

How Design Impacts the Social Environment:
A Comparison Between Two Pet Cafés in China and the United States

by
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ABSTRACT

This research aims to investigate the social environment in a brand-new type of café, pet café, and to maximum the benefit of this type of cafe. While pet cafés, especially cat cafés, are becoming increasingly common in the United States (U.S.), Asian countries have been in this kind of business since 1998. The most common and popular is the cat café. Even though the owners of cat cafés in the U.S. have learned and imitated the cat café in Asia, the cultural differences and the restrictions resulted in differences in format and design.

Interior and furniture design was investigated to afford motivation to people who are pet lovers and can be potential customers. Most of the research about pets illustrates a positive influence on psychological health and social support. On the other hand, a café with pets can be attractive and interactive more than a general café, to offer a recreational activity and a comfortable social environment and therapy from pets.

Juxtaposing the cat café in the U.S. against the pet café in China, is explored to investigate the difference between these countries and how they can learn from each other and make improvements to design. Research on what is the difference between the cat café in the U.S. and China are reflected on two parts of outcomes—design and business.

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Chapter 1

INTRODUCTION

1.1 Background

In today's society, the concept of “pets” is becoming more and more clearly defined and is gradually evolving. The topic of pets has attracted the attention of all sectors of society. As various pets are going into and becoming part of people's daily lives, a series of pet related industries, such as pet products production, pet products sales, pet service and pet medical care, have emerged and flourished. From the perspective of an international market, the rise of the pet industry is the inevitable result of social development and economic advancement (Feng, 2011).

In the United States (U.S.) and many other developed countries, the pet industry has been developing for over 100 years (Peng, 2016), thus having formed a relatively mature market. Besides pet behavior science and pet psychology, academic research on companion animals has also been applied to design. This is particularly shown in four industries of the gradually developed pet economy, namely, pet beauty, pet feeding, pet training and pet medical care. The market research and market system of the pet industry are benefiting each other. (Research and markets releases report: U.S. pet market outlook-2020, 2019) In the face of the huge pet market, the mature market research and market system has helped brands accurately position the market and find target audience applicable for the brands. In addition, the American Pet Product Association (APPA) states people in the generation born in 1980s and 1990s accounted for a large proportion of pet owners in the U.S. These pet owners are more willing to invest time and money to get new information about pets and try new pet products (2019-2020 APPA National Pet Owners Survey, 2019).

China's pet industry has gone through a relatively short time of development, less than forty years (Peng, 2016). In recent years, alongside the development of the overall economy, the pet industry in China has grown exponentially as well. The number of pets in China increased most rapidly in the ten years from 2003 to 2013, with a rise of nearly 900%. By 2018, there was at least two hundred million pets in China, and the economy generated from these pets related industries could have reached several hundred billions (Li et al, 2018). In Hu, Zhang and Yu's (2018) study, it shows that 25 to 35 years old is a particularly huge consumption age group for pets and pet products. Most consumers of this age group have an education of vocational school degree or higher. At this age, most people are in the upward development stage of their careers and pets are mostly kept in families. Geographically, the first tier cities and second tier cities have a dominance in terms of the number of pets. China and the United States both are among the countries with the largest number of cats in the world. According to the statistical report of China National Bureau of Statistics (2016), in terms of the number of cats, the United States ranks number one in the world, with 80 million 600 thousand cats, while China ranks number two, with 58 million 100 thousand cats.

With the development of the pet industry, such as the design and sale of pet accessories and pet furniture, more pet-based or pet-related industries emerged and flourished as well. These industries are of many kinds; some of them for-profit and some non-profit. The cat café, as studied in this paper, is one of these emerging industries surrounding the pet industry. The reason for cat cafés to come into being is simple: living in a high-pressure and fast-paced metropolis, and due to the limitations and requirements of life and work, people have little time or ability to take care of pets, yet they still want to have pet companionship. Cat cafés provide the place for people to have

the opportunity to play with pets, but they do not have to spend extra time and energy to care of them.

In China, there are at least 1000 cat cafés, most of which are located in the first and second tier cities (Shi, 2016). For consumers, the price level of consumption in cat cafés is slightly higher than that in traditional cafés, yet even in this case, the market of cat cafés is still booming because they are cat cafés, which are special cafés with a cat theme and unique characteristics. Most of the customers of cat cafés are pet enthusiasts who are willing to pay more to spend time with the cats. They become a stable source of customers for cat cafés. The cat café industry entered the United States relatively late, but grew in a speed. According to statistics on Petful (2018), the number of cat cafes in the United States has reached 72 by 2018, half of which opened in 2017. Cat cafés in the United States mainly serve as atypical cat adoption centers and local animal shelters. In addition to interacting with customers who pay admission fees, cats in the cat cafés are also candidates for potential adoption. Most cat cafés in the United States are closely related to the local animal rescue centers, promoting local adoption of cats and saving more cats from euthanasia.

As a rising new industry, the cat café industry is innovative enough to attract the attention of the public. However, with its further development, improvement and strengthening of the regulatory mechanism, many problems will arise. For example, is the sanitation up to standard? Are the pets taken care of in proper ways? Also, when people's curiosity about the novelty of cat cafés gradually fades away, cat cafés will face more serious challenges. In other words, what experiences can be attained by consumers get in cat cafés?

China is seeing an increasing number of cat cafés. New cat cafés spring up everywhere while at the same time there are also a large number of cat cafés end up closing (Li, 2019). The reasons are the cost of operation is too high, the number of customers is reduced, and there is the problem of compensation for complaints and injuries by cats. First, vaccinating, feeding cats, cleaning up feces, disinfecting, trimming hair, inspecting and taking care of cats is a meticulous job that requires a large amount of manpower, material and financial resources. The real operation cost of cat cafés can be quite high. Second, the cat cafés industry has been in China for several years. Customers whose curiosity have been satisfied are leaving, while cat cafés that have memberships and a high price level are not doing a good job in retaining old customers (Zhao, 2017). Finally, almost all the owners of cat cafés are pet lovers who take care of the cats in a professional and devoted manner. Recognized as a promising industry, the cat café industry is seeing many speculators who know nothing about cats, but only want to turn a profit. In the city of Wuhan, there were cases where cat cafés went bankrupt and resulted in dozens of cats being locked up in the café with no one taking care of them (Li,2019). This is not only an economic issue, but also a moral one. On social media platforms, many consumers have also questioned the hygiene and sanitation of cat cafés (Zhao, 2017). Furthermore, some consumers themselves are not disinfected when entering the cat cafés, so the risk of cross-infection is extremely high.

Similarly, although the cat cafés in the United States differ from those in China in terms of operation and management, there are voices of resistance against the cat cafés in the U.S. For example, some Animal Welfare Groups (AWG), such as In Defense of Animals (IDA) and The American Society for the Prevention of Cruelty to Animals (ASPCA) do not support the establishment of cat cafés. Although the existence of cat

cafés may serve as extended spaces for the local animal shelters, accommodating more cats and reducing the euthanasia rate of animals, these AWG believe that cats are being showcased in cat cafés. This spotlight may disturb cats' normal living, and the constant circulation of people will pressure sensitive cats and cause them anxiety.

1.2 Scope of the Study

This study focused on the impact of design on a social environment. Based on the great differences in the patterns and designs of cat cafés between China and the United States, comparisons can be made on the impact of cat cafés on people and community in the two countries. Through the analysis of the advantages and disadvantages of different designs, conclusions can be reached on the most suitable and optimal design for people and cats to share and coexist and for promoting human social interaction.

When comparing the differences between cat cafés in China and the United States, the following will be taken into consideration:

1. Different cultural backgrounds and different laws and regulations in China and the U.S. have different impacts on design.
2. The impact of design on human and cat behavior should be positive.
3. The design should meet the common needs of human and cat.
4. Design should play a guiding and promoting role in human social interaction.

1.3 Objectives of the Study

The main objective of this study is to investigate the impact of furniture design on social environment based on the analysis of the relationship between human beings and animals, so as to successfully construct a good and virtuous social environment. In terms of design, the existing household pet furniture designs should be the foundation,

the social interaction of people in the space should be taken into account, and the comfort of both people and cats in the space should be ensured.

The research objective of this study will be divided into the following three parts:

1. Identify the difference of pet café design between the U.S. and China.
2. Compare the social environment affected by the different designs in the U.S. and China.
3. Propose design solutions for the cat café to make an efficient social environment.

1.4 Significance of the Study

To crystallize the significance of this study, this section gives a rationale for the benefit for customers and community, in addition to the benefit for cat café owner and cats.

1.4.1 The benefits for customers and community

At the macro level, this research is mutually beneficial to both customers and community. A well- designed café, a public realm, will earn more money by attracting more customers. It also helps participants who engage in the social environment to foster positive peer relationships and interactions. Moreover, pets work as a conduit for friendship formation and social support (Wood, 2005).

1.4.2 The benefits for cat café owners and cats

At the micro level, this research will investigate the difference between the cat café in China and the U.S., which means different culture and different form, but the same motivation and expectation. Improvement of the café design can be supported by analyzing the results, showing the way it works the best. Concerning the academic study of the social environment with companion animals, researched by Wu, Wong and Chu

(2018), McConnell (2011) and Wood's (2014), café with companion animals could be the easiest and efficient way to meet people and engaged with the animals. Based on the pet café business, most of the cats are focused pet adoption. There is no cat café which focus on the social environment, which means there are opportunities to examine how café design can influence specific social interaction between pet and human, which would improve and change the design, composition and form for an efficient social environment.

1.5 Conceptual Framework

Based on the literature review and the scope of this study, the researcher developed the conceptual framework in a comprehensive perspective. The whole study focused on the influence of design on the social environment. As shown in figure 1, the framework is divided into two aspects: psychological outcomes and business benefits. In terms of the social environment, this study focused on psychological aspects.

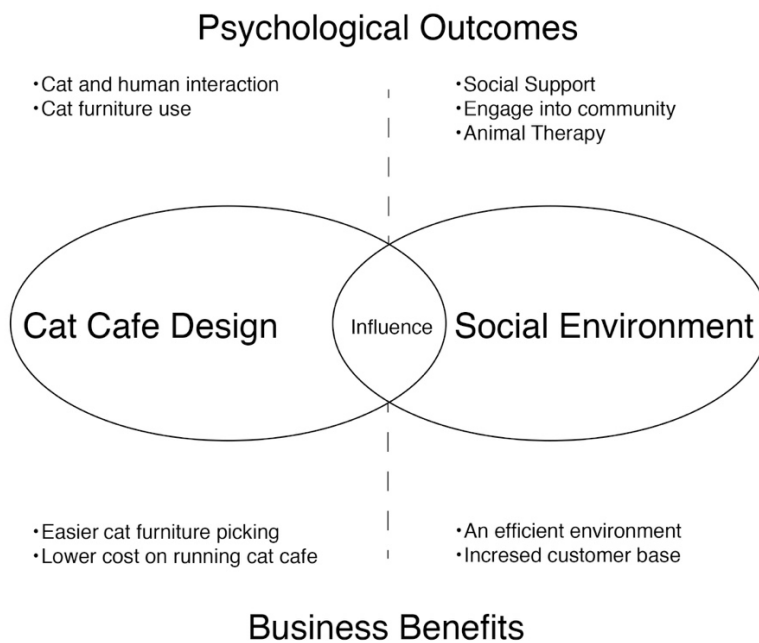


Figure 1. Conceptual framework for collaborative work environments

1.6 Thesis Organization

The current chapter described the background of the topic, the scope of the study and the objective and significance of the study. In addition, the conceptual framework of this study is listed, and the thesis organization also described.

Chapter 2 is a review of literature. First, it briefly introduces the history of cat cafés. Second, it reviews the related literature on cat furniture design and the social environment. Because this research is an exploratory study, few studies about cat café design can be found, while the most related paper to cat café is about marketing and brand design for cat cafés.

Chapter 3 discusses the methodology. The research strategies are discussed to approach the topics and proposed research questions. In addition, participant selection, data collection and analysis methods are demonstrated in this chapter.

Chapter 4 discusses the study results. It reports results drawn from the study methods. It also provides evidence to answer the three research questions.

Chapter 5 is the discussion and conclusion of this study. In this chapter, the results from the previous chapter are reviewed. This chapter also talks about the limitations of the current study and suggestions for future study. In conclusion, this chapter illustrates the significance of using design to affect the social environment in cat cafés.

CHAPTER 2

Literature Review

1.1 Introduction

This chapter talks about the history and influencing factors of cat café design and the social environment. First, a discussion on cat café design is necessary to clarify the topic of this study. Several vital articles and studies related to feline furniture and cat café will be discussed. Second, studies of the social environment are reviewed to probe how design affects social environments or influencing changing animal-human bond.

2.2 History of Cat Cafe

The idea of a Cat Café originates in Taipei, Taiwan. In 1998, the first cat café opened in Taipei. It was called Cat Flower Garden (see Figure 2). Japanese tourists took notice of this café and later in 2004, Japan had its first cat café. From there, cat cafés began to gather momentum in Japan (Daly, 2015).



Figure 2. The first cat café, Cat Flower Garden.
(Source: Chen, 2018)

In a cat café, customers who do not have the time or space to take care of pets can experience playing time with cats without the responsibility or hassle of ownership (Galloway, 2012). Today, cat cafés can be seen elsewhere in Asia and Europe. In 2014, the United State (U.S.) had its first cat café: Cat Town Café in Oakland. Since then, cat cafés bloomed across the U.S. in New York, Denver, San Diego and Portland. Due to food code by the U.S. Food & Drug Administration (FDA), cat-zone area and café area are separated by a corridor with two closed doors in each end (Steinmetz, 2014) (see Figure 3).



Figure 3. A corridor separates the cafe section from the cat-zone area in Cat Town Café (Source: Steinmetz K. 2014)

Cat cafés are still popular today. Most cat cafés were small in the past, but people also see cafés in high-end and glamorous locations in Shinjuku and Harajuku, Japan these days, with their interiors close to that of superior hotels. Other than cat cafés, there are more types of animal cafés springing up in Japan nowadays, including goat café, owl café, rabbit café, puppy café (Zhao, 2017).

It is feasible that cat cafés spread worldwide. Although restriction and culture background are different in various countries, a cat café can adapt to different local conditions.

2.3 Factors Affecting Pet Café Design

This study continued the discussion of cat café design comparing cafés in two countries: China and the United States. When a designer designs a café, in addition to ergonomics, design style and customer needs, he or she also need to take into consideration the local culture to ensure that the café integrates into the local market as much as possible. In addition, when comparing the design of Chinese and American cat cafés, designers should also consider the differences in laws and regulations between the two countries.

2.3.1 Business Models and Restrictions

Differences in business models, laws and regulations of the catering industry are the main reasons for cat café design and for the differences in the locations, designs and appearances of cat cafés between the two countries.

In terms of the business model, the concept of cat cafés in China is closer to cat-themed cafés. In the United States, they are closer to salons. In China, the café is an imported concept. In different times, their popularity and models were varied: from business cafés that first entered China's mainland market, to the Fast-Moving Consumer Goods (FMCG) cafés featuring Starbucks, to leisure cafés featuring Uniform Commercial Code (UCC), to all kinds of themed cafés. In the four eras of cafés, theme cafés can be most differentiated (Zhao, 2017). According to Maslow's hierarchy of needs, people will pursue spiritual satisfaction after their material needs are satisfied. Cat café is a new market born in the context of consumers' increased disposable income, leisure time and

leisure demand as well as their keen interest in cats, dogs and other pets, which created an emerging market for animal-related goods and services (Zhang, 2005).

In the context of a weak traditional café economy, the cat coffee industry is a hybrid of cafés and cute pet shops. The design of traditional cafés achieves human-cat coexistence. For example, the cafés leave large indoor spaces, add indoor cat supplies, or directly use common furniture designed for people and cat interactions (Zhao, 2017) (see Figure 4). Furthermore, the regulations on pets are not clearly defined in the laws and regulations of China's catering industry, State Administration for Market Regulation (CNSAMR, 2019). Therefore, in the case of indoor and food safety standards, it is possible for cat cafés to get business licenses and health permits. This greatly encourages the development of the cat café model in China, which is a creative upgrade on traditional cafés.



Figure 4. General cat furniture
(Source: Cats Design studio, 2019)

Therefore, China's cat cafés industry is closer to the service industry, that is, to provide services that satisfy customers. It is profit-oriented, and it aims at making a financial profit. Although some cafés are engaged in cat rescue, they are a minority. In

order to make profits and save costs, cat cafés are usually opened in high-end commercial housing areas or well-established shop areas with low rents. The decoration styles are different, full of creativity and beauty, in addition to providing enough activity space for the cats (Jiao, 2013).

However, because of the health code of the U.S. Food & Drug Administration (FDA), in the United States it is not permissible to have animals other than service animals in a restaurant. So, unlike their counterparts in China, cat cafés in the United States have separate spaces for cats and for catering, which led to an overall style difference in the interior decoration and design between the two countries' cat café (USFDA, 2019).

2.3.2 Human and Cat - Multiple Design objectives

In the interior display and furniture design of the cat cafés, some furniture is designed for people and some for cats. That is, in the same space, there are a variety of design objectives.

For the cat, it is necessary for the designer to understand the living habits of cats and to design for them plenty of play and resting space. For human users, the designer needs to take into account the psychological and emotional factors of the customer, so that the pet furniture becomes improved human furniture. This allows the customers to enjoy a pleasant moment with the pet while having normal furniture functions.

Cats, one of the design objectives, are a family of carnivorous mammals. According to Lin (2010) and Landsberg (2013), the main characteristics of the living habits of cats are as follows:

(1) Grooming. Cats love to be clean, they frequently use the small rough protuberances on the tongue to clean their hair.

(2) Reaction and balance second to none. Cats can walk and jump on high walls. Even when they fall from a high altitude, they can change their body posture in the air, so as to land lightly on the ground and accurately at the right place.

(3) Intelligence. Cats have a high ability level to observe and comprehend their surroundings, so they are intelligent and gifted animals in the eyes of human beings.

(4) Strong independence. In the wild, although cats belong to social animals, most of the time they adopt an independent way of life. This is the case even for domestic cats. Even domesticated cats maintain their independence and will not rely too much on humans.

(5) Strong curiosity. Cats are curious about new things in their surroundings. They are especially curious about box-shaped and hole-shaped objects. They like to explore to try out the new things.

A Human is another design objective. Through Wang's (2011) study of human-cat interaction, the psychological characteristics people have when interacting with cats can be summarized as follows:

(1) Care taking psychology. According to psychological research, most people will experience a rise in their body's oxytocin level when interacting with cats. This is a maternal instinct response of human beings. Because of this instinct response, people will desire to take care of the cats.

(2) Playmate psychology. This psychological characteristic is especially markedly manifested in children. As cats are human companion animals, the way cats and children interact is more like social playmates.

(3) Dependence psychology. Humans want the companion of and emotional interaction with cats. At the same time, cats want to attract human attention, which is a characteristic similar to humans.

To design good feline furniture, through Li & Ye (2016) research, pet-friendly home design has certain requirements on compatibility, function, durability and practicality. The most important factor is the compatibility because of multiple design objectives. Moreover, to make both human and cat comfortable, the design needs to fit human and cat ergonomics. As for the function of feline furniture, material selection determines the function and appearance of the furniture, which affects a cats' physical and mental health. Also, natural wood is safer, more environmentally friendly, and close to nature. Furthermore, because of the cats' habits of scratching and biting, designers must also consider the cost of production and the durability and practicality of the product (Peng, 2016).

On the contrary, if the cat furniture only considers the cats as the design objective, the design focus will be on safety and durability, but this will easily lead to a single function of the furniture. When the pet is not using it, the furniture is just a display object without other practical value. However, if the designer only considers the user, that is, the human being, as the design objective, he will place more effort on the appearance and cost. While unable to address the needs of the pets in the furniture, it makes no difference from ordinary home or restaurant furnishings (Ma, 2019).

2.3.3 *Human-Pet Interaction*

When designing pet friendly furniture, the goal is to make it human-pet interactive, to achieve harmony among people, between people and animals, and among people and animals and the interior environment.

First, as a media for interaction between cats and customers, the design of cat furniture should ensure the customers can use the furniture normally. Then take into consideration the cat's habit of climbing, clawing and moving, and remake the furniture a resting and entertainment spot for the cat. In this way, the furniture becomes a common and harmonious activity space for the cat and the customer. A study by Ma (2019) shows that the design of this interactive relationship should be based on order. It is necessary to do a space segmentation for safety and health reasons. Pet-friendly furniture design should be based on the living habits and psychological needs of the pets and customers. Moreover, in Li's (2016) study, the colors red and green color aids the interaction between people and cats, because red and green are attraction-grabbing for cats. Thus, to make both customers and cats interactive, cat furniture can use some red and green to attract cats' attention.

Second, furniture design with human-pet interaction in mind can not only build a pet-friendly environment, but can also directly bring people closer to each other. A commercial example is a pet-friendly café in Southern California that tried pet-friendly furniture to promote communication among customers. Their customers feel a great sense of community while they customize their own dining experience with pets (Lancatser, 2016).

In this context, the pet-friendly designer studies the modular design of pet furniture from the interaction perspective. Taking cats and dogs as research objects, the interaction relationships between people (and between people and pets) are also included in the research. Such furniture can not only better meet the needs of pets and people by acting as an important medium for human-pet interaction, but can also

highlight the role of pets as a bridge between people for emotional communication (Liu, 2015).

2.3.4 *Maintenance and Use of Pet Furniture*

When both people and pets become the design objectives, the appeal for quality in interior design increases. Through interior design optimization, people and cats can feel more comfortable together, and the frequency of cat furniture's maintenance and renewal can be reduced, creating a harmonious living environment. When cleaning is not in place, the service life of articles will be reduced, and then maintenance is required. Therefore, at root, cleaning is the fundamental step to solve the maintenance problem (Peng, 2016).

In terms of design, a proper two-dimensional space plan is the main method to construct the cat's living routine and effectively avoid any odor and mess. The design should combine the living habits of the cat and people at the same time, to have a space for making a mess and a space to be kept clean, with another space for play and another for rest. Spaces for sleeping, eating, bathing and entertaining of the cat need to be arranged scientifically. Items such as the house, bowl, litter box, and climbing tools for the cat, need to be put in their specific spaces (Lu& Lai, 2004).

In addition, in terms of materials and colors, considering cats' habits of urine marking, hunting and scratching, the walls prefer materials with a smooth surface, the ground prefers wear-resistant materials, and couches can be those that come with a "cat scratching cloth" which is wear-resistant and cat scratch proof. This "scratch cloth" couch, which is currently available in the market, will not be covered with cat hair, thus it can be kept clean for a long time and easy to clean (see Figure 4). Simultaneously, for the soft material of the sofa, the preferred material is fabric with better abrasion

resistance and ease of cleaning, in order to ensure a long service life and good hygiene. Soft linings can also be used to provide customers and cats a warm and comfortable environment (Peng, 2016).

Stains cleansing is a challenge. If not cleaned in a timely and proper manner, the furniture performance will be damaged, thus maintenance will be needed more frequently. A darker colored interior can visually hide the stains that are hard to remove, thus achieve both function and beauty by hiding the disadvantages and highlighting the good quality of the materials. This also makes maintenance work easier, thus reducing labor and time costs, further improving the human-cat life quality (Wang & Feng, 2014).



Figure 5. “Scratch cloth” couch
(Source: Mengchong Website, 2018)

2.4 Factors Affecting Social Environments

This section talks about the influencing factors of the social environment from the following three aspects: the objective conditions of the environment, the cultural differences between China and the United States, and the human-animal relationship.

2.4.1 Impact of Environment on Socializing

Public environment serves as a reflection or a mirror of individual behaviors, social processes and conflicting public values (Desmet, 2015). When people are trying to talk about public places, first they need to understand and conceptualize that public places are considered as an opportunity for the exchange of messages with diverse others (Worpole, 2007).

To consider the relationship between people and their place is to start with architectural or environmental determinism, where the physical environment has an influence on human behavior. In addition, different environments have a different impact on people's social behavior. The visual effect of interior design directly affects people's emotions and behaviors.

To be specific, in social interactions, people who are conscious that they are in the same mood show a stronger desire to communicate and the possibility of having dialogue (Bratton, 2015). Also, Cunningham's (1988) study illustrates when positively motivated, people show a high degree of willingness to participate in social activities. A similar study done by Chebat and Michon (2003) shows that the environment of a shopping mall can influence the mood of shoppers, and it can greatly enhance the shopper's tolerance for commercial marketing, so that the salesman can more easily achieve better performance. Thus, to socialize people in a cat café, cute, bright and relaxing styles will play a crucial role in the social environment.

2.4.2 Differences in Socializing between China and the U.S.

There are marked differences in the way people socialize in China (the East) and in the United States (the West) due to cultural differences. From Cheng's (1987) research, Chinese was influenced by Confucius ideologies. Etiquette are unwritten rules and social norms with various implications. People show respect to others while speaking humbly of themselves. Chinese thoughts show rankings. For example, the elderly and senior staff have more priority. And collectivism is highlighted, which means people are encouraged to think from a macro level, such as from society, rather than think from an individual's perspective. In the West, individual values are emphasized. Politeness and equality are more important in socializing, and people are not asked to speak humbly. The West emphasizes individuality and independence. Compared with China's collectivism thinking, the West tends to be more individualistic. So people pay attention to protecting their own and others' privacy in socializing and communication (Cheng, 1987). In terms of making friends in the U.S., friends are more broadly defined, and friendships have distinctions, which is also in line with Americans' concern for personal privacy (Wang & Du, 2017).

2.4.3 Human-Animal Bond

Generally speaking, people will benefit from the relationship between their companion animals and themselves. According to McConnell's (2011) study, interacting with cats can reduce an individual's anxiety and depression, and make the individual feel happier and respectful, thus having a positive effect. Cats can reduce the loneliness of many young men and women and empty nesters (Stanley, 2014). Furthermore, in Wood's (2014) research, pets can not only provide people companionship, but also lead

people to integrate into their communities better. People can make friends with the same interest and get social support.

Moreover, the human-pet relationship also affects people's social interaction. Tang's (2014) research shows that in cat cafés, when surrounded by cats, people and cats are in a society where they are equal. In a stressful and busy urban life where there is a lot of tension and little communication with others, such an equal environment can encourage people to be more willing to socialize (Yamamoto, 2010).

To be specific, in the context of China's rapid development, the concept of "Single-person economy" which the Japanese Economist Ohmae (2011) proposed, is the typical lifestyle of Chinese young people. Because of family planning practices, most Chinese families have only one child. They are important consumers of the "one-person economy". Since 2016, the "empty nest youth" group's working and living has been widely concerned. The data shows that this group is mainly in first-tier cities such as Beijing, Shanghai, Guangzhou and Shenzhen, and is mainly post 80s and 90s. They are mostly far away from home, working in the foreign cities alone, unmarried and living alone. Data shows that this group coincides with 90% of Chinese pet holders (Zhang, 2005). Similarly, in the study by Wu, Wong & Chu (2018), experiments on the relationship between Chinese young people and pets have been carried out to support and claims that interactions with pets, the sense of belonging, and the feeling of home when taking care of pets will significantly reduce the anxiety and loneliness of young people. Though China's national conditions and cultural background are unique, the general features of a cat café environment make them a relaxing sanctuary, as a healing and socializing place especially for young people. Simultaneously, Rice (2015) in the

United States is also doing research on homeless youth, and found that the contact with pets can create a feeling of being loved and a sense of belonging and being at home.

2.5 conclusion

This chapter reviewed the research literature on feline furniture design and human-cat relationship. In terms of exploratory research, few research studies directly study cat cafés. However, more research exists on social environment and pet furniture design.

The design and social environment complement each other and influence each other. Studies on animal-human bond in the literature revealed how cats play an important role when people interact with others in a cat café. People will benefit from the interaction with a cat. The benefits make cat café become not only a place to play with or adopt a cat, but also a public realm to get social support and be engaged in a community. Similarly, on the design level, cat cafés in China and the U.S. are already greatly different in their style due to laws and regulations. The interaction between cat and human will be influenced by the different designs. To design a cat café with a better social environment, the balance of multiple design objectives needs to be considered as a space for the harmonious coexistence of humans and cats.

CHAPTER 3

Methodology

3.1 Introduction

In this chapter, the researcher illustrates the strategies used to evolve, collect, and organize the data needed for the study. The topics discussed include: research topics and questions, research strategies used in this study, research instrument selection, participant selection, research procedures for data collection, and data organization and analysis.

3.2 Research Topics and Questions

3.2.1 Difference of Cat Café Design Between the U.S. and China

From the preceding literature review, it is evident that design can have an impact on users' emotions and behaviors. Therefore, in an environment, such as a cat café where different people, different cats, and people and cats coexist and form relationships with each other, the changes of design in the environment may have an impact on the emotions and behaviors of the people and cats. There are differences in the design of cat cafés in China and the United States, which allows comparisons to be made on the impact of different designs, patterns and arrangements on people and cats in that design environment.

The following research question will guide this study:

Question 1- What are the differences between cat café designs in China and in the United States?

3.2.2 Difference of Business Between the U.S. and China

The aims of operating a cat café in China and the United States are different, and the local laws and regulations are different as well. This also means that in China

and the U.S., cat cafés provide different activities, with different activity themes.

Regardless of the purposes of these activities, some activities may be used for profit to benefit the café owners while some activities will benefit customers. These activities may have an impact on the social environment of the café.

An additional research question is:

Question 2- What are the differences between the activities offered in cat cafés in the U.S. and China, and how do they impact people and cats?

3.2.3 The social Environment in the U.S. and China

The ultimate goal of this research is to improve the social environment of cat cafés using interior space design and furniture design. Different from the design and use of cat furniture in the home, the design and business model of the cat café will have an impact on its social environment. Cat cafés in China and the United States have different social environments due to both objective reasons (such as indoor environment) and subjective reasons (such as cultural and business background). In the current environment of both the U.S. and China, cat cafés serve as a socializing place for people living a high-pressure urban life.

A third research question is:

Question 3- What affects the social motivation the most in cat cafés in the U.S and China?

3.3 Approach

With the purpose of examining the effects of cat furniture design on the social environment, there are variables to consider. This section discusses the potential factors to measure the efficiency of the social environment, such as the type of relationship and how much people engaged.

3.3.1 *Method 1: Site Search Analytics*

Site search analytics can record the basic documentation for furniture design which help with the ergonomics, user experience and social environment (Rosenfeld, 2011). The researcher will investigate the physical environment that exists in two cat cafés (one in Phoenix, U.S. and one in Wuhan, China). The observation will document layout, basic documentation of the space. To be specific, the layout is about the efficient use of space where people can play with cats and the engagement zones spread out in the café.

Moreover, the basic documentation of the space including:

1. The service and hygiene. The service is by a waiter, waitress or host.

Otherwise, is there any vending machine. Moreover, where is the cat toilet? Is there any action to be done to protect cats and customers, such as a hand washing sink and hand sanitizer?

2. The documentation of general restaurant furniture, such as windows, chairs, tables and other structural and furniture elements. The number, material, color and style of furniture were recorded.

3. The documentation of cat furniture. The number, material, color and function were recorded.

3.3.2 *Method 2: Behavior Mapping*

Behavioral mapping is a research method developed in the late 1960's. It is a direct-observation method that tracks people's behavior in exact space and specific time. In Cosco, Moore and Islam's (2010) study, they used behavior mapping to study how the physical environment features affect people's behavior, including the activity level and type of activity. Similarly, in Sadek and Shepley's (2016) study based on space syntax

theory, they used several spatial measures to learn about the use of the healthcare facilities in different layout typologies. These studies both used target visibility to weight the importance of the behaviors and activities. Inspired by these studies, tracking the behavior of customers in cat cafés was implemented. The researcher attempts to link the gap between design and behavioral science by identifying not just the users' preferences but also the value of the environment.

The data was collected by sitting in each cat café to observe customers behavior. The non-participant observer collected data during a half hour observation session in both afternoon and evening at each location. Data were used to create the tables and represent the compilation of all observations gathered during each observation session. The researcher recorded the movement of each customer (n=X) in two different cafés. Lines of the movement of the customer was drawn on the floor plan. Furthermore, to link the behavior map with the physical environment, the behavior settings were listed. Behavior settings are eco-behavioral units (Barker, 1976), which identify the components with independently function.

3.3.3 *Method 3: Interview*

Interview method were used for gathering data. This method aims to investigate the benefits that both customer and owner can gain from cat café business. Thus, the interview questions were asked from the beginning, development and the management of cat café. An élite interview is the best way to get information from someone who is in the position of authority (Gillham, 2010). Hence, the owner of the cat café is the most knowledgeable to the cat café design, activities and customers behavior in cat café. In addition, the cat café's owner witnesses the customers' socially-desirable behavior on each other and the effectiveness of the social environment (Fiona et la., 2013).

The researcher conducted in-person interview the two owners of cat cafés. Participants were interviewed using a semi-structured interview, which has both open and closed questions (Gillham, 2010). The interview questions are listed in table 1:

<u>Research Question</u>
Main Question 1: Why did you start a cat café?
Sub question: Have you been to other cat cafés?
Sub question: Do you have previous experience with a regular café?
Main Question 2: How did you set up a cat café?
Sub question: Why did you make the design decisions you did? Did others help you with these design decisions?
Sub question: What kind of furniture did you pick? Why?
Sub question: What kind of atmosphere do you want to provide for customers?
Sub question: What kind of activities are provided in your café?
Main Question 3: What do you think of your cat café?
Sub question: What is the most satisfied aspect of your cafe?
Sub question: Are you planning any future improvements? If yes, what are they?
Sub question: What do you think your customers like best in your cat café?
Sub question: What do they like the least?
Sub question: What is the biggest problem you faced when you built your café?
<i>Do you have any additional comments or insights to share with me?</i>

Table 1. Interview questions

Interviews were recorded on a digital device. Participants were compensated for their time by the researcher.

3.4 Analysis Method

In method 1, site search analytics, the results were shown by table and graph. The difference from the pattern is obvious to crystallize the difference between the cat café physical environments in the U.S and China (Gillham, 2010).

In method 2, behavior mapping, the results were also depicted visually in graph form. The behavior settings were listed in table. Furthermore, the map was drawn with lines and notes about the time in the facilities. Thus, the notes and the map, which show how long people stay, was used to attribute graphs in Geographical Information Systems (GIS, 2018). Each dot in the behavior maps represents the observation of a customer and his/her level of physical activity (black = sedentary, medium grey = Several minutes stay, light grey = One or two minutes spend). The dots demonstrate how people like the facilities or how much people engage into the activities.

In method 3, interview, transcripts from the two owners' interviews in the U.S. and China were analyzed using a framework analysis. To reveal the truth behind the scripts, the key themes were identified and written up to compare in an analysis grid for content analysis (Gillham, 2010) The content analysis is proper for answering interview questions. Besides, the interview is the way to get first-hand information and it explores the open-ended answers for further design. Hence, content analysis is the most suitable method for interview data analysis.

3.5 Conclusion

This chapter illustrated the research methodology and described the means for conducting the research. It also concluded the participants and procedure in the study.

CHAPTER 4

Results of Data Analysis

4.1 Introduction

This chapter presents the data collected from the research study. It also answers the three research questions in Chapter 3. The results are presented in three parts. The first part shows the data of physical environment by tables. In the second and third part of this chapter, the data are illustrated through behavior mapping and interview.

4.2 Site Search Analytics

To explore the basic data of physical environment, site search analytics present the difference in furnishing and layout between cat café design in the U.S. and China. The results show the difference in: the layout and basic documentation of the space.

4.2.1 The Layout

The layout of cat cafés in the U.S. and China shows obvious differences. The cat café in China (see Figure 6) is more crowded. That said, the open space is smaller than the cat café in the U.S. Moreover, the cat café in the U.S. (see Figure 7) is divided into two parts, the café section without cats and the cat-zone section, by a fence with a door. Although the cat café in China has two sections, the boundary is vague. The café section has more sofas and tables, and the cat-zone section has less furniture. Because there is no door or fence, cats can walk around anywhere in the café.

670 sq ft

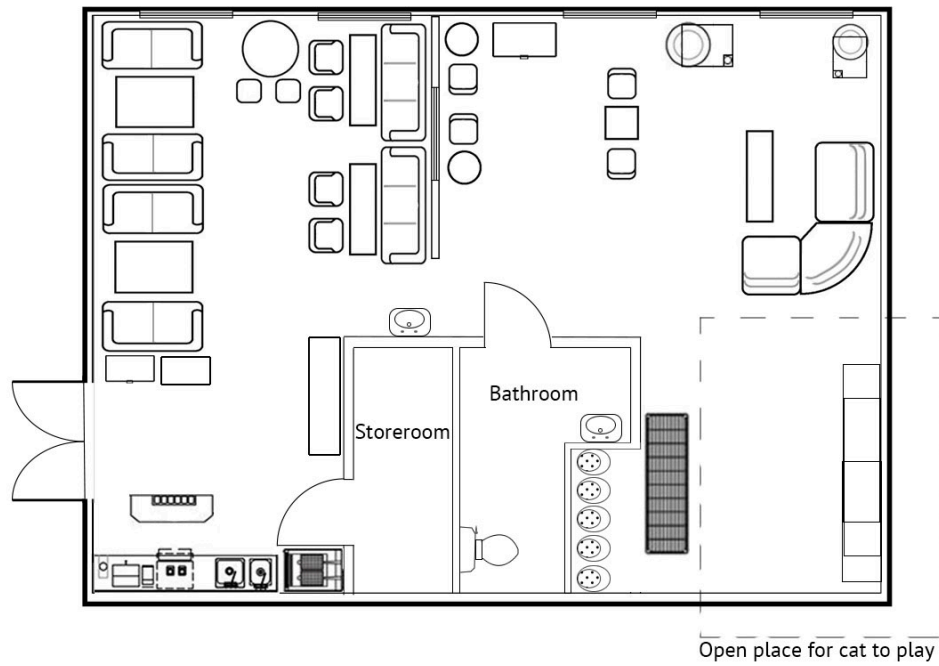


Figure 6. The floorplan of cat café in China.

460 sq ft

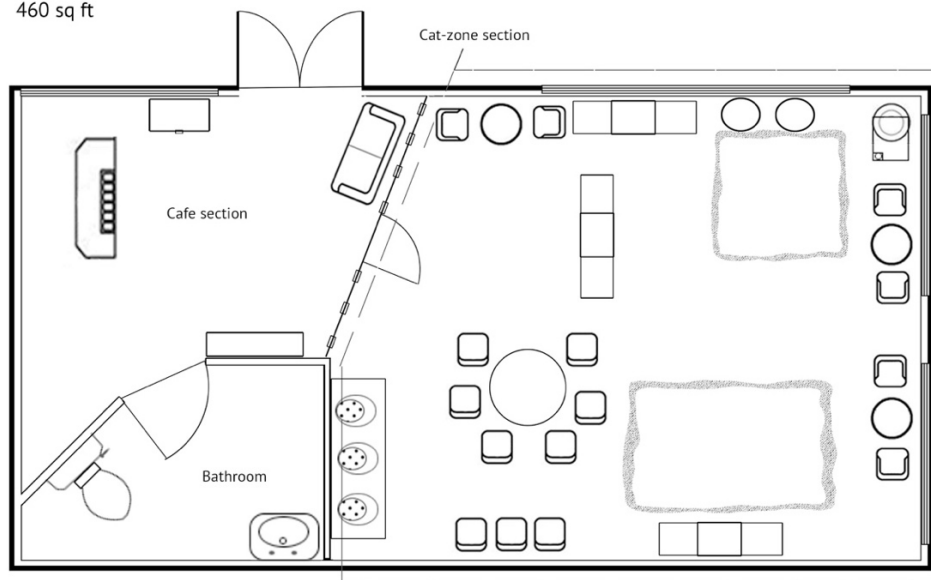


Figure 7. The floorplan of cat café in the U.S.

4.2.2 Basic Documentation of the Space

To compare the difference in furnishing and layout between cat café designs in the U.S. and China, the tables below show the difference in basic documentation of the space. The data is present in three perspectives: the items for service and hygiene, general restaurant furniture and cat furniture.

4.2.2.1 Service and hygiene items

Items \ Countries	The United States	China
Vending machines		1
Waiter/Waitress		3
Host	1	1
Bartender		2
Hand sanitizer	2	
Hand sinks	1	3
Cat toilets	3	5
Cats	13	21
Shoe cover containers	1	1

Table 2. The items of service and hygiene comparison between the U.S. and China.

Table 2 illustrates that cat cafés in the U.S. and China both provide several ways to protect cats and customers. In the cat café in the U.S., it has fewer cats and service personnel. For the cat café in the U.S. in this research study, it does not sell any drinks except a free cup of tea. The service in the U.S. cat café is simpler than in China. On the contrary, the cat café in China has both a vending machine and waiters/waitresses. Thus, customers have more choices of refreshment.

4.2.2.2 The general restaurant furniture

The general restaurant furniture in this study should be the furniture used only by humans. The comparison of number, colors, material and style is made between the U.S. (see Table 3) and China (see Table 4).

Furniture	Number	Color(s)	Material(s)	Style
Window (Frame)	4	Black	Wooden	Crisp line in modern style.
Curtain				
Chair 1	3	White	Plastic	Crisp lines in modern style.
Chair 2	6	White	Plastic and steel	Straight and curved lines and classic silhouette in transitional style.
Chair 3	2	White	Steel	Crisp lines in modern style.
Chair 4	2	Hot pink	Wood	Crisp lines and geometric shape in modern style.
Chair 5	2	Sky blue	Faux leather and steel	Straight and curved lines and modern silhouette in transitional style.
Sofa (Outside)	1	Dark blue	Cotton	Straight and curved lines and modern silhouette in transitional style.
Bar stool				
Fan	2	Black	Plastic	Crisp lines in modern style.
Tea table	3	White	Wood	Crisp lines and curve lines in modern style.
Table	1	White	Steel	Crisp lines in modern style.
Ambient lamp				
Ceiling lamp	8	White	Plastic	Curved lines in modern style.
Cashier desk	1	White	Wood	Simple silhouettes in contemporary style.
Cupboard	1	White	Wood	Crisp lines in modern style.
Cabinet	1	White	Wood	Painted in one color, crisp line and simple silhouettes in contemporary style.
Door 1 (Entrance of cat cafe)	1	Black	Plastic and glass	crisp line and clean silhouettes in modern style.
Door 2 (Entrance of cat section)	1	White	Steel	Crisp line and simple silhouettes in contemporary style.
Television	1	Black	Plastic	Crisp line in modern style.
Book shelve				
Refrigerator				
Counters top				

Table 3. The basic documentation of general restaurant furniture in U.S. cat café

From the basic documentation of general restaurant furniture, the design of the cat café in the U.S. is in modern style. With a sense of simplicity, the majority of furniture is the cat café is plastic, wood and steel. In addition, the main colors are hot pink, blue and white.

Furniture	Number	Color(s)	Material(s)	Style
Window (Frame)	5	Pink	Wooden	Crisp lines in modern style.
Curtain	4	White and black	Chenille and cotton	Classic silhouette and curved lines in traditional style.
Chair 1	2	Pink	Plastic	Crisp lines in modern style.
Chair 2	4	Pink and gold	Faux leather and steel	Classic silhouettes with bow-not decoration in traditional style.
Chair 3	2	Golden	Steel	Curved line in modern style.
Sofa 1	4	White and gray	Steel and cotton	Minimalist silhouette and sophisticated lines in mid-century modern style.
Sofa 1	3	White	Wood and cotton	Crisp lines in modern style.
Bar stool	2	Pink	Plastic	Minimalist silhouette and sophisticated lines in mid-century modern style.
Fan				
Tea table 1	3	White	Wood and steel	Classic silhouette and curved lines in traditional style.
Tea table 2	1	Transparent and golden	Glass and steel	Minimalist silhouette and sophisticated lines in mid-century modern style.
Table 1	4	White	Marble	Minimalist silhouette and sophisticated lines in mid-century modern style.
Table 2	1	Pink	Steel	Classic silhouette and curved lines in traditional style.
Ambient lamp	15	Warm yellow and pink	LED	Minimalist silhouette and sophisticated lines in mid-century modern style.
Ceiling lamp	4	Warm yellow	LED	Classic silhouettes with bow-not decoration in traditional style.
Cashier desk	1	White	Marble	Minimalist silhouette and sophisticated lines in mid-century modern style.

Cupboard	1	Beige	Wood	Classic silhouettes with bow-not decoration in traditional style.
Cabinet	2	White	Wood	Classic silhouettes with bow-not decoration in traditional style.
Door 1 (Entrance of cat cafe)	1	Pink and white	Steel	Crisp lines in modern style.
Door 2 (Entrance of storeroom)	1	Beige	Wood	Minimalist silhouette and sophisticated lines in mid-century modern style.
Door 3 (Entrance of bathroom)	1	White	Wood	Minimalist silhouette in mid-century modern style.
Television				
Book shelf	1	Black and White	Marble and steel	Classic silhouettes with bow-not decoration in traditional style.
Refrigerator (Outside)	2	Black	Plastic	Crisp lines in modern style.
Counters top	1	White	Marble	Crisp lines in modern style.

Table 4. The basic documentation of general restaurant furniture in China's Cat café

Furthermore, from the basic documentation of general restaurant furniture in China's Cat café, the design is in traditional and modern style. The main colors are pink, white and beige. The most used materials of furniture are wood, steel and marble.

Overall, to compare the number and the kind of furniture in the cat cafés, the China cat café obviously provides more variety of furniture, such as sofas in different size, book shelf and electric appliances. In comparison of the design style, the China cat café's design is more complex, elegance and classic, which is closer to a traditional café.

4.2.2.3 The cat furniture

The cat furniture in the cat cafés in the U.S. (see Table 5) and China (see Table 6) shows differences in number, style and function.

Items	Number	Color(s)	Material(s)	Function
Rag 1	1	Blue	Faux Fur	Cats and humans can use it to rest.
Rag 2	1	White	Faux Fur	Cats and humans can use it to rest.
Cushion 1	2	Gray	Cotton	Decoration
Cushion 2	4	Blue	Cotton	It can function as cat bed or decoration.
Perches	2	Black and transparent	Plastic	It looks like a bowl and it can also function as a container.
Food container	3	White	Ceramic	Contain food.
Cat tree	1	White	Cotton	It can function as cat toys, beds or scratching posts.
Cat toy container 1	2	Brown	Wood	Storage
Cat toy container 2	2	Hot pink	Plastic	Storage
Steps & Ramp	8	White	Wood	It is a place for cat to play and rest.
Scratching post	2	Beige	Sisal rope and wood	Scratching
Cat condo	5	Black and white	Wood	It can function as cat beds or scratching posts.
Cat cage				

Table 5. The basic documentation of cat furniture in the U.S. cat café

From the table 5 and 6, the difference is not obvious as the results of general furniture. In China, the cat café uses cage, which is not used in the cat café in U.S. Besides, the U.S. Cat café uses rags, cat toy containers and cat condos, which is not provided in the cat café in China.

Items	Number	Color(s)	Material(s)	Function
Rag				
Cushion 1	12	White	Cotton	It can function as a cat bed or a chair.
Cushion 2	2	Cat pattern in yellow	Cotton	It can function as a cat bed or a chair.
Perches	5	White	Plastic	It can function as a cat bed or a chair.
Food container	5	White	Plastic	Contain foods.
Cat tree	2	Beige	Wood and sisal rope	It can function as cat toys, beds or Scratching posts.
Cat toy container				
Steps & Ramp	5	Beige	Wood	It is a place for cat to play and rest.
Scratching post 1	1	Green	Sisal rope and card board	It can function as scratcher or decoration.
Scratching post 2	2	Beige	Cardboard	Scratching
Cat condo				
Cat cage	2	Pink	Steel	Rest

Table 6. The basic documentation of cat furniture in China's cat café

4.3 Behavior Mapping

Answering the second research question, behavior mapping records the activities offered in cat café and how the activities impact the customers.

4.3.1 Behavior setting

To illustrate the reactivity of behavior mapping, the behavior settings (see Table 7) associated with physical reactivity. The researcher presents data from two cat cafés.

	Area /Sq ft	Behavior Setting	Observation	Customers Observed
The U.S.	460	15	162	16
China	670	19	222	23

Table 7. The play area, behavior settings and customers observed

In addition, the behavior settings of each cat café are listed (see Table 8). The behavior settings are divided into five categories: the sitting and rest place, cat furniture, facility, open space and pathway. To define the sitting and rest place, every table and chairs/sofas set is regarded as a sitting and rest place. Cat furniture is cat trees, cages, cat step and ramps and cat condos, which customers can observe and interact with cats. Similarly, facilities are cashier, washing sink and toilet, book shelf, vending machine and cupboard which customers would use. Furthermore, the open space is a place where cats can walk around and play. Last but not the least, the pathway is a part of the cat café construction.

	Sitting and Rest Place	Cat Furniture	Facility	Open Space	Pathway
The U.S.	5	7	1	2	0
China	9	4	2	1	3

Table 8. The list of behavior settings

4.3.2 Results from behavior mapping

The activity and preference by behavior settings are different in each cat café (see Figures 8 and 9). The data are used to attribute graphs in Geographical Information Systems (GIS, 2018). Each dot in the behavior map represents the observation of a customer and his/her level of physical activity (black = sedentary, medium grey = spend 5 minutes, light grey = spend 1 or 2 minutes).

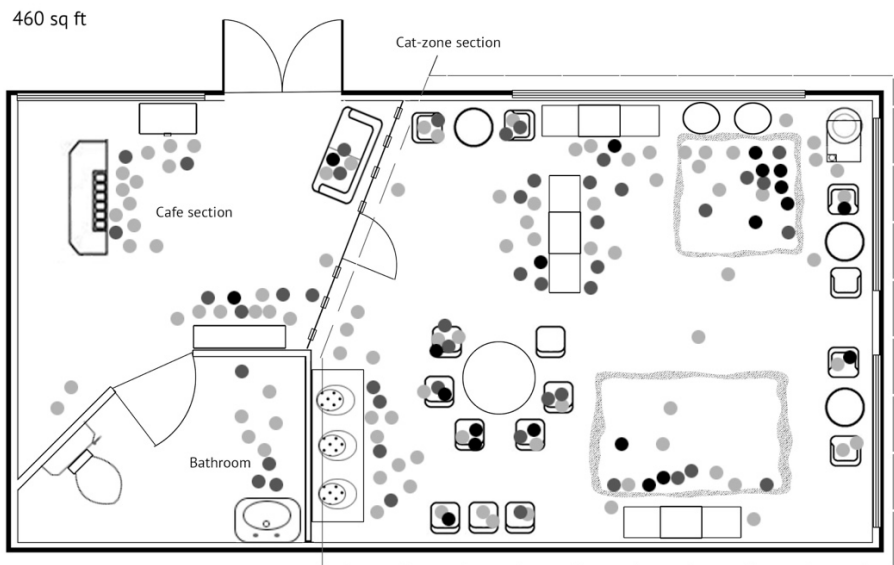


Figure 8. The behavior map in the cat café in the U.S.

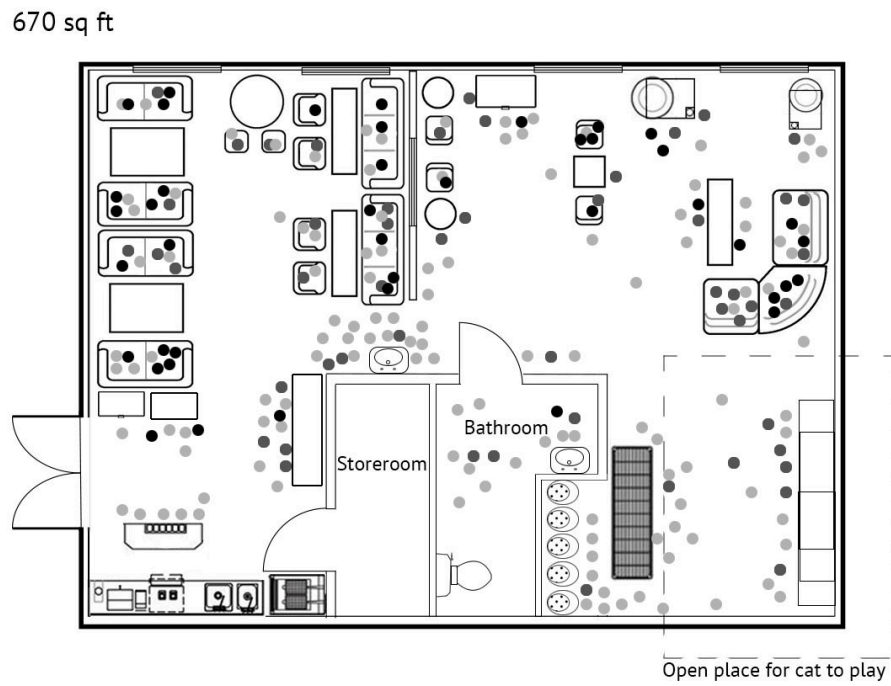


Figure 9. The behavior map in the cat café in China

For the cat cafés in the U.S. and China together, the majority of total activity observations are three types of behavior setting: sitting and rest place, cat furniture and facility. However, there are obvious difference in the major activity in each country.

In the cat café in the U.S. (see Table 9), customers spent most of their time in open space (54.85%). The time spend near cat furniture (27.78%), sitting and rest places (25.85%) and facility (24.06%) are similar, while there is no pathway. Customers prefer to move around and spend only one or two minutes (57.41%), rather than stay in one place for a long time. Furthermore, when customers want a sedentary place, they chose either the rags in open space (5.56%) and sitting and rest places (5.56%), while facility accounted for a negligible (0.61%) amount of total behavior settings.

	Sedentary (%)	Spend approx. 5 minutes (%)	Spend 1 or 2 minutes (%)	Total physical activity (%)
Cat furniture	1.23	8.64	19.75	27.78
Open space	5.56	6.18	9.26	54.85
Facility	0.61	6.79	16.67	24.06
Sitting and rest place	5.56	8.02	11.73	25.31
Pathway	0	0	0	0
Total	12.96	29.63	57.41	100

Table 9. The list of behavior settings in the cat café in the U.S.

In the cat café in China (see Table 10), the majority (89.64%) of total activity is in three types of behavior setting: sitting and rest place (45.50%), facility (24.77%), and cat furniture (19.37%). Similarly, the customers in the cat café in China would like to spend only one or two minutes (56.30%) in most settings. But compared to the customers in

the U.S. cat café, the customers in the cat café in China spent more time on sitting and rest place (15.77%).

	Sedentary (%)	Spend approx. 5 minutes (%)	Spend 1 or 2 minutes (%)	Total physical activity (%)
Cat furniture	1.80	4.50	13.07	19.37
Open space	0.00	0.45	1.80	2.25
Facility	2.70	5.41	16.66	24.77
Sitting and rest place	15.77	12.62	17.11	45.50
Pathway	0.00	0.45	7.66	8.11
Total	20.27	23.43	56.30	100.00

Table 10. The list of behavior settings in the cat café in China

4.4 Interview

The interviews were conducted in different cat café. The two participants who are the owners of the cat cafés are both women. The interviews focused on the three main questions: Why did they start a cat café? How did they set up a cat café? What do they think of their cat café?

4.4.1 The motivation to start a cat café

To clarify the reason why did the owners start a cat café, they both talked about their experience of raising cats and their love for cats. But the owners started the cat cafés based on two different aspects: cat rescue and commercialization.

The owner of the cat café in the U.S. rescued cats for a long time. That is one of the reasons she started a cat café, working on what she enjoyed. The owner of the cat café in China talked about the cat café fever in Asia, which is a new way to make money. However, the two owners have the same main reason to decide to start a cat café: They

have been to other well-known cat cafés before they made the decision. The owner of the cat café in the U.S. said, *“I went to the cat café in Oakland when they first opened, the very first one, Cat Town. I said, ‘This is what I will do next. I can do this.’ It took me 3 years to raise money and prepare every detail of the cat café, such as the design and the activities we offered. We finally did.”* Furthermore, the owner in China thinks her cat café is a theme café, which means she regards the cat café as a normal business. On the contrary, the owner in the U.S. compare her cat café to a regular café and think they are not really a café.

4.4.2 *Setting up a cat café*

In order to understand the procedures of setting up the cat cafés, some design questions were asked. The cat café in the U.S. was designed by a cat furniture designer who designed the first cat café in the U.S. The design aims to provide a comfortable and relaxed vibe in the cat café. The cat café in China was designed by the owner herself. The owner said, *“Our decoration and furnishing were inspired by the interior and home influencer on social media. The color and decoration will be designed to fit the good light and environment to take selfie. Young people really like to do that. That is also how we attracted people.”* Similarly, the café in China is supposed to provide a relaxed and comfortable vibe. Besides, the cat café is designed in a popular style which influencers would put on social media to attract more customers. Moreover, the two owners both selected easily cleaned furniture to maintenance at a minimal level.

4.4.3 *Relationship between customers and cat cafés*

To identify the relationship between customers and cafés, the question about customer feedback was asked. In the cat café in the U.S., many activities are offered. Customers join in the activities, such as yoga with cats, playing bingo and meditation,

and build relationships with others. The owner of the U.S. cat café was satisfied with the connection they made with the community. She said, *“Everyone can come in here and we know and regular people can just come by. You know, not be stressed. I think the vibe we created is my favorite thing.”* The most impressive story for the owner in her cat café is a couple had their first date and wedding ceremony in the cat café. From the owner’s opinion, what the cat café can provide is not only a place to have fun with cats, but a place to know people and engage into the community. Furthermore, the cat café in China has fewer activities. Thus, customers have less chance to know and get along with each other. However, the owner was concerned less about the community and social environment when she designed the cat café by herself.

4.4.4 *Future improvement*

The two owners of the cat cafés both thought about the future improvement when they were running the cat cafés. The improvement they thought about were based on their experience on the current cat café.

The cat café’s owner in the U.S. was thinking about the lighting and the wall in the cat café, which affects both humans and cats. Furthermore, the owner is devoted to cat rescue and would make something to help with the pet adoption. For example, she wanted to make customers and cats more interactive. Moreover, the cat café’s owner in China was struggling with making the cat café function as a traditional café or making the cat café a place for cat lovers.

Last but not the least, cleaning is mentioned by both owners in interviews. The cat café’s owner in China said, *“We put a lot of furniture, toys, and then a lot of cats, thus, cleaning and storage are both need to be considered.”* Cleaning was a tough question which requires more labor and more expenditure to solve this problem.

4.5 Conclusion

This chapter revealed the data results from the site search analytics, behavior mapping and interviews. The table and the graph presented the cat café design and the customers' behavior. The next chapter will discuss the study results in chapter 4 in consideration of the literature review on this subject. It will also provide information in regard to the study's research question.

CHAPTER 5

Discussion and Conclusion

5.1 Introduction

This chapter crystallizes results from the data presented in chapter four. To provide conclusions to the research statement, this chapter also illustrates limitations of the current study and implications and suggestions for future study. In addition, this chapter illustrates how this study contributes to efficient social environments through furniture design.

5.2 Results Respond to Research Questions

This section provides the response to the three research questions.

5.2.1 Difference of cat café design in the U.S. and China

Answering the first research question: *What are the difference in furnishing and layout between cat café in the U.S. and China*, based on the current study results, the cat café design in the U.S. and in China shows difference in furnishings and layouts. The design of both cat cafés considered about customers and cats' comfort, but they have different focuses.

The cat café in the U.S. is a cat-centric café, with more open space and cat furniture provided for cats. Typically, from the research results, the variety of cat furniture is more than in a general restaurant café. The furnishing in the cat café in the U.S. focus on the interaction between or among cats, which is the most basic content of interaction when there is interaction among diverse design objectives. From the literature about cats' habits reviewed in chapter 2, cats are social animals. These domestic cats live in a community environment, have a relatively weak sense and are awareness of the ceremony and territory, while cooperation between or among them is closer. Hence, the

cat furniture in the U.S. cat café meets the pet furniture design standards on ergonomics, safety, sustainability and practicality (Li, 2016).

On the contrary, the furnishing in the cat café in China is focused on customers' preference. In the cat café in China, the cat furniture is not specially designed for cat café, but rather is mixed and applied to the general restaurant furniture. In terms of the furniture provisions for humans, the cat café in China provides chairs and tables, which are upholstered in soft fabric. The tables and chairs offer people a place to sit, read, rest and eat which is the function of hospitality furniture (Postell, 2012).

Overall, China's cat cafés tend to be derivatives from traditional cafés, in which the main purpose is to serve people. In addition, the cat café in the U.S. carried out space separation between the various cat furniture and open space layout.

5.2.2 *Difference of activities and impacts*

To answer the second research question: *What are the difference between the activities offered in the cat café in the U.S. and China, and how do they impact people*, results from behavior mapping and interviews listed the activities offered in two cat cafés. The activities also regarded as behavior settings included a sitting and rest place, cat furniture, facilities, open place and circulation.

- Sitting and rest place

In the café in the U.S., customers would move rather than stay in one place for very long. Most of the customers played with cats and sat by the cat furniture.

However, to follow the cats, customers needed to walk around. In addition, customers in the cat café in China preferred to settle down in one place, because there are more chairs and tables which are comfortable.

- Cat furniture

In addition to the support and supplement provided by cats to people's social interactions, the cat furniture affected people's emotions in this environment. Cat furniture plays an important role in the cat café in the U.S. From the behavior map data, one can see that customers spent most of their time by cat furniture, including the sitting and rest place and open place by the cat furniture. The chairs and rags where a customer can sit by the cat furniture is more popular. However, in the cat café in China, there are fewer cat furniture options. Thus, the impact of cat furniture is not as obvious.

- Facilities

The facilities, vending machine, cashier desk, book shelf, cupboard, cabinets and washing sinks, were not attractive to the customers. In both cat cafés the cashier counter also functions as a reception desk. Customers would spend several minutes to search for a book on the bookshelf or take a look at the merchandise on the cupboard.

- Open place

Open place in the two cat cafés shows obvious difference. In the cat café in the U.S., customers spent longer time in the open space where was the place for cats to play and walk around. On the contrary, in the cat café in China, it only had one open space and few people stayed there for a long time.

- Pathway

Pathways link the different sections in cat café. These are the circulation paths to connect areas in the cat café. In the cat café in China, people would stay there for short time. In the cat café in the U.S., there was no pathway.

In conclusion, the social interactions between or among people tends to happen in the cat café in the U.S., because customers stay in one place and share an environment or activity (Worpole, 2007). From the results, cat furniture offers the most popular activity in cat café. Simultaneously, open space can be defined as a popular place, but it provides people ideal activities only in the cat café in the U.S. Similarly, sitting and rest place can be defined as a popular place only in the cat café in China.

5.2.3 *Factors Contribute to the Social Environment*

To answer the third research question: *What affects the social environment the most in the cat café in the U.S. and China*, results from two interviews explore that the social environment is combined with the community. From the owner of the cat café in the U.S., the cat café made good connection with the community. Since the owner kept in contact with their regular customers, the customers would engage more into the social environment. However, in the cat café in China, the owner was losing regular customers while the cat café attracted new customers. Hence, the social environment was efficient in the cat café in the U.S.

5.3 *Limitations of the Study*

This section discusses the limitations related to this study. First, this is an exploratory study involves small sample. Thus, the results of this study cannot be accurately generalized.

Second, the data of behavior mapping was collected by the researcher in one day and at different times. Basically, both qualitative and quantitative data should be considered in behavior mapping. Hence, the researcher did not consider the difference between different days. Data collected in several days will bring to light the customers' behavior more accurately.

Last but not least, the researcher did this study focused on human. However, to study how design affects the social environment in a cat café, the intangibility of cats in the cat café cannot be neglected. Since cats' behavior also impacts customers, cats' activities need to be tracked.

5.5 Future Implications

This section illustrates several implications for future research related to this study. The research has indicated a high potential for furniture design on efficient social environment. Not only in a cat café, design affects the social environment in many place, such as a museum or a salon, where people have the similar interests.

Due to this study being exploratory, further research is needed to continue studying the social environment affected by furniture design. Additionally, design for multiple objects within a space is another direction to move in the further research. To balance several design objectives, the relationships need to be researched. Further research of multiple design objectives and the social environment will help enhance the efficiency of the social environment between different design objectives.

5.5 Conclusion

This study provided research on how design affects the social environment in a cat café by comparing the difference in cat café in the U.S. and China.

The literature review of this study identified that there are differences in the design and business in the cat café in the U.S. and China. The cat café design and business format in the U.S. and China shows obvious differences because of the food safety regulation. Additionally, how pets and design affect the social environment in the cat cafés was demonstrated. The social environment in the cat café was comprehensive because there were multiple design objectives, while the customers in the cat café share

the same interests and the physical environment. The data collected in the research illustrated the impact of design on customers' behavior. In addition, the social function of the general restaurant furniture and cat furniture is revealed in this study.

5.5 Implications for Designers

This study has some implications for designers. In order to design an efficient social environment, designing should provide more activities for customers to engage into the environment.

Since the focuses of the pet cafés are different, the design objectives becomes different. In a pet café that is run for business purposes, to enhance the efficiency of the social environment, designers can focus on the customers' need, including the ergonomics, ambient and compatibility. Furthermore, in an animal-centric pet café, more open space and pet furniture can provide animals good living condition where also provides customers opportunities to interact with animals. From the study, although the goals discrepancy in the cat cafés, when people taking part in the same activities and sharing the same physical environment, customers are more desire to communicate with each other.

REFERENCES

- Barker, R. (1963). On the nature of the environment. *Journal of Social Issues*, 19(4),17.
- Bratton, B. H. (2015). Bad mood on design and 'empathy'. *Architectural Design*, 86(6), 96-101.
- Campbell, J.L., Quincy, C., Osserman, J. & Pedersen, O.K. (2013). Coding in-depth semi-structured interviews: Problems of unitization and inter-coder reliability and agreement. *Sociological Methods and Research*, 42(3), 294-320.
doi:10.1177/0049124113500475
- Chebat, J. C., & Michon, R. (2003). Impact of ambient odors on mall shoppers' emotions, cognition, and spending a test of competitive causal theories. *Journal of Business Research*,(1(56), 529-539.
- Cheng, C. (1987). Chinese Philosophy and Contemporary Human Communication Theory. In Kincaid, L. (Eds.), *Communication theory: eastern and western perspectives*. (pp. 23-43) San Diego, California; London: Academic Press, Inc.
- Cosco, N. G., Moore, R. C. & Islam M. Z. (2010). Behavior mapping: A method for linking preschool physical activity and outdoor design. *Medicine & Science in Sports & Exercise*, 42(3): 513–519. doi: 10.1249/MSS.0b013e3181cea27a
- Cunningham, M. R. (1980). Wanting to and having to help: Separate motivations for positive mood and guilt-induced helping. *Journal of Personality and Social Psychology*, 38(2), 181-192.
- Daly, E. (2014). The meow factor-Beijing's cat café industry is proving itself more than up to scratch. *Beijing Review*, 1(52), 44-45.
- Desmet, P. M. A. (2015). Design for mood: Twenty activity-based opportunities to design for mood regulation. *International Journal of Design*, 9(2), 1-19.
- ESRI. GIS and Mapping Software Web Site (2019, October 12). Redlands, California: ESRI. Retrieved from <http://www.esri.com>.
- Feng, B. (2011). *Research on pet products design based on dog supplies*. [Unpublished matser's dissertation] Guangzhou University, Guangzhou, China.
- Fiona, M. P., Margaret, F., Nigel, L., Rodney, L. & Richard, F. (2013). Lifestyles management and community engagement in scoping a "health café". *Health Education*, 113(6): 517-535.
- Galloway, L. (2012). Feline fun in Japan's cat cafés. Retrieved from <http://www.bbc.com/travel/story/20120402-worldwide-weird-feline-fun-in-japans-cat-cafes>.

Gillham, B. (2010). Interviewing. *Case study research methods*. (pp. 59-79) London, GBR: Continuum International Publishing.

Hu, Y., Zhang, Y. & Yu, J. (2018). Current status and prospect of China pet market. *Business Study*, 1(10), 50-51. doi:10.15880/j.cnki.zsji.2018.10.029

In Defense of Animals (2019). Retrieved from <https://www.idausa.org>.

Jiao, B. (2013). Cat furniture research based on emotional design. *Journal of Henan College of Finance & Taxation*, 27(4), 95-96.

Lancatser, A. (2016). A pet-friendly design encourages community dining. *Foodservice Director*, 29 (1) 21.

Landsberg, G., Hunthausan, W. & Ackerman, L. (2013). Behavior problems of the dog and cat. Oxford, NY: Elsevier Ltd.

Lin, L. (2010). Everyday reading: Cat psychology. Hainan, China: Hainan Publishing House.

Li, J. (2019). A new way to play with cats in a cat café: some people have fun, some people worry. *Sanqin Newspaper*, pp. 1A-2A, March 9, 2019.

Li, Y., Liu, Z., Xiao, Z. & Gao, T. (2018). Talking about the pet economy status and problems. *Bohai Rim Economic outlook*, 1(6), 154-155. doi:10.16457/j.cnki.hbhjllw.2018.06.118

Li, Y. & Ye, X. (2016). Research on emotional and functional aesthetics in furniture design of cat. *Furniture & Interior Design*, 1(5), 35-37. doi:10.16771/j.cnki.cn43-1247/ts.2016.05.011

Liu, F. (2015). *The design research of pet modular furniture from the interactive perspective*. [Unpublished doctoral dissertation] Taiyuan University of Technology, Taiyuan, China.

Lu, Z., & Lai, Z. (2004). Interior design principle II. Beijing, China: China Architecture & Building Press.

Ma, D. (2019). Pet-friendly concept embedded in furniture design. Furniture Design Literature. [Electronic Version] *Academic Magazine*, 1-2. Retrieved from <https://www.zhazhi.com/lunwen/sjlw/jiajushejilunwen/188155.html>.

McConnell, A. R., Brown, M. B., Shoda, T. M., Stayton, L. E., & Martin, C. E. (2011). Friends with benefits: On the positive consequences of pet ownership. *Journal of Personality and Social Psychology*, 101(6), 1239-1252.

National Bureau of Statistics (2016). Retrieved from <http://www.stats.gov.cn>.

Ohmae, K. (2011). Adult society consumer psychology. In Sun, Y. (Ed.), *One person economy: The gold mine in mature market*. Taiwan: Tianxiawenhua Publishing House.

Peng, Z. (2016). *Furniture design based on pet-human friendly relationship*. [Unpublished doctoral dissertation] Nanchang University, Nanchang, China.

Petful (2018). Retrieved from <https://www.petful.com>.

Rhoades, H., Winetrobe, H., & Rice, E. (2015). Pet ownership among homeless youth: Association with mental health, service utilization and housing status. *Child Psychiatry Hum Dev*, 1(46), 237-244. doi: 10.1007/s10578-014-0463-5

Sadek, A. H. & Shepley, M. M. (2016). Space syntax analysis: Tools for augmenting the precision of healthcare facility spatial analysis. *HERD: Health Environments Research & Design Journal*, 10(1), 114-129.

Research and Markets releases report: U.S. pet market outlook,-2020. (2019). *Professional Services Close-Up*, Professional Services Close-Up, Sept 6, 2019.

Shi, J. (2016). *Pet supplies integrated design based on integrated innovation theory*. [Unpublished dissertation] Yanshan University, Qinhuangdao, China.

Shi, L. (2016). *The research of strategic marketing plan of Miniboss cat-theme café*. [Unpublished dissertation] Tianjin University, Tianjin, China.

Rosenfeld, L. (2011). *Search analytics for your site: conversations with your customers*. Brooklyn, NY: Rosenfeld media.

Stanley, I. H., Conwell, Y., Bowen, C., & Orden, K. A. V. (2014). Pet ownership may attenuate loneliness among older adult primary care patients who live alone. *Aging & Mental Health*, 18(3), 394-399.

State Administration for Market Regulation (2019). Retrieved from <http://www.samr.gov.cn>.

Steinmetz, K. (2014). Nation's first cat cafe opens in Oakland. Retrieved from <https://time.com/3539012/cat-cafe-oakland/>.

Tang, Y., & Zhang, Y. (2014). "Cat like" trend and management of public official revolution. *Hu Xiang Forum*, 27(4), 102-105.

The American Society for the Prevention of Cruelty to Animals (2019). Retrieved from <https://www.aspca.org>.

U.S. Food and Drug Administration (2019). Retrieved from <https://www.fda.gov/>.

Wang, J. (2011). Social psychological behavior analysis of pets' owners. *Medicine and Society*, 24(3): 85-87.

Wang, L., & Du, Y. (2017). Differences in value systems and its reflection in Chinese and American social etiquettes. *Chongqing Social Sciences*, 1(7), 61-66.

Wang, L. & Feng, Y. (2014) Cleaning problems for family with cat from interior perspective. [Electronic Version] *Civil Servant Journal*, 1-2. Retrieved from <https://www.21ks.net/lunwen/shineishejilunwen/115556.html>

Wood, L., Martin, K., Christian, H., Nathan, A., Lauritsen, C., et al. (2014). The pet factor- Companion animals as a conduit for getting to know people, friendship formation and social support. *PloS ONE*, 10(4): e0122085. doi: 10.1371/journal.pone.0122085

Wu, C., Wong, R., & Chu, W. (2018). The association of pet ownership and attachment with perceived stress among Chinese adults. *Anthrozoös*, 31(5), 577-586. doi: 10.1080/08927936.2018.1505269

Yamamoto, N. & Cat Employee. Zhang, H. (Trans.) (2010) Tianjin, China: Science Technology Publishing House.

Zhang, H. (2005). Pet Consumer Psychology Analysis. *Market Modernization*, 1(17), 129-130.

Zhao, N. (2017). Cat café is on trend: A theme café where cat lover gathered. Retrieved from <https://m.jiemian.com/article/1464231.html>.

APPENDIX A
IRB APPROVAL



EXEMPTION GRANTED

[Diane Bender](#)
[HIDA: The Design School](#)
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Dear [Diane Bender](#):

On 7/22/2019 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	How design impacts the social environment: A comparison between two pet cafés in China and the United States
Investigator:	Diane Bender
IRB ID:	STUDY00010233
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none">• Shumeng-Short Consent Form May 31.pdf, Category: Consent Form;• Shumeng-Form-Social-Behavioral-Protocol July 11.docx, Category: IRB Protocol;• Shumeng-Interview Question.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions);• Shumeng-RECRUITMENT SCRIPT May 31.pdf, Category: Recruitment Materials;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 7/22/2019.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,