International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

# Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space

**LinZe Li and Watanapun Krutasaen**
Doctoral Program, Major of Design, Faculty of Decorative Arts, Silpakorn University, Thailand
E-mail: 409866877@qq.com, ORCID ID: https://orcid.org/0000-0001-9597-9300
E-mail: watanapun@gmail.com, ORCID ID: https://orcid.org/0000-0001-5556-5656
Received 10/12/2024 Revised 16/12/2024 Accepted 16/01/2025

**Abstract**
**Background and Aim:** This study focuses on designing home products from the perspective of cats, particularly addressing challenges in limited living spaces. The primary aim is to explore how cat behavior, needs, and preferences can inform innovative product designs that strike a balance between functionality, environmental sustainability, and interactivity. Through behavioral studies and case analysis, the research seeks to develop products that enhance the quality of life for cats while maintaining harmony with human living spaces.
**Materials and Methods:** Literature Review: Comprehensive study of cat behavior and previous pet product designs. Observational Studies: Analysis of three cats (Q, YOYO, and Yamei) in varied spatial conditions (5m² to 220m²) over three months to assess spatial adaptability, psychological needs, and instinctive behaviors. Case Studies: Examination of innovative product designs like folding beds, hanging climbing frames, and shared space furniture. The advantages, limitations, and improvement suggestions for each product were documented. Prototype Testing: Development and user feedback evaluation of suggested products to determine their practicality and effectiveness in enhancing cat welfare.
**Results:** Behavioral Insights: Cats displayed strong adaptability across different spatial conditions but showed psychological impacts (e.g., anxiety) when space was significantly reduced. Exploration and interactive play were key needs observed. Product Innovation: Innovative designs like the "Happy Camper Cat Tent" and "CATable" effectively addressed cat behaviors like scratching, climbing, and hiding, demonstrating significant suitability for small spaces. Human-Cat Interaction: Shared space furniture like the Kikko Table highlighted the potential for harmonious coexistence by integrating cat needs with human aesthetics and functionality. Environmental Considerations: Eco-friendly materials and space-optimizing features contributed to sustainable designs.
**Conclusion:** The study underscores the importance of designing home products that consider the spatial and psychological needs of cats. By integrating behavioral insights into product designs, the research achieved innovative solutions that enhance feline welfare and support harmonious human-cat interactions. These findings provide valuable guidance for the future development of pet-friendly home products, contributing to improved quality of life for both cats and their owners.
**Keywords**: Cat Behavior; Innovative Product Design; Limited Living Spaces; Human-Cat Interaction; Sustainable Pet Furniture

## Introduction

The rapid growth of the global pet industry, driven in part by the increasing humanization of pets, has significantly shaped the design of home products tailored for animals, particularly cats. As more households view pets as family members, the need to ensure their comfort and well-being within shared living spaces has become a priority. This shift is particularly pronounced in urban environments, where the constraints of limited living space necessitate innovative design approaches that address the needs of both pets and their owners. For instance, the number of pet cats has surged in densely populated areas, with an increasing number of people adopting cats as companions due to their manageable space needs. According to recent industry reports, the global pet market is projected to exceed $30 billion by 2025, with cat-related product sales growing faster than those of other pets (Statista, 2024).

However, this rapid urbanization and population density have created new challenges in product design. Space constraints in urban apartments often limit the ability of pet owners to provide environments that fully support the natural behaviors of their cats. Cats are known for their need for vertical space, and the instinct to climb, scratch, and hide, all of which must be addressed in modern furniture and home products. At the same time, these products must blend seamlessly into the human living environment, which demands multifunctionality, space optimization, and aesthetic appeal. In light of these trends, the need for


Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

pet products that can balance the welfare of cats with the convenience of their owners has never been more urgent.

This study focuses on integrating feline behavior and instinct into the design of home products, aiming to enhance the quality of life for cats while maintaining the aesthetic and functional needs of humans. By addressing the challenges posed by limited space, multifunctionality, and sustainability, the research seeks to establish new paradigms for pet-friendly product innovation. Specifically, it explores how innovative designs can enhance feline welfare in urban environments and promote harmonious coexistence between humans and their pets, ultimately contributing to a higher quality of life for both.

1. The development of pet home products.

In 2018-2023, COVID-19 restrictions were temporarily lifted, but the development of cat home products in China was not affected (Asian Pet Headlines, 2023). The development trajectory of China's pet industry increased significantly in 2023 (Chuang, 2023). And with the continuous promotion of pet management policies, people began to shift to an inclusive lifestyle for pets. This has created a growing demand for pet furniture and home products that not only meet the needs of pets but also share living space with humans, promoting harmony and improving the quality of life.

1.1 The significance of cat home products

In recent years, Chinese cat owners have begun to pay attention to their living space, giving priority to products that coexist in harmony with their pets. This shift promotes the development of innovative pet home products to meet the needs of cats and their owners within a limited space. Considering the importance of cat behavior in designing pet-friendly home products (Sin, 2024) not only improves product safety, comfort, and engagement but also deepens the understanding of the needs of a cat-friendly environment. This design can not only enhance the well-being of cats, and promote the interaction between people and cats, but also enhance the functional and aesthetic value of the living space, as well as a major change in the way of living space design.

1.2 Literature collection process of Cat Home products

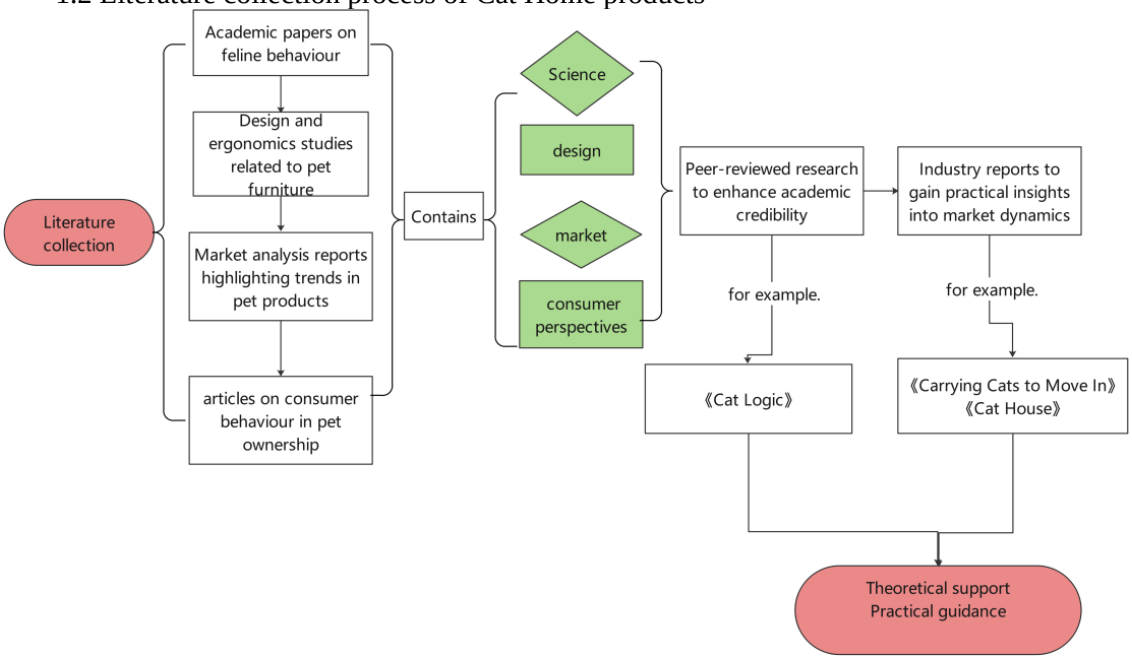


**Figure 1** Cat Home Products Literature Collection Process
**Note:** Constructed by the author

The above review highlights the importance of integrating cat behavior into safe and functional home product design, demonstrating the growing recognition of the need to balance pet instincts with owner



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

convenience and safety. The development of cat home products is marked by an increasing understanding of the needs of felines and a commitment to improving the quality of life of cats in the home environment.

**Objectives**

1. To analyze the behavioral and psychological needs of cats within limited living spaces.
2. To explore innovative design solutions that align with feline instincts and human usability.
3. To evaluate the practicality and effectiveness of prototype products in real-world scenarios.

**Literature Review**

1. Research on Cat Behavior and Needs:

Chen (2022) explored the comprehensive behaviors of domestic cats, focusing on their instincts and daily routines. The study outlines key behaviors such as hunting, grooming, patrolling, and resting, and how these activities contribute to a cat's overall well-being. Chen's research emphasizes the importance of understanding these behaviors when designing pet-friendly products and environments. By analyzing the natural habitat and instincts of cats, this paper provides insights into how their needs can be met in domestic settings, particularly within the constraints of limited space.

This research serves as a foundational reference for understanding the core behavioral needs of cats, which are crucial when designing functional, stimulating, and comfortable living spaces for cats. It highlights the need to incorporate natural behaviors, such as climbing and hiding, into product and space design to support both physical and psychological health.

2. Cat Furniture Design and Safety:

Gan and Ding (2023) examined the design of safe and functional cat furniture, focusing on how the design of furniture can meet cats' physical and psychological needs while ensuring safety. The study discusses various types of cat furniture, such as climbing structures, scratching posts, and hiding spaces, and analyzes their effectiveness in promoting healthy behaviors. It also identifies safety concerns, such as the stability of climbing furniture and the use of non-toxic materials, which are essential for ensuring the safety and comfort of cats.

This paper provides a comprehensive review of current trends in cat furniture design, focusing on the integration of safety and functionality. It offers valuable insights for designers looking to create cat-friendly furniture that accommodates natural behaviors while ensuring the cat's well-being.

3. Human-Cat Interactive Furniture Design:

Hu (2023) researched the design of human-cat interactive furniture, focusing on creating spaces that foster symbiotic relationships between humans and cats. The study explores the concept of shared living spaces, where furniture serves dual purposes for both humans and cats. For example, multi-functional furniture that integrates spaces for cats to hide, climb, or scratch while still serving as functional human furniture is discussed. Hu highlights the importance of considering the interaction between humans and cats when designing such furniture, aiming to create products that facilitate a harmonious living environment.

This research offers a unique perspective on how human and cat spaces can be integrated, emphasizing the role of furniture in enhancing human-cat relationships. It provides useful recommendations for designers who seek to create interactive furniture that meets the needs of both parties while maintaining aesthetic and functional appeal.

4. Pet Product Design from Behavioral Insights:

Sin (2024) explored the intersection of cat behavior and product design, proposing that understanding feline instincts is key to creating innovative pet products. The study analyzes the role of behavioral language in the design process and suggests that cat-friendly products should cater to cats' specific behavioral needs, such as the desire for vertical space, hiding areas, and stimulation through play. The paper also identifies common problems in current cat product designs and offers solutions for improving functionality and engagement.



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

This research emphasizes the importance of incorporating behavioral insights into product design, which is essential for creating products that promote the physical and emotional well-being of cats. It provides a detailed framework for designers to align their products with feline instincts and needs.

**Conceptual Framework**

1. Research Background

Problem Statement: As pet ownership grows, particularly in compact living spaces such as apartments, the design of home products for cats must address their behavioral needs while ensuring harmony in shared spaces with humans.

Objective: To provide innovative, sustainable, and interactive solutions that balance functionality, aesthetics, and cat welfare.

2. Key Research Dimensions

Cat Behavioral Analysis: Understanding cats' behavioral patterns (e.g., climbing, hiding, patrolling, and hunting) to inform designs that satisfy their instinctual needs.

Impact of Limited Space: Exploring how small residential spaces influence feline behaviors and psychological well-being to guide spatial optimization strategies.

User Experience and Interaction Design: Focusing on enhancing human-cat interactions through multifunctional, user-friendly furniture.

3. Core Concepts

Functionality: Designing multifunctional products that cater to cats' needs, such as climbing frames and concealed resting spaces.

Eco-Sustainability: Using environmentally friendly materials and flexible designs, such as foldable and sustainable furniture components.

Shared Space Optimization: Creating designs that meet cats' instinctual needs while blending seamlessly into human living spaces.

Psychological and Behavioral Needs: Prioritizing the promotion of cats' mental health (e.g., comfort, safety) through thoughtful design.

4. Theoretical Foundation

Based on studies in feline behavior, spatial optimization, and human-computer interaction design.

Draws from international and domestic case studies, such as the "Happy Camper Cat Tent Bed" and the "Kikko Multifunctional Table," support innovative design principles.

5. Hypotheses

H1: Furniture designs that adequately fulfill cats' behavioral needs will significantly enhance their well-being.

H2: Spatial optimization improves the quality of human-cat interactions.

H3: Eco-friendly and multifunctional designs can simultaneously meet cats' needs and complement home aesthetics in limited spaces.

6. Research Methods

Observation: Long-term behavioral observation of cats in various spatial conditions.

Case Studies: Collection and analysis of exemplary designs (e.g., foldable beds, suspended installations).

User Feedback: Surveys and interviews to gather insights from pet owners on usability and satisfaction.

7. Design and Evaluation

Design Principles: Integrate cat behavior, sustainability, and multifunctionality into product design.

Evaluation Metrics: Assess cats' behavioral responses (e.g., activity levels, hiding tendencies), owner satisfaction, and product functionality and durability.

8. Visual Representation



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

This framework can be translated into a structured model, such as a flowchart or nested diagram, highlighting:

The relationships between key concepts.

How the research questions are addressed through theories and methods.

The closed-loop process from design principles to evaluation outcomes.

## Methodology

This study employs a multi-faceted research methodology to explore the design of home products from the perspective of cats, focusing on their behavioral needs, limited space constraints, and the integration of sustainable design principles. The methodology comprises the following components:

1. Literature Review and Data Collection

1.1 A comprehensive literature review was conducted to understand the development of cat home products and the role of cat behavior in product design. Key themes included:

1.2 The impact of cat behavior on furniture usability and design.

1.3 Studies on limited space innovation and shared living spaces between humans and cats.

1.4 Existing case studies and design solutions, such as multifunctional furniture and eco-friendly materials

Keywords such as “cat behavior,” “limited space design,” and “sustainable furniture” were used to source articles and design examples. A review of products like the "Happy Camper Cat Tent Bed" and "Kikko Table" highlighted successful integrations of aesthetics and function

2. Behavioral Observation

The study involved observing the behavior of household cats to understand their instinctive and psychological needs. Three cats (Q Boy, YOYO, and Yamei) were monitored in spaces of varying sizes over three months.

2.1 Key Observations:

Cats exhibit high spatial adaptability, finding enjoyment in various environments despite limited space.

2.2 Behaviors such as climbing, hiding, and exploration were noted as critical factors influencing product design.

3. Survey and Interviews with Cat Owners

To align product design with user needs, surveys and interviews were conducted with cat owners.

3.1 Goals:

3.1.1 Identify owners' preferences for multifunctional, space-saving furniture.

3.1.2 Assess attitudes toward sustainable materials and DIY solutions.

3.1.3 Understand practical challenges in maintaining pet furniture.

3.2 Findings:

3.2.1 Owners value products that balance functionality with aesthetics.

3.2.2 Washable covers, climbing features, and hidden rest spaces were popular design requests.

## Results

### 1. Research on the behavioral habits of cats:

1.1 Importance of cat behavior

Impact of cat behavior on home product design, especially within a limited space. Research focuses on meeting the instinctive needs of cats and promoting their harmonious coexistence with humans. This study emphasizes the importance of considering the behavior of cats in pet-friendly furniture, not only provides a useful reference for the researcher but also emphasizes from the perspective of cats, considering the importance of its behavior and psychological needs in the limited space, for the innovation and development of pet household products industry provides a theoretical basis and practical guidance.

1.2 The natural behavior of cats:



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

According to the research, we deeply understand the behavioral habits of household cats, from the life needs of cats, and the five life indicators of cats (Chen, 2022):

| Main daily behaviors of cats | | | |
|---|---|---|---|
| Hair | Sleep | Patrols | Hunting |

**Figure 2** Main daily behaviors of cats
**Note:** Constructed by the author

Cats' behavioral problems often stem from their natural needs. If the nature is satisfied, the problem behavior may disappear. As "sedentary" animals, cats prefer a well-resourced and safe environment. This study focuses on incorporating cat behavior into furniture design to improve the living environment with their owners. Design multifunctional furniture to meet the needs of cats and improve their well-being and satisfaction. This design not only meets the instinctive needs of the cat but also harmoniously integrates with the home decoration, creating a harmonious living space shared between the cat and the owner (Gan & Ding,2023). Integrating the needs and behaviors of people and cats, aiming to innovate furniture design, optimize cohabitation space, and improve life quality and interaction (Hu, 2023).

1.3 Effect of limited space design on cat behavior

In the limited space, the discovery of cat behavior is an important factor in the design of cat furniture. Studies have shown that cats' instinctive behaviors (such as climbing, hiding, and looking from a height) are significantly improved in the innovative design list, and their happiness in compact living environments. These cases involve the creation of multifunctional furniture that meets both human needs and the feline instinct, improving the quality of life of cats and their owners in a small space.

In conclusion, the significant impact of cat behavior on the design of home products in a confined space emphasizes the importance of catering to the cat's animal instinct and promoting harmonious coexistence with humans. The study focused on incorporating cat behavior into pet-friendly furniture designs, emphasizing an understanding of cat well-being. Research has guided the development of home products, creating a harmonious environment for cats and their owners.

**2. Study on cat home product design**

The design research of home products from the perspective of cats is not only of great significance for promoting the well-being of cats, enhancing the interaction between people and cats, and improving the functional and aesthetic value of the living space but also provides the theoretical basis and practical guidance for the innovation and development of the pet home product industry.

2.1. Cat-friendly home furnishing product design:

2.1.1 Happy Camper Cat tent bed, a selective cat resort. The precision-cut multiple panels of the bed are decorated with wood finishes on one side and scratch-resistant felt on the other. Reverse it as needed to give your cat a warm enclave or scratchable felt surface. Under a spacious canopy, your cat will easily lie on a custom mat to peep through the panels.



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

**Figure 3** Happy Camper Cat tent bed tuft + claw
**Note:** From tuftandpaw.com

Vantage: The pyramid shape is modern and complements modern interiors. Felt provides a soft, scratching surface. Comfortable shelter area for cats to hide and rest.

Disadvantages: May not fit larger cats. A single entrance may not appeal to cats preferring multiple entries. No features for active play or climbing.

Suggestion: Offer different sizes. Multiple entry points can improve appeal and provide emergency exits. Add elements for play and exploration.

2.2. Study on home design of shared space between cats and humans:

2.2.1 Shared Space Design Case

Kikko table: In the design of home products, it is important to fully consider the needs of cats to share space with humans. In 2019, designers Renata Wites and Ada Brozyna jointly designed the Kikko table to bring a pleasant user experience for cats and their owners. The simple appearance design cleverly integrates the dual functions, so that the cat owner can use the cat at the same time, without interfering with each other, highlighting the concept of harmonious coexistence.

**Figure 4** Kikko table
**Note:** From https://www.etsy.com/listing/740181899/kikko-luxury-coffee-table-cat-bed

Advantages: Shared space promotes interaction between pets and owners, caters to the cat's natural behavior, and improves health status.

Disadvantages: the space is limited, and there is no private cat space.



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

Suggestion: Improve the functionality of furniture, and take into account both pet supplies and human furniture. Cat behavior needs to be considered.

To summarize, the importance of enhancing feline welfare, human-cat interaction, and the aesthetic and functional value of the living space. It is also a theoretical and practical guide for innovation in the pet home product industry. The study examined the behavioral importance of cats, highlighting the need to integrate sensory, psychological, and habitual language into furniture design. This approach ensures the happiness and satisfaction of the cat in the home environment, enriching the common living environment of the cat and its owners.

**3. Limited space innovation design research case list**

In modern cities, the living space of cats is often limited, especially in limited-space environments such as apartments. For this problem, 《猫がよるこぶ快適な部屋づくり》100 innovative solutions to limited space. The analysis found that spatial optimization can significantly improve the living environment of cats and improve their quality of life (Kato, 2022).

3.1. Design of the living environment of cats in limited space. Specifically, we can optimize the living environment of cats in the following ways:

3.1.1. Folding design: Through folding furniture or devices, the cat's activity space can be flexibly adjusted according to need. For example, the geometric pet bed, designed by the Nendo design company, this pet bed can be changed according to the use scene, the area of furniture space, and pet preferences. The "area" mentioned here not only refers to the area inside the room, but also becomes crowded considering the possibility of new pet members in the home.

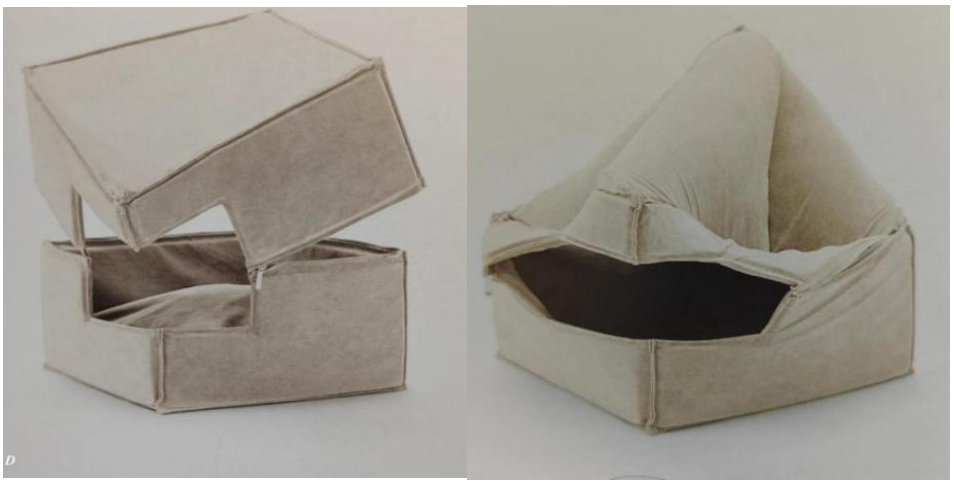

**Figure 5** The geometric pet bed
**Note:** From https://www.toodaylab.com/71944

Advantages: the bed can fold, convenient for shaping the cat and space. Materials are soft and provide a comfortable rest.

Disadvantages: The Material may not hold its shape. Frequent folding may cause material wear.

Suggestion: Add solid elements to maintain the shape. Use of durable, wear-resistant fabrics. Add a thermal layer to improve comfort.

3.1.2. Suspension design: using the wall or roof, set up hanging cat toys, a climbing frame, etc., so that the cat can expand the activity space in the vertical direction. This saves space on the ground and adds entertainment for cats.



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

**Figure 6** Provide a 3D environment for cats
**Note:** Photographed from 《猫がよるこぶ快適な部屋づくリ》

Advantages: Provide a 3D environment for cats to stimulate their physical and mental activity. Use the vertical space to clean the floor. The high perch caters to the cat's instinct to observe from a high place.

Disadvantages: It may not be suitable for older or disabled cats. If unsafe, shelves may be at risk of falling.

Suggestion: Ensure that all fixtures are firmly secured to support the cat's weight and activity. Includes steps or ramps suitable for cats of all ages and abilities.

3.1.3. Hidden design: By setting up hidden cat rest places, such as furniture interior, wall interlayer, etc., the cat can have a quiet and comfortable environment at rest. Like the following CATable;

**Figure 7** CATable
**Note:** Photographed from https: / / ugainian.com/forum/f-2439.html



**Citation**
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

Advantages: Furniture design is smooth and organic, and can serve as the focus of the room. Multi-purpose, effective use of space.

Disadvantages: The structure has the risk of overturning. Wooden materials are not resistant to scratches, easy to clean the poor.

Suggestion: strengthen the base to ensure stability. Use scratch-resistant, easy-to-clean materials.

3.1.4. Flexible use of furniture: storage, cat climbing frame. According to the living habits and behavior characteristics of cats, Pidan Company has designed a storage cat climbing frame suitable for cats. At first glance, the square frame is like a group of bookshelves. The stability of the wooden material is used to perform the function of interweaving and superposition. It is very convenient to place and store, and the entertainment of the cat and the storage function of the feeding owner have been realized. This product not only meets the life needs of cats but also considers the convenience of cats living together with human beings.

**Figure 8** Flexible use of furniture
**Note:** From https://item.epet.com/225196.html

Advantages: flexible layout, customizable. Provide vertical space to satisfy the cat's climbing instinct and territorial behavior. Fashion and modern design are used to attract pet owners.

Disadvantages: Assembling the components can be confusing. Need enough wall space to set up effectively, there are safety risks.

Suggestion: replace wooden materials to improve wear resistance.

3.2. Research on limited behavior in cat space

This section presents observations from a three-month study that examined how cats adapt to, explore, and psychologically respond to varying spatial constraints. The research involved three domesticated cats of different breeds, each residing in living environments of distinct sizes. Throughout the observation period, we documented how spatial conditions influenced their behavior, emotional states, and adaptability. These findings offer valuable insights into feline spatial and psychological needs, which can inform the design of cat-friendly products and living environments.

3.2.1. In this study, we observed three cats with distinct backgrounds and living conditions. The first subject, a Ragdoll cat named Q, was provided with a consistently large environment of approximately 220 square meters over three months. The second subject, Yoyo, a domestic cat of mixed breed, was given a more modest living space of about 60 square meters for the same period. The third subject, referred to here as the American cat, experienced variable spatial conditions. Initially, this cat was provided with 90 square meters, which was later increased to 220 square meters, and subsequently reduced to approximately 5 square meters—all within the three-month observation window.



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

International Journal of Sociologies and Anthropologies Science Reviews
Volume 5 Issue 4: July-August 2025: ISSN 2985-2730
Website: https://so07.tci-thaijo.org/index.php/IJSASR/index

The overarching goal was to understand how varying degrees of spatial limitation or expansion affect cats' emotional well-being, exploratory behaviors, and coping mechanisms. The observational methods included daily logs of activity patterns, recorded instances of play, exploration, resting, feeding, and grooming behaviors, as well as the cats' reactions to gradual environmental adjustments.

3.2.2 Throughout the observation period, it became evident that cats possess a notable capacity for spatial adaptability. Regardless of whether their environment was large or small, the cats consistently found ways to entertain themselves, identify preferred resting spots, and distinguish their living, feeding, and elimination areas. This capacity to adapt appears to be deeply rooted in their instincts, which, even after generations of domestication, remain intact. The ability to self-regulate within changing environments reflects their resilience and psychological flexibility.

For instance, Q, the Ragdoll cat, appeared calm and confident in the larger space. She quickly established a routine, selecting her favorite areas for resting and grooming, and showed little visible stress or anxiety. Yoyo, residing in a more modest environment, also adapted well. Although less space was available, Yoyo demonstrated resourcefulness, actively rotating through different areas to sleep or play, effectively delineating a small home range within her limited environment.

3.2.3. Spatial adaptability:

Cats have maintained strong innate behavioral traits linked to their wild ancestors, even after centuries of domestication. They exhibit curiosity, exploratory tendencies, and a strong inclination to interact with their environment. The cats in this study used their paws, claws, mouths, and even their bodies to probe the boundaries of their spaces. They tested objects for texture, attempted to access hidden corners, and showed keen interest in vertical as well as horizontal dimensions.

In smaller spaces, play often involved adapting to what was available—chasing shadows on the wall, batting at a dangling string, or navigating around furniture. In larger spaces, the cats ventured farther from their initial resting spots, exploring multiple levels and vantage points. This exploratory behavior suggests that providing environmental complexity, even within confined areas, can stimulate cats' mental engagement and overall happiness.

3.2.4 Psychological needs

The American cat in our study underwent significant spatial transformations—from 90 square meters to 220 square meters, and finally down to just 5 square meters. These changes elicited clear emotional responses and revealed the psychological importance of stable, predictable environments.

When the living area expanded from 90 to 220 square meters, the cat initially displayed fear and uncertainty. She spent the first week seeking hiding places and minimizing exploration, possibly due to the unfamiliar scale of the environment. After this initial period, however, the cat adapted, showing curiosity and comfort as she gradually familiarized herself with the larger space.

In contrast, when the environment contracted abruptly from 220 to 5 square meters, the American cat's behavior shifted dramatically. Instead of hiding, she became more clingy and exhibited signs of anxiety. She paced back and forth, vocalized more frequently, and sought constant proximity to caregivers or familiar objects. This anxiety is likely due to the abrupt and extreme reduction of territory, leaving the cat feeling vulnerable and less in control.

3.2.5. Psychological Needs and Well-Being

These observations underscore the psychological complexity of cats in their living environment. Space changes can provoke emotional responses, ranging from fear and anxiety to curiosity and contentment. Understanding these emotional dimensions is crucial for providing environments that support feline well-being. Cats thrive when they can define their territories, even in limited conditions. Familiar objects, consistent routines, and gradual adjustments to their environment can help maintain emotional stability.

As we consider the design of cat-related products and spaces, these findings suggest several key priorities. Designers should incorporate elements that foster security, such as enclosed hiding spots or elevated perches, allowing cats to control their visibility and access to different areas. Enriching the



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

environment with climbing structures, scratching posts, and interactive toys can help cats adapt better and remain psychologically engaged, regardless of the size of their living space.

3.2.6. Implications for Design and Future Research

The significance of catering to the spatial and psychological needs of cats extends beyond mere comfort. By understanding how cats cope with limited spaces, designers, architects, and caregivers can create living environments that promote feline health and happiness. For instance, modular furniture and adjustable partitions could allow cat owners to increase or decrease the available area as needed. Implementing "safe zones" or "quiet corners" within the home can give cats a sense of control, while strategically placing resources—like litter boxes, food bowls, and water sources—can reduce stress and territorial conflicts.

Moreover, product designers can develop innovative solutions that mimic natural environments. This might include vertical exploration units that emulate tree-like structures, boxes that simulate hidden dens, or interactive toys that encourage hunting-like behaviors. These design strategies can help prevent boredom, anxiety, and stress, ensuring cats remain physically active and mentally stimulated.

Future research could focus on larger sample sizes and more diverse cat populations, examining differences in spatial adaptability across breeds, ages, or cats with special needs. Long-term studies could also reveal how incremental changes—rather than abrupt adjustments—affect emotional stability. Additionally, integrating physiological measures (such as cortisol levels) and behavioral indicators (like frequency of grooming or changes in appetite) could yield more quantifiable insights into feline well-being.

3.2.7. Conclusion

In conclusion, this research highlights the importance of considering both the spatial and psychological needs of cats when designing their living environments. Cats possess a remarkable ability to adapt, yet abrupt or extreme spatial changes can induce fear, anxiety, or stress. By acknowledging these emotional responses, we can craft living spaces and products that align with their innate behaviors and promote their overall health and happiness. These findings not only deepen our understanding of feline ecology and psychology but also provide a valuable framework for the development of cat-friendly innovations that benefit both cats and their human companions.

## Discussion

This study investigates how aspects of cat behavior and spatial design impact the development of pet-friendly products, particularly in the context of limited living space. By exploring feline behavior and reviewing current product designs, this research aims to establish a framework that addresses both the functional and psychological needs of cats while ensuring these solutions integrate seamlessly into human living environments. The findings provide key insights into the complexities of designing for cats, offering essential considerations for the future of cat product design.

### 1. The Importance of Understanding Feline Behavior

One of the most important insights from this study is the role of feline behavior in shaping effective product design. As noted by Chen (2022), cats exhibit innate behaviors—such as climbing, hunting, and hiding—that are critical to their physical and psychological well-being. These instincts must be accounted for when designing cat furniture, as many existing products fail to meet these basic needs. Traditional cat furniture often neglects the need for vertical space, which cats instinctively seek for observation and control over their environment.

Gan and Ding (2023) highlight the need to integrate vertical elements into furniture design, such as shelves and perches, to allow cats to engage in natural behaviors. This provides an opportunity for multifunctional furniture that serves both as a cat playground and as functional human furniture. By accommodating cats' instinctual behaviors, these designs can enhance their physical and emotional health, even in smaller living spaces.

### 2. The Role of Limited Space in Cat Welfare



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

The study also delves into the effects of limited space on feline welfare, particularly in the case of the American cat, which exhibited anxiety-related behaviors when the available space was significantly reduced. This finding, consistent with Sin (2024), underscores the psychological impact of confined spaces on cats, highlighting the importance of gradual space adjustments. Sudden changes in living conditions can cause stress, making it essential for designers to introduce spatial changes slowly to allow cats to adjust without causing emotional distress.

Moreover, while cats are generally adaptable, they still require structured environments with clearly defined functional areas, such as resting spaces, food areas, and litter boxes. Without proper spatial organization, cats may experience anxiety or disorientation. Designers should focus on spatial organization and modularity in product design to mitigate stress caused by limited space and to improve cats' emotional well-being.

**3. Human-Cat Interaction and Multifunctional Furniture**

A key finding of this research is the importance of creating furniture that fosters positive human-cat interaction, particularly in shared spaces with limited room. Hu (2023) discusses the value of multifunctional furniture, which serves both human and feline needs. For example, the CATable, a piece of furniture that combines a coffee table with a cat climbing area, exemplifies how furniture can address the physical space needs of cats while enhancing interaction between cats and humans. This type of design not only saves space but also strengthens the bond between pets and their owners.

However, as noted by Gan and Ding (2023), durability and safety are critical challenges in multifunctional furniture design. Cats' natural scratching behavior can damage furniture unless scratch-resistant materials are used. Additionally, designers must ensure the structural stability of such furniture to prevent accidents, especially for larger or more active cats. Designers need to strike a balance between functionality, safety, and durability to create practical and long-lasting products.

**4. Challenges and Opportunities in Cat Furniture Design**

Despite progress in the design of cat furniture, several challenges remain. One major issue is the lack of standardization in product offerings. Many available products address only one or two of a cat's needs, leading to cluttered and inefficient designs that fail to create cohesive living environments. Additionally, material selection remains a challenge, as many existing designs use materials that are either not durable enough or difficult to clean, reducing their functionality and appeal.

Designers must focus on creating modular, adjustable, and eco-friendly furniture that addresses the full spectrum of a cat's needs—physical, emotional, and social. By incorporating more flexible design elements, products can adapt to the changing needs of cats throughout their life stages. Furthermore, eco-friendly materials that are both durable and safe for cats should be prioritized to ensure the furniture remains functional and sustainable in the long term.

## Conclusion

This study underscores the vital importance of understanding feline behavior in the design of cat-friendly products and living environments. Cats have an inherent need for space that accommodates their natural behaviors—such as climbing, hiding, and patrolling—and these needs must be prioritized in the design process. In urban environments, where living space is often limited, the integration of design solutions that enhance these behaviors is particularly crucial. The research emphasizes the necessity of developing modular and adaptable designs that can cater to the full spectrum of a cat's physical, psychological, and emotional needs while ensuring a harmonious living environment for both humans and their pets.

The introduction of multifunctional furniture that serves dual purposes—supporting both human activities and cat behaviors—emerges as an innovative solution to the challenges posed by limited space. However, to ensure long-term viability, it is essential to consider the safety, durability, and sustainability of such designs. Furniture must not only meet the immediate needs of cats but also be robust enough to withstand daily use and contribute positively to the environment. The use of eco-friendly materials, coupled



Citation
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249

with flexible, space-saving designs, will help create products that are both practical and environmentally responsible.

By continuing to integrate behavioral insights into the product design process, future developments can create environments that address both the instinctual needs of cats and their emotional well-being. This holistic approach will contribute to fostering a stronger human-animal bond, providing both cats and their owners with a better quality of life in shared living spaces. Ultimately, this research lays the groundwork for innovative, sustainable pet product designs that prioritize the well-being of animals while promoting a more compassionate, functional living space for humans.

**Recommendation**

1. Prioritize Adaptability and Modularity: Future cat furniture designs should prioritize adaptability and modularity to better accommodate diverse living environments, particularly in urban settings where space is often limited. By creating flexible products that can be easily adjusted or expanded, designers can ensure that the furniture evolves with the changing needs of cats throughout their life stages. This approach will help mitigate the challenges posed by limited space while supporting cats' natural behaviors, such as climbing, scratching, and hiding.

2. Sustainability and Durability: Sustainability should remain a core focus in the design of pet products. Designers should use durable, eco-friendly materials that are both safe for cats and sustainable for the environment. Materials should be scratch-resistant, easy to clean, and capable of withstanding the wear and tear of daily use. This will ensure the long-term functionality of products while minimizing their ecological footprint. As pet furniture plays a significant role in both the physical and psychological well-being of cats, the longevity of materials will also help promote a healthier and more sustainable environment for both pets and owners.

3. Long-term Impact Research: Further research is needed to explore the long-term impacts of innovative furniture designs on cat behavior and well-being. Longitudinal studies could provide valuable insights into how cats adapt to different types of furniture over time, particularly about their emotional and physical health. Additionally, future studies should examine how modular and multifunctional designs influence cats' psychological stability, stress levels, and overall quality of life. Understanding these long-term effects will guide the development of more effective and supportive products that enhance the well-being of cats in a variety of living environments.

These recommendations aim to push the boundaries of design innovation while ensuring that the needs of both cats and their human companions are met in a sustainable, adaptable, and thoughtful way.

**References**

Asian Pet Headlines. (2023). *Bluebook of the pet industry: 2023 report on the development of the pet industry in China*. Retrieved from https://zhuanlan.zhihu.com/p/653259241

Chen, M. M. (2022). *Cat behavior is fully illustrated*. Shang Zhou Publishing Co.

Chuang, J. (2023). *2023 insight report on new trends in China's pet industry*. Retrieved from https://www.iyiou.com/research/202307191247

Gan, Y., & Ding, Z. (2023). *Design of safe cat furniture based on cat behavior*. Journal of Feline Design and Safety Research.

Hu, J. (2023). *Research on the design of human-cat interactive furniture sharing based on the concept of symbiosis.* Symbiotic Design Journal.

Kato, Y. (2022). *猫がよるこぶ快適な部屋づくリ (100 innovative solutions for cat-friendly living spaces)*. Wen Tang Xin Guang She.

Sin, W. O. (2024). *Research on interactive furniture design based on pet cat's behavioral language*. Journal of Pet Design and Interaction Studies.

Statista (2024). *Change in retail sales of pet products and services in the United States from 2019 to 2024, by segment.* Retrieved from: https://www.statista.com/statistics/1154594/pet-products-change-in-retail-sales-by-sector-us/



**Citation**
Li, L., & Krutasaen, W. (2025). Home Product Design from the Perspective of Cats: Innovative Case Study Based on Limited Space. International Journal of Sociologies and Anthropologies Science Reviews, 5 (4), 149-162;
DOI: https://doi.org/10.60027/ijsasr.2025.6249