



# Pre-market Research: Key Factors that Prevent Human-centered Design from Widespread Acceptance in China

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**Abstract:** This article explores the limited adoption of Human-centered design (HCD) in China, particularly in architecture, despite its global acceptance. Through case studies of human-centered interior design, the study identifies reasons for the slow adoption and provides recommendations to promote HCD acceptance among the public and local companies. The research involves surveying 100 Chinese consumers and interviewing 20 architects in Jiangsu province, China, to gain insights into the factors influencing HCD application in interior design for housing.

**Keywords:** human-centered design, architecture, interior design

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## 1. Introduction

With the development of modern society, the middle class is increasingly concerned about their quality of life, particularly their housing conditions. The budget allocated by middle-class individuals for interior design projects is on the rise. However, housing style requirements vary from place to place due to the diverse landscapes and environmental needs. Traditional Chinese architecture, such as cave dwellings on the Loess Plateau (Henric, H. 2020) and Huizhou Architecture (Placido, G., 2021), exemplify designs that adapt to specific local conditions. Nevertheless, advancements in technology and new materials have facilitated cost reduction in housing construction and shifted the focus towards HCD.

Although HCD is widely embraced globally, such as the project done by Mileha Soneji, an Indian architect focuses on HCD, designed for his uncle with Parkinson disease (TED, 2016), or the project in Ohio called the Lantern which is designed for Alzheimer's suffers (Lever, 2015). Its application in China, especially in architecture, is limited. This article focuses on case studies of human-centered interior design in China, aiming to identify the reasons behind the slow adoption and provide suggestions to local companies for promoting its acceptance.

In conclusion, the middle class's emphasis on quality of life has heightened their attention to housing conditions. HCD has emerged as an alternative to traditional nature-centered designs, offering cost-effective solutions and improved living experiences. Despite its global acceptance, the application of HCD in China, particularly in architecture, is relatively limited. This study aims to bridge the research gap by investigating the reasons for the slow adoption of HCD in China and providing recommendations to local companies to encourage its acceptance.

## 2. Methodology

The research goal is to measure the effects of working experience on Chinese architects the application rate of HCD in interior design for housing and the factors that prevent the public from embracing HCD. To achieve this objective, the researcher plans to do a survey among 100 Chinese consumers and 20 architects in Jiangsu province, China. In order to show the perspectives from both sides, researcher designed a questionnaire for the public and a list of interview questions for architects. Narrative interviews refer to the interview that is designed to seek to reconstruct experiences and events from an interviewee's life. This method is adapted from researcher Claire Anderson (Anderson C. 2016). In addition, the researcher studied the causes by analyzing quantitative data revealed by the questionnaires using statistic patterns.

## 3. Results

### 3.1 Questionnaire

When analyzing the results from the data of 73 participants, the researcher classified their housing sizes based on the responses to question one (Appendix A). The families were then divided into two groups: one group consisted of those with special populations, including infants, toddlers, or chronically ill family members, while the other group comprised households with only normal occupants. The researcher examined their responses to Questions 5-8, which either implicitly assessed their preference for typical HCD products or sought their opinions on design choices. Participants who indicated

an intention to apply HCDs were assigned one point, and their total scores were recorded in the dataset. The data was subsequently analyzed using WPS Excel, and figures were generated to present the results.

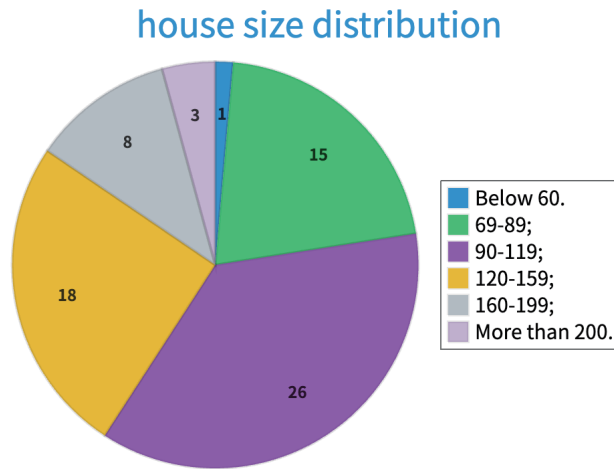


Figure 1. Number of participants by house size in the sample (m<sup>2</sup>)

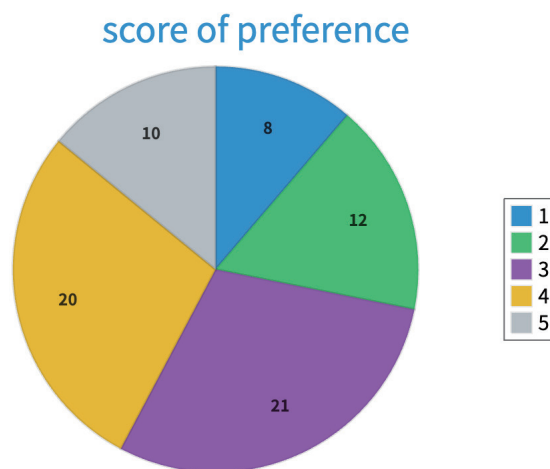


Figure 2. Number of participants for each score showing preference for HCD (the higher points they get the more they tend to apply HCD)

From Figure 1, 60.27% of the participants live in houses between 90 to 159. Researcher concluded that in the modern market, most people live in houses between 90m<sup>2</sup> to 159m<sup>2</sup>. Among all the participants, 69.86% of them are willing to establish a HCD in their house since they get a score higher than 3 (Figure 2), which means that most Chinese people have the concept of HCD and consider it good for their housing.

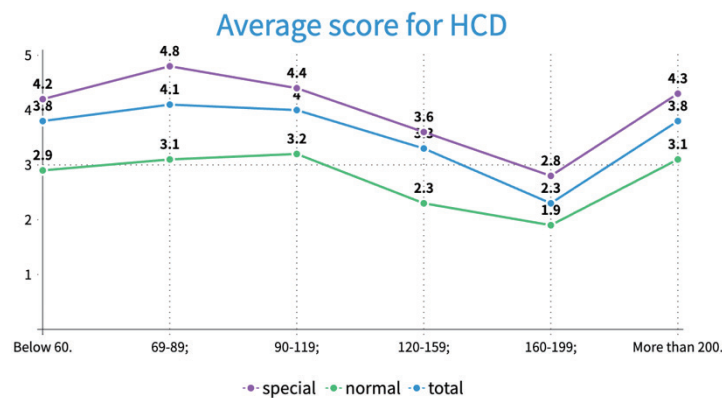


Figure 3. Average score for HCD preference by house size, subdivided by special group (having infant or toddler or chronically ill family member), normal group, and the total for both groups

From Figure 3, the purple line (special group) consistently surpasses the blue line (total) and the green line (normal group). The trend depicted in the graph shows an initial increase, followed by a significant decrease, and ultimately a rise. The researcher concludes that, generally, individuals residing in houses ranging from 69 to 119 are more likely to adopt HCD. This finding, combined with the information in Figure 1, suggests that a majority of people in China are willing to incorporate HCD in their homes. Additionally, it is inferred that families in China with infants, toddlers, or chronically ill family members have a strong need for HCD, as their average scores consistently rank the highest. However, the unexpected peak in scores observed for ranges exceeding 200 contradicts the original hypothesis.

### 3.2 Narrative interviews

When summarizing data from architect interviews, the researcher first directly listed the answers to Question 2 and Question 3 (Appendix B). Then, the researcher classifies them into four types of architects regarding preference for HCD: high preference but low application rate; low preference but high application rate; high preference and high application rate; low preference and low application rate. Then, the researcher classified whether the experiences they reported are positive, negative, or neutral (Figure 4).

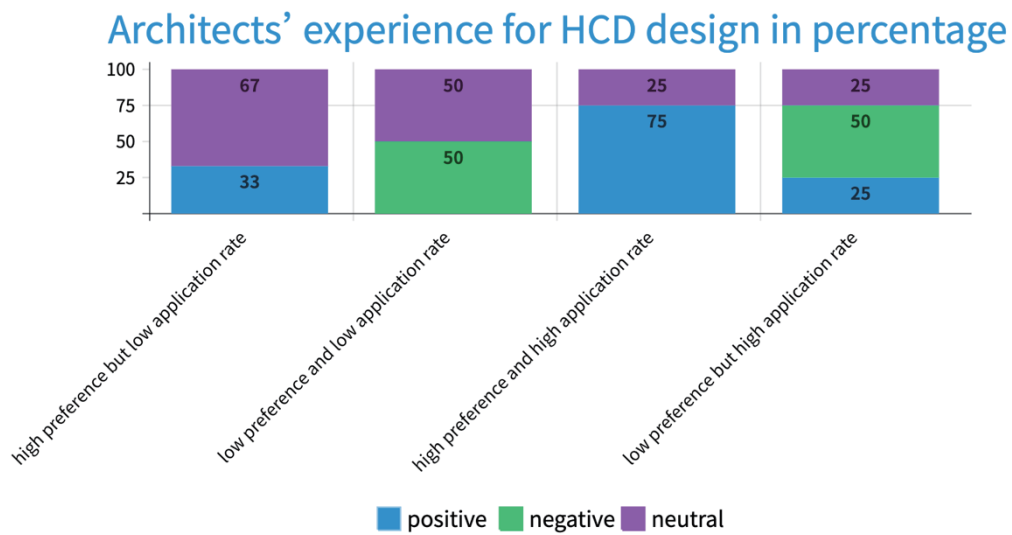


Figure 4. Architects' experience for HCD design

From the figure, the researcher concluded that the more architects embrace HCD, the more positive experience they feel to have. Among all these data, the researcher surprisingly found that though architects have different attitudes to HCD and react differently, they have almost the same frequency of dealing with HCD cases which approximately was about 2 cases per season, which means that the relationship between architects' applying rate and their attitude is not strong.

## 4. Discussion

The research question addressed was "Why haven't Chinese people fully embraced HCD in their living spaces?" The initial hypothesis suggested that architects' attitudes, traditional biases among the public, and house size were the primary factors. However, upon analyzing the results, some aspects of the hypothesis were supported while others were not.

The findings confirmed that owners of smaller houses were more inclined to incorporate HCD design elements. Given that a significant portion of Chinese society resides in relatively small or medium-sized houses, there is a strong preference for HCD among those living in spaces ranging from 90-159m<sup>2</sup>. Surprisingly, there was an unexpected rise in HCD demand among consumers with house sizes exceeding 200m<sup>2</sup>, contradicting the original hypothesis.

The role of architects in promoting HCD did not align with the researcher's initial hypothesis. The data and narrative interviews with architects indicated that their positive or negative experiences with HCD had minimal influence on its application rate. Instead, many families compromised on HCD during the design process due to budget constraints, only partially implementing the design in essential rooms like the kitchen and bedrooms. However, the overall application rate for HCD remained high in smaller house sizes.

Based on data suggesting that families with limited budgets still chose to apply HCD, a new hypothesis emerged regarding economic factors. People with smaller houses aimed to maximize their limited budgets by integrating more HCD elements to meet their basic needs. Those with medium-sized houses had sufficient space and funds for their fundamental

requirements but sought to fulfill additional practical or spiritual needs. Individuals with larger houses prioritized living quality and were open to trying new design styles like HCD to enhance their lifestyles.

The preference score analysis in Figure 3 supported this new hypothesis, indicating a high preference for HCD in smaller house sizes and a relative decline in preference for house sizes ranging from 120-199m<sup>2</sup>. Families with specific conditions or a lack of private space, such as special groups, consistently exhibited a strong preference for HCD due to its ability to cater to their unique needs.

In conclusion, the limited adoption of HCD in China can be attributed to economic factors. Lowering the cost of HCD and increasing its accessibility to the public is the most direct and effective solution. While many people recognize the benefits and necessity of HCD, the high costs of decoration hinder its implementation, especially in the smaller and medium-sized housing market. Reducing the price would attract more individuals to adopt HCD, benefiting both HCD providers and the public. This research also implies that companies need a better understanding of consumers' pain points and needs to develop effective marketing strategies for HCD.

The study's limitations include a limited sample size for extremely small or large house sizes, potential bias among participants who answered the questionnaire through a design company, and a biased sample from an online questionnaire published in a housing decoration forum. Future research should focus on exploring HCD preferences among different age demographics to obtain more detailed and disaggregated data, enabling market leaders to create more appealing advertisements and increase HCD adoption.

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