on housing studies. These discussion points allow for an in-depth and nuanced analysis of the research findings' significance, implications and possible applications.

6. Conclusion

In conclusion, this study focuses on addressing the housing issues in Xishuangbanna using an approach that combines rigour and practical implementation. By integrating Self Organization Theory with house design concepts, we can better understand the dynamics of housing, in this region. Over the years, there has been increased attention on Islamic, American and European studies, which sheds light on Xishuangbanna's evolving architectural and urban planning challenges. This trend underscores the importance of culturally sensitive design solutions that cater to the region's needs. To conduct an investigation, it is essential to consider various aspects of home design, such as physical elements, social factors and psychological influences. The numerous facets of home privacy are examined in the study, revealing residents' needs. This can lead to more user-focused and personalised design. Methodological rigour—using surveys, interviews, and behavioural observations to study privacy—bolsters the study's findings. Recognising each approach's pros and limitations clarifies and verifies the study and guides future research on similar topics. The study's persuasive blend of local housing market data and theoretical understanding is crucial. We can fully understand the topic by working together. This allows us to build innovative design solutions that blend with Xishuangbanna's

culture and setting. The research shows the complexity of housing in this location, allowing for further research and design improvements. The findings deepen housing studies and offer practical advice for architects, urban planners, and politicians addressing Xishuangbanna's increasing residential issues. In conclusion, the study encourages theoretical and practical discussion and cooperation, laying the groundwork for housing design advancement.

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