Guidelines for Designing E-sports Themed Cybercafé

by

Boyang Huang

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Approved by

Tin-Man Lau, Chair, Professor of Industrial Design
Rich Britnell, Professor of Industrial Design
Christopher Arnold, Associate Professor of Industrial Design

Abstract

Cybercafés are the product of the early days of the Internet era. In today's mobile Internet era, cybercafés have transformed from public Internet sites to video game halls that are closely connected with the E-sports industry. However, the interior design style of most Internet cafes does not correspond to the nature of their entertainment and social venues. Therefore, the author believes that upgrading the interior design of cybercafés to serve its substantial functions to enhance the gaming entertainment experience of Internet cafes is the future trend.

This thesis will talk about a method of designing E-sports themed cybercafés. On the premise of ensuring the smooth operation of the basic functions of Internet cafes, it will enhance the combination of virtual and reality between cybercafé and the video games, so that customers can get a better entertainment experience. Chapter 2 will talk about cybercafé and E-sports, and explain the meaning and methods of theming. Chapter 3 will introduce the design guidelines of E-sports themed cybercafés, and the Chapter 4 will use the improvement on specific Internet cafes as the demonstration of the design guidelines.

Acknowledgments

I appreciate my major professor Tin-Man Lau who always wisely guided me to carry out the thesis. You inspired me when I encountered problems, and encouraged me to break myself when I met my limitation.

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Chapter 1 Introduction

1.1 Problem Statement

In recent years, with the development of PC (personal computer) games and the rapid rise of E-sports, the operating philosophy and design direction of cybercafés have undergone considerable changes. Traditional cybercafés that only provide customers with a convenient Internet environment are gradually declining, replaced by new Internet cafes which are positioned more like an entertainment platform for video game enthusiasts, with a multi-functional gaming space as the core selling point.

However, the interior design styles of many cybercafés have not fully kept up with their new operating concepts, nor do they conform to the core of new cybercafé as entertainment venues. All the cybercafés look like the same, and that is a big problem for cybercafé industry.

This article will discuss a themed interior design scheme for cybercafés, taking games and E-sports elements as the themes, and designing entertainment spaces and environments that are more suitable for the current concept of cybercafés.

1.2 Need of Study

Cybercafés and video games have long been controversial fringe items around the world. They were not accepted by mainstream culture. In Asia, cybercafés are considered as a hotspot for undesirable youth. In Europe and the United States, video games are generally regarded as a nerd hobby. However, neither cybercafés nor video games show signs of decline. As Millennials and Gen Z have grown up, cybercafés have become part of people's entertainment and social life, while video games have spawned a powerful E-sports industry. This thesis needs to review the

development history of Internet cafes and e-sports to learn and understand the relationship between them and their own characteristics, then try to predict their future development.

On the other hand, this thesis needs to study theming and themed entertainment in depth. There is almost no limit to the direction of a theme, and it can be a scene that exists in the real world (such as the Venetian Resort) or a fantasy (such as Disneyland). And customers are usually very tolerant of the subject itself. It is as if the customer only wants to have a good experience in an immersive space, and the point is not the story itself, but the way it is told (Lukas, 2007). Therefore, this article needs to understand both what theming is and how it is implemented.

1.3 Objectives of Study

The final purpose of this thesis is to provide designers with design guidelines to realize the E-sports-themed cybercafé. The following are detailed study objectives:

- Study the development history of cybercafés and predict their future trends
- Study the overall ecosystem of E-sports
- Study culture between video games and cybercafé
- Study the definition of theming
- Study the design methodology of theming
- Sum up a methodology for designing E-sports theme cybercafés into a set of design guidelines
- Apply the guidelines to actual cybercafé's interior renovation

1.4 Definition of Terms

Cybercafé: Cybercafé, also known as Internet cafe or Netcafé, is a cafe that offer computers with Internet access for public use (Pinola, 2019).

Esports: Esports, also known as e-sports, eSports, or electronic sports, is a form of competition using video games (Hamari & Sjöblom, 2016).

Theming: Theming refers to "the use of an overarching theme...to create a holistic and integrated spatial organization of a consumer venue." (Lukas, 2007, p.01). A theme can be understood as "a unifying idea that is a recurrent element." (Webster's dictionary, 1913). So theming is the process of designing and constructing an object or space so that a unified idea can be expressed by some recurring elements, characteristics, and symbols.

1.5 Assumptions

This research will be based on the following assumptions:

- Assuming that the cybercafé has normal hardware facilities (computer, network cable, indoor ventilation system)
- Assuming that computer games, as the basic platform of the E-sports industry, will not be replaced in the near future.
- Assuming that the fan groups under the same E-sports game title have the same understanding of the cultural atmosphere of the themed cybercafé
- Assuming that the existing production technology can create all the items and parts required by the design guidelines.

1.6 Scope & Limitations

Due to cultural differences, cybercafés are more popular in Asian countries; therefore much of the data and conclusions in this article are based on the cybercafés industry under the Asian model. Although this does not mean that the final design guideline cannot be applied to cybercafés in Europe and the United States, from the perspective of research, the methodology provided in this paper is more suitable for cybercafé designers in Asia, especially China.

On the other hand, from the perspective of technological development, the E-sports industry with computer games as the main platform will eventually be impacted by new technologies, such as VR games. The design guideline provided in this thesis is likely to require changes in the long-term future.

Also, theming is a relatively subjective design discipline. The theming method provided in this article is based on the author's subjective judgment, so the final methodology is only one of the possible methods for designing E-sports themed cybercafés. If it conflicts with other methods, readers need to judge for themselves.

1.7 Procedures & Methodology

Step 1:

Study the development history of cybercafés, study the cultural connection between cybercafés and E-sports, and understand the entire ecosystem of E-sports. Study the principles and design methodology of theming.

Methods:

Collect online and library material, do literature review and integrate knowledge points

Step 2:

Develop the design idea and design guidelines of E-sports theme cybercafés.

Methods:

Combine the design principles and methodology of theming in the literature review with the background knowledge (Internet cafes, E-sports) to establish a unique E-sports element selection and evaluation system, and to form a unified theme space through a set of complete design process.

Step 3:

Illustrating the use of the design guidelines.

Methods:

Use computer 3D modeling to simulate the interior space of the known cybercafé, and the final rendering will be used as the verification of the design guidelines.

1.8 Anticipated Outcomes

The anticipated outcome of this study is a set of design guidelines. It takes the cybercafé as the target location, adapting it into the entertainment space with E-sports theme. This design guideline will include from the initial theme determination stage to the final aesthetics design stage.

Chapter 2 Literature Review

2.1 Cybercafé

This part will discuss the definition, history, component, and user groups of cybercafés. It will help designers understand the design subject of this guideline.

2.1.1 Definition of Cybercafé

Cybercafés, also known as Internet cafe or Netcafé, are cafes that offer computers with Internet access for public use (Pinola, 2019). Unlike coffee shops with Wi-FI, cybercafés provide a full range of services from in-house computer rental to secure Internet access with extra tech support, which is very friendly to users without laptop. Actually, the goal of the very first generation cybercafés is to give people access to a desktop computer with the World Wide Web for a small hourly fee (Lufkin, 2015). At that time, personal computers and the Internet were not as widespread as they are now. For many people, going to cybercafés was the only way to use computers to surf the Internet.

With the development of technology and economy, personal computers and the Internet have become more and more common, and some of the original functions of cybercafés are scattered to other places. People can access the Internet in public libraries, Internet kiosks, hotel lobbies and the most comfortable way, at their home. It seems that the living space for cybercafés is getting smaller and smaller. However, cybercafés still survived owing to changes in its business philosophy. In 1998, Blizzard Entertainment released a RTS game for PC platform, StarCraft, which caused a big stir in South Korea. Suddenly, thousands of people rushed to cybercafés just for this game, and the market answered with a new type of cybercafé built for gamers: PC bang, which is a type of LAN (local area network) gaming center (Lufkin, 2015).

This marks the beginning of the transition from traditional cybercafés to LAN gaming centers. Over the next 20 years, countless new cybercafés have sprung up all over the world, especially in Asia. Today in some countries, the terms cybercafé and LAN gaming center have become interchangeable. Or, to exaggerate, they have never been two different things.

In conclusion, "cybercafé embodies the meeting-point of a physical public place and virtual spaces" (Mancebo, 2006, p 4). With the continuous development of virtual communities, the tangible part of cybercafé also needs to be improved.

2.1.2 History of Cybercafé

In the past few decades, the content and definition of Internet cafes have changed a lot. To understand better what a cybercafé is, this part of the thesis will trace back to the origin of cybercafé, explore its development route, and try to analyze the short-term future of cybercafé.

2.1.2.1 Precursors

The precursor of cybercafé is online cafe. Just like its name, it's a coffee shop that gets people online.

In 1991, American Wayne Gregori designed, built and installed 25 coin-operated computer terminals in coffeehouses throughout the San Francisco Bay Area (Lufkin, 2015). These places were part of a new communications network called SF Net, which provided an online forum where people can post short stories, role-play fake personas and chat with friends in another SF coffee house. At that time, the concept of online was not as broad as the Internet nowadays. It just allowed people to communicate with each other in virtual chat rooms and message boards. However, the appearance of SF Net Coffee House is of epochal significance. It

sets a computer terminal (which can be connected to the virtual social platform) on the coffee house, which was originally a social platform. This makes the online Cafe become the intersection of virtual and real space.

2.1.2.2 Early Stage

Three years after the SF Net coffee house, in 1994, a British designer named Ivan Pope refined the internet cafe concept. He proposed a cafe that centered on internet access which allowed people to browse art, as opposed to regular coffee shops that offered it as just an extra amenity (Lufkin, 2015). For the first time, when it came to online cafes, access to the Internet is on a par with, or even more important than, drinking coffee. This idea was part of a commission for an art event called "Towards the Aesthetics of the Future" at the Institute of Contemporary Art (ICA) in London (Romanska, 2012). From the present point of view, the idea did point to the future.

A few months later, in September 1994, one of the first cybercafés in the world opened in London, named Cyberia (Pfanner, 2004). In the introduction of this cafe, it's mentioned that: the cafe concept is meant to make a computer environment less formidable, and it is borrowed from California (Brace & Qcatch, 1994). However, unlike its predecessors which could only provide online bulletin boards, Café Cyberia offered a wider range of services. Customers wouldn't be limited within SF Net or any other forum; through the Internet they could communicate with like-minded people around the world. Apart from that, people could search for all kinds of knowledge on the Internet by accessing international databases, including browsing art. Moreover, people with zero knowledge about Internet could also walk in Cyberia and get some help from experts for a small fee. It is worth noting that the World Wide Web Consortium (W3C)

was founded in September 1994 by Sir Tim Berners-Lee, which made the Web available freely, with no patent and no royalties due (Cailliau, 1995). This marks the time that the Internet really entered the public's view. Until then, the Internet was something high-tech that was beyond ordinary people's reach, and mostly used by scientists and scholars (Herbert, 2019). As shown in Figure 2.1, we can see that the starting point for the worldwide popularization of the Internet was 1994.

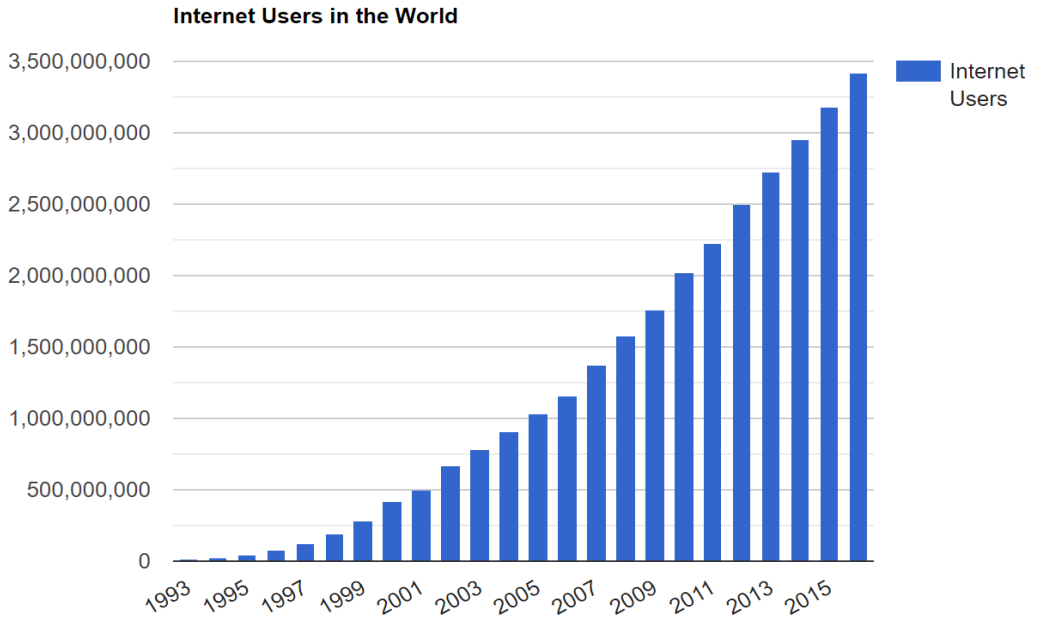


Figure 2.1 Internet User in the World ("internet live stats", n.d.)

Apart from the openness of the founders and pioneers of the Internet, the government's support is also one of the elements to boost the rapid development of the Internet. In 1991, U.S. congress passed "The Gore Bill" to put $600 million towards computing advancement and education in the hopes of developing a National Information Infrastructure (Melland, 2019). Former Vice President Al Gore called it the "Information Superhighway."

With the full opening of the World Wide Web, a large number of technology fans and private capital poured into the Internet, which brought it infinite vitality. In March 1994, Yahoo

showed up as two Stanford students' guide page for the World Wide Web. At that time, Yahoo was not a search engine, but a directory to store web addresses. In September of the same year, Bezos registered his online bookstore and named it Relentless.com. A year later, he changed its name to Amazon. It was also in 1994 that *Hotwired* magazine ran its first-ever online banner ad for AT&T (Melland, 2019).

On the other hand, the carrier of the Internet, personal computer and its related hardware also got a lot of improvement in the mid-1990s. In March1993, Intel released the P5-based Pentium processor, with 60 and 66 MHz versions. The Pentium had over 3.1 million transistors which can achieve up to 100 MIPS (Margulius, 2003). By the year 1995, Nvidia launched their first graphics chip, the NV1, and became the first commercial graphics processor capable of 3D rendering, video acceleration, and integrated GUI acceleration (Singer, 2019). So far, the personal computer has been the strong hardware foundation of the Internet, which not only made it more convenient for people to access the Internet, but also enabled netizens to do more things on it. Since then, more and more computers have been connected to the Internet, as shown in Figure 2.2.

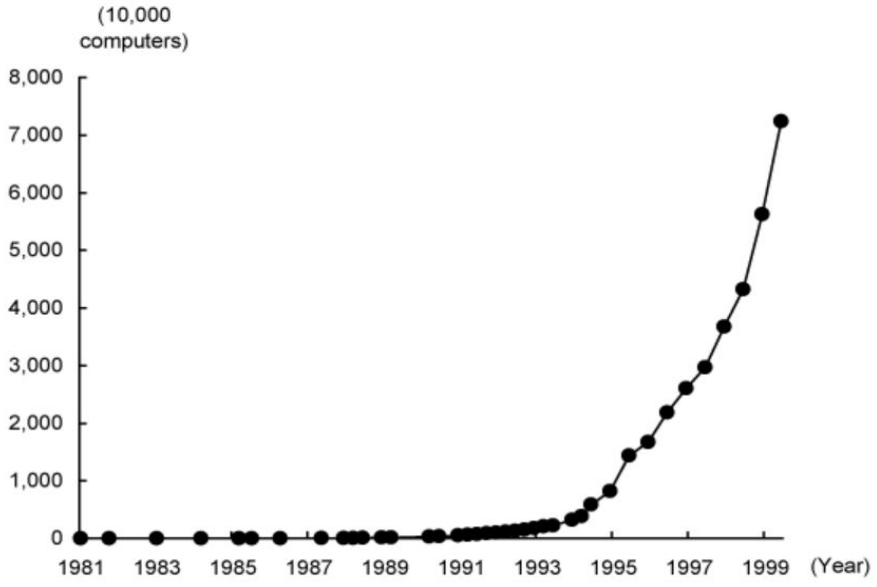


Figure 2.2 Number of Host Computers connected to the Internet (n.d.)

However, the Internet access rate of families did not fully keep up with the popularizing rate of computers. One of the reasons is that the concept of the Internet was too unfamiliar for public. People in the '90s may understand that computers can be used to type, but it may be difficult for them to understand how an e-mail can be sent from one computer to another through network cables. Expensive costs may be the second reasons. At that time, most people used paid, dial-up online services like AOL. People paid for every minute they used it. Obviously, this new technology needed more time to polish before it could be popularized smoothly.

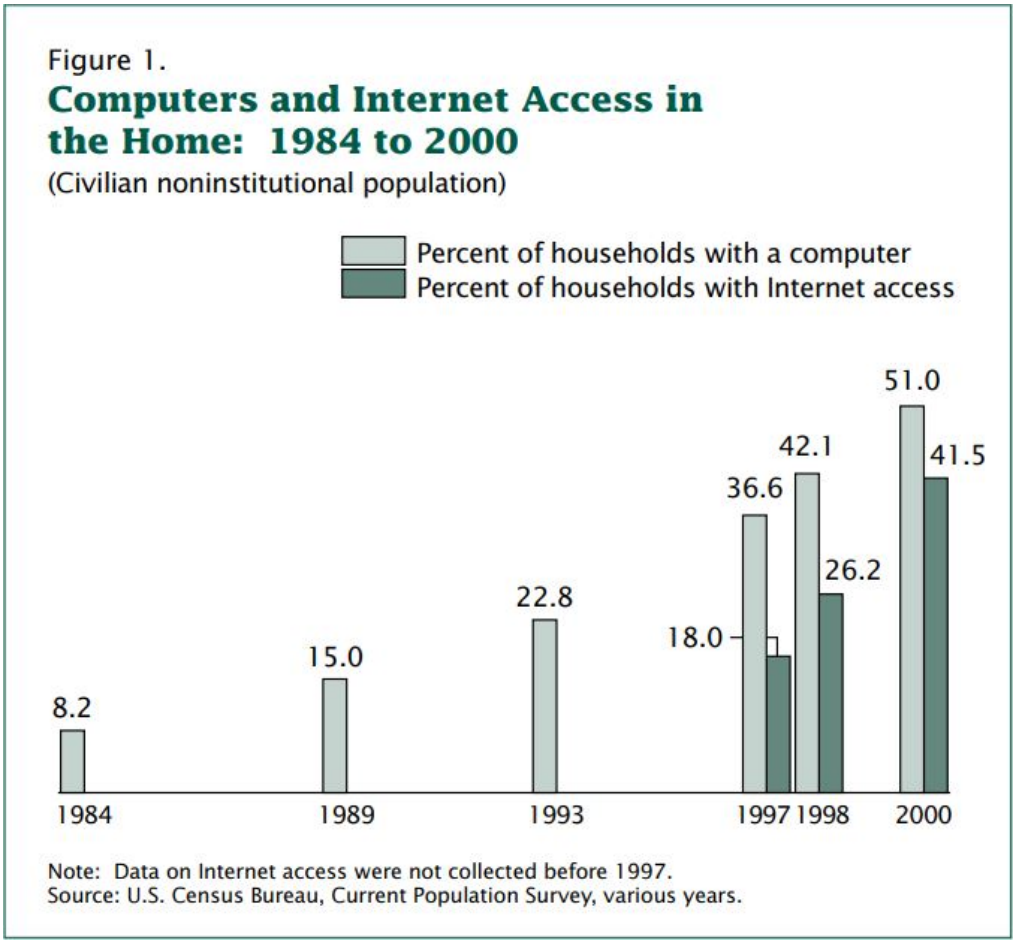


Figure 2.3 Computers and Internet Access in the Home: 1984 to 2000 (Newburger, 2001, p.01)

As a result, a large number of young people who were interested in this new technology chose to go to cybercafés, a professional and efficient place to experience and learn the Internet. Thus, hundreds of cybercafés like Cyberia emerged as the times required. Western Europe and U.S. were the very first places where this concept took off, while some of the developing areas followed their pace very soon. Asia is a good example. The first cybercafé in China was called 3C +T, opening in Shanghai before 1995. With no coffee but only PCs in the room, it charged 20 yuan per hour for the online service while the average personal income was 450 yuan per month at that time. Despite this, cybercafé survived and developed in China and other parts of Asia, and became the main front for the revival of Internet cafes a few years later.

2.1.2.3 Development & Transformation

By 2004, just a decade after the first internet café opened in London, the BBC reported that there were more than 20,000 internet cafés all over the world (Bruce, n.d.). During this period, as more and more people connected to networks, the mysterious veil of the Internet gradually faded. And cybercafés were not only the tool that people used to learn the Internet. Some of the customers became veterans, to whom surfing the Internet has become an integral part of their lives, expecting to do more with the Internet and computers. On the other hand, the growth of home network and PC numbers have gradually threatened the development of cybercafés. Under the dual pressure of new demand and external changes, cybercafés need to seek change if they want to continue to develop.

Due to the rapid development of the Internet, a lot of behaviors that wandered on the edge of the law have not yet been regulated at that time. Copyright is one of them. In the early 2000s, EasyJet's internet cafe chain held a promotion that allowed customers to download music

from the web and copy it on to a CD, each one for £5 (Lufkin, 2015). No doubt, record labels were none too pleased: Sony Music, Universal Music, and EMI launched an 18-month legal battle, and finally won the lawsuit. EasyInternet suspended the service in September 2001. However, Mr Haji-Ioannou then accused the record labels of "extortion" in attempting to take the company to court and led a group of employees in a protest on the steps of the high court when the case began (Gibson, 2003). In January 2003, EasyJet was found guilty of copyright infringement. While this ruling set a good precedent in favor of online authorized music licensing services, it did not completely prevent similar incidents from happening. In 2008, a big raid of a Sydney internet cafe by the Australian Federal Police left the establishment with an $82,000 fine, 40 charges of copyright infringement, court costs, and forfeit of 60 computer terminals plus three servers. Those 60 terminals had contained a staggering 8 terabytes of stolen music, movies, and TV (Lufkin, 2015). In developing countries, there are countless similar things. The operators of cybercafés are willing to maximize the productivity of the network in the cybercafés. Although they know that it is illegal, the potential profits lure them to skirt or break copyright law. This is a disgraceful development in the history of the cybercafés, but it also makes people realize that the management of the cybercafé industry needs to be more cautious.

There is one evolution direction of cybercafé that is also worthy of people's attention. Marriott (1998) thought that the definition of cybercafé -- a place for Net surfers to socialize with food and coffee -- is contradictory with how most people want to use computers, even in their leisure time. People who read email, program, and write on the Internet are usually alone. They don't like to be disturbed. A few Internet cafes have taken advantage of this feature by placing partitions between each computer to separate each user and give them private space. And when it

comes to protecting users' privacy, we have to mention Japan's manga & net cafe. This place with local cultural characteristics is a combination of mini libraries and Internet cafes. Its original purpose is to provide users with a relatively independent leisure place, where people can borrow comics and use computers to surf the Internet. However, social problems in Japan have gradually changed the nature of comic cafe. According to the owner of one of the manga net café in Nerima area of Tokyo city, since the Japanese economic recession, there has been a class of people who stayed in cafes longer than one week (Kilina, 2012). Bloomberg reported that in 2007, statistics of Japan's Ministry of Health, Labor and Welfare showed that 60,900 people spent a night in an internet cafe, and that 5,400 were living in them full time (Lufkin, 2015). These people, known as net refugees, chose manga & net cafe as their home because they couldn't afford to rent apartments. At first, the privacy of the cafe is composed of cubicles interspersed in the public areas in the cafe, which indicates the characteristics that define the boundaries between public and private (Kilina,2012). However, after net refugees check in their mini hotels, neither the owner nor different customers can estimate whether it is a public or private place. This social problem is still under heated discussion in Japan.

Another direction of cybercafé's development is opposite to personal privacy in a sense. Maybe most of the time people don't want to be disturbed by noise or action of others when they are surfing the Internet; however, there is an exception: when they are playing games together. In the mid-1990s, when Internet cafes first became popular, few people regarded cybercafés as game halls. By 2011, there were over 350,000 cybercafés across Asia, and gaming generated $19 billion in revenue (Lufkin, 2015). How did the craze begin? It all started with a PC game called *StarCraft*. This game is outstanding in background setting, game art, playability, and the most brilliant thing is the way the game is played. A player needs to control an army of hundreds of

units at the same time, and fight against other players. In this game, the grand scene of the war and the clever implementation of tactics firmly attracts the players. This may be the first time that young people have realized that online PC games can be more fun than video games, and it's also the beginning of cybercafés becoming the kings of game centers instead of arcade halls. Of course, in addition to *StarCraft*, Internet cafes wouldn't be so successful without other excellent online games of that era, such as the *Age of Empires*, *Red Alert* and so on. As millions of young people flocked to Internet cafes, a special cybercafé that was dedicated to gaming began to appear in the market, known as PC Bang in South Korea or Net Bar in China. These special cybercafés had better hardware, faster Internet speed, and most importantly, a more lively and open atmosphere. While experiencing the pleasure of the game in the virtual world, players can feel the resonance from the real world here, which is like a PC game arena. So even though some users have home computers, they still choose to have fun with friends at cybercafé. After the gaming cybercafés experienced a burst of prosperity, subsequent problems also appeared. With work and school falling by the wayside as young gamers spent all their time and money at gaming cybercafés, problems of game addiction were gradually taken seriously by the society. Cybercafés in many places have been hit by government bans that restrict access to minors, but their development in gaming center direction has not been completely weakened. In a few years, gaming cafes will be back to life.

2.1.2.4 Future

With the popularization of laptops and smartphones, as well as the development of broadband and Wi-Fi technology, the ways of accessing the Internet are becoming more and more abundant and mobile. In an era when people can access the Internet from their mobile

devices in Wi-Fi coffee shops, cybercafés seem to be an anachronism. Is it true that cybercafés are supposed to be short-lived: just long enough to introduce most people to the Internet (Mancebo, 2006)? Clearly this view is wrong. After completing the first task given to it by history, Internet cafes have not been replaced due to the development of science and technology, but kept developing continuously for more than 20 years, and finally developed their own unique culture, particularly in Asia. Today, Internet cafes continue to grow despite their varying status around the world. The following part will focus on China, that is, the world's largest number of Internet cafes for discussion.

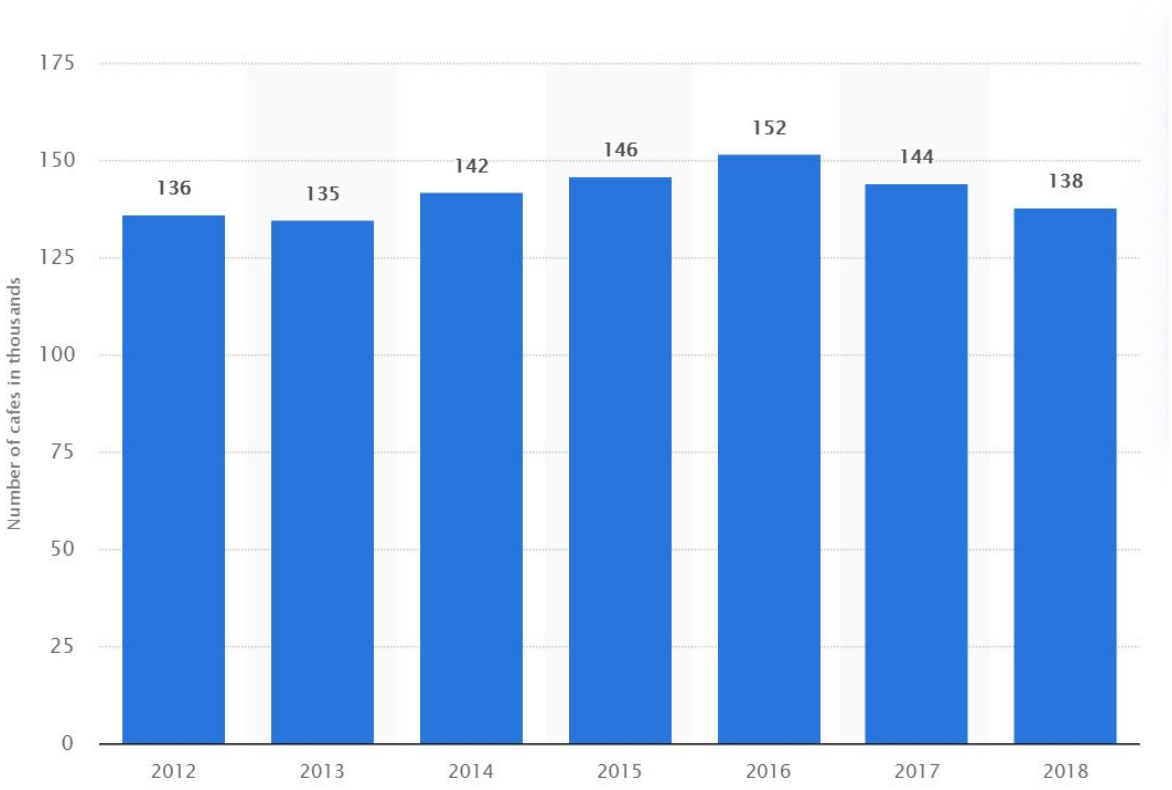


Figure 2.4 Number of Internet Cafes in China from 2012 to 2018 (statista.com, 2019)

As can be seen from Figure 2.4, the number of cybercafés in China did not continue to decline, but showed a rising trend from 2013 to 2016. It is worth noting that smartphones became popular in China after the release of the iPhone4 in 2010.

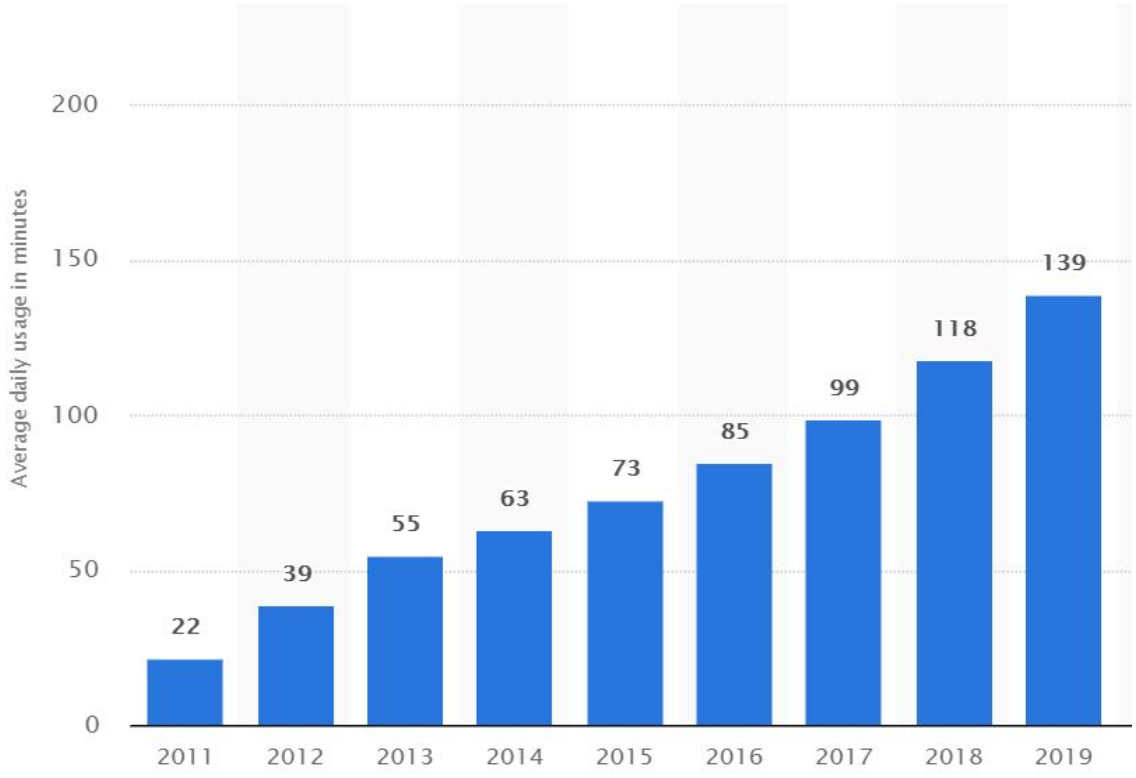


Figure 2.5 Average time spent per day using smartphones in China 2011-2022 (statista.com, 2020)

What is the reason that the emergence of smart phones has not had a great negative impact on the development of Internet cafes in China? There is a view that the advent of smart phones has popularized mobile games, and when people no longer refuse to play games, cybercafés, which have long been recognized as game centers, will also be recognized. In China and South Korea, due to problems related to "game dens" in the past, the government has imposed strict legal restrictions on cybercafés and believes that they are corrupting young people (Sun, 2017). In the view of ordinary people in 2000s, China, cybercafés were associated with wayward young people, crazy electronic games, and smoke-filled basements. Over the years, these negative associations and rigid government rules have caused big losses (Olesen, 2014). Thanks to mobile games, which have made gaming become mainstream, it is harder for people to

have prejudiced ideas about games and their purveyors (Sun, 2017). What's more, the Ministry of Culture in China announced the liberalization of cyber café rules on Nov 24, 2014, which means the ten-year curse has finally been lifted. Of course, this policy must have economic considerations, but in any case, China's cybercafés got a new life.

In 2014, a chain cybercafé company in China called WYWK launched a brand new Internet Cafe 4.0 concept, which aimed to create multi-function game space and promote social activities among players, bringing a modern and high-grade interior game cafe to the public's vision. This concept has caused a shock in the cybercafé industry in China. Many small and medium-sized Internet cafes wanted to get rid of the bad impression of the environment and layout from the past, so they began to seek to join a big brand, or planned to transform themselves. From 2015 to 2019, the proportion of large chain brand cybercafés in China has increased from 4.59 % to 6.6%. On the other hand, individual cybercafés account for more than 75%, which means Chinese cybercafés still have great potential for environment upgrade.

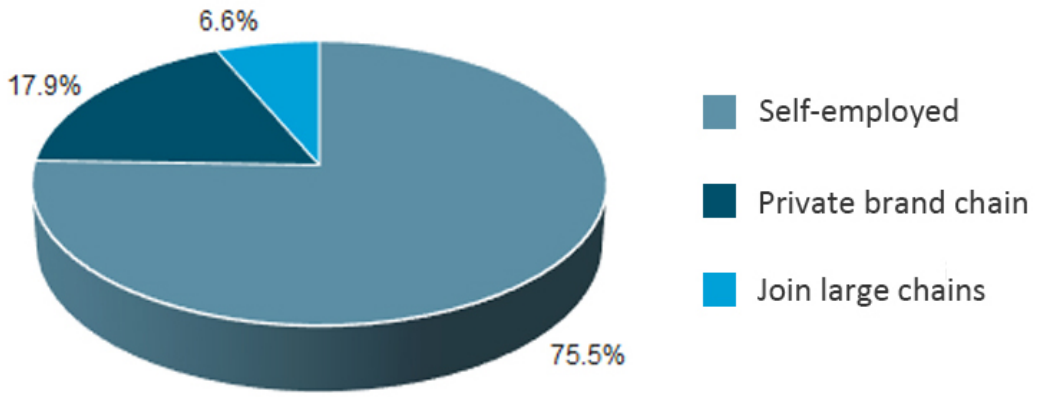


Figure 2.6 Business model of China's Internet cafes in 2018 (chyxx.com, 2019)

According to the White Paper 2019 on the Global and Chinese Internet Cafe Industry, the Chinese Internet cafe industry is currently in a period of transformation from old drivers to new ones, with the industry beginning to transform and upgrade to refine their management, brand operation and interior. This thesis will be carried out in this future trend, discussing and providing new ideas for E-sport-themed interior designs of cybercafé.

2.1.3 Culture of Cybercafé

This part will mainly discuss the unique culture of cybercafés. With the relative popularity of the Internet and mobile devices, do cybercafés still have a certain appeal for people? Which kind of cybercafés survived? What unique culture and charm do they possess? These answers are given below.

2.1.3.1 Arguments about Survival

The early cybercafés developed on the basis of traditional cafés in Europe and America. Many of them are directly adapted from traditional coffee shops (Mancebo, 2006). This makes the Internet bar have dual attributes since the beginning. It not only has the leisure, social and elegant attributes of a cafe, but also has the technology and nerdy attributes of the Internet and computer (Laegran & Stewart, 2003). Based on these characteristics, scholars at that time debated the future of cybercafés. Some people believed that the emergence of cybercafé was a temporary phenomenon before the popularization of the Internet and computers. Their reason is that the concept of cybercafé -- a place where users can socialize amid a wave of gourmet and coffee -- goes against the way most people use computers (Marriott, 1998). From their point of view, those who surf the Internet, read E-mail, write, program, or do anything else on their

computers are usually alone. Others argue that Internet cafes will continue to exist because their social aspects are as important as access to technology. Those who hold this view believe that cybercafé is a special technosocial space, and it will play a greater role with the development of the Internet, promoting the integration of Internet technology and society (Laegran & Stewart, 2003). Interestingly, history ends this debate in a strange way. Today we see that people in Europe and America are used to bringing their mobile devices into cafés that offer Wi-Fi, while the traditional cybercafés with terminals have fallen out of fashion.

2.1.3.2 Cybercafé & Online Game

However, on the other side of the world, in Asia, some of the original forms of cybercafé have been preserved. Because of the lack of coffee culture, cybercafés were introduced to Asia without the part that has nothing to do with computers and the Internet. This made the Internet cafe a brand-new technology access point to appear in Asia, and it later blended very well with local culture. In China, cybercafés can be described as places where many people access the Internet, most of them playing computer games. It's a consensus that has been shared by several generations. In the 1990s, young people had no choice but to go to cybercafés to play computer games. However, even with the popularity of computers and the Internet, cybercafés are still popular among young people. What keeps cybercafé so attractive? Since cybercafés no longer have advantages in technology, can this be regarded as a cultural phenomenon?

In the early years of cybercafés, some scholars realized that going to Internet cafes was a special social experience, since the internet terminal created a focus for social exchange and a shared point of interest (Lee, 1999). People even used a new term to describe cybercafés: Technosocial Spaces (Laegran & Stewart, 2003). This suggests that cybercafés were born with

technology and social connections, which laid the foundation for the later Internet cafes to breed their own unique culture. Although some may have argued that people were not used to socializing while using a computer, there was one exception: online games.

When people play online games, virtual achievements like beating dragons and winning treasures are not the point. The real intention of playing online games is to create a shared experience with teammates or opponents (Sun, 2017). Although many interface designs for online games have sought to create feelings of contact in online relationships, contact via the Internet is still a mediated and indirect experience (Chee, 2006). Gaming interactions in the virtual world are inevitably informed by offline experiences and significant offline context. Theoretical physicist Michio Kaku (2011) put forward a view in his book *Physics of the Future*: there is a continual competition between High Tech and High Touch, that is, sitting in a chair watching TV versus reaching out and touching things around us. And we always prefer both avenue. Cybercafés happen to be a place where people can have it both ways. On the one hand, the player is immersed in the virtual world brought by High Tech; on the other hand, the player enjoys the High Touch by communicating with teammates and feeling their emotions anytime because they are in the same space. It's an amazing experience that people can never get at home. Therefore, Internet cafes naturally become the paradise of online game players.

As a conclusion, the answer is yes, cybercafés do have their unique culture. Because it is a natural place to connect the virtual and the real, cybercafés are the best arena for online gamers. In this kind of suitable environment, e-sports culture grew, and the development of this culture has also saved cybercafés.

2.1.4 User of Cybercafé

Based on the data and charts of the Analysis Report of China's Internet Cafes and User Behavior in 2018, this part explains and analyzes the main characteristics and trends of user characteristics and user behavior of China's Internet cafes in 2017 and 2018.

2.1.4.1 User Characteristics

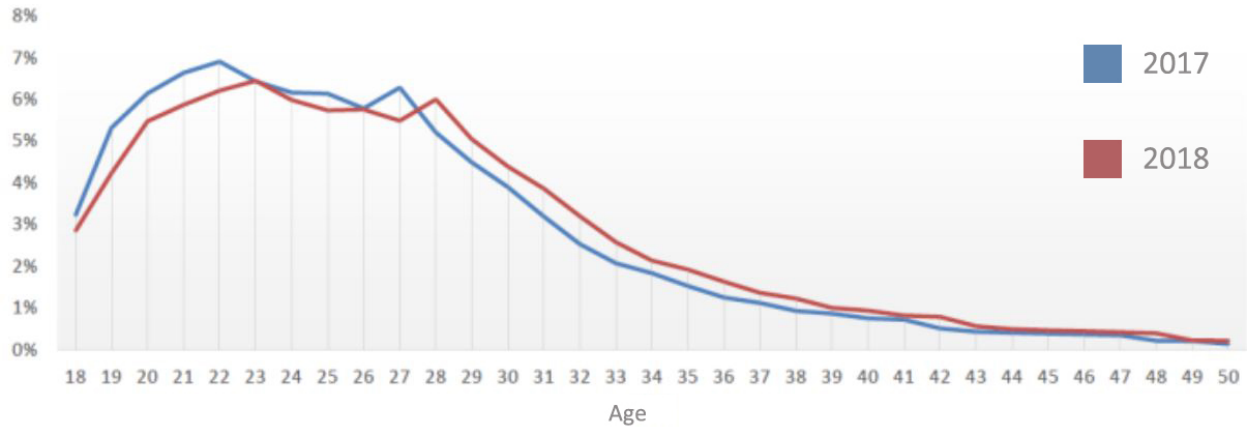


Figure 2.7 Age Distribution of Cybercafé users in China from 2017 to 2018 (Xie, 2019)

From the figure, we can see that the main users of cybercafé in China in 2017 and 2018 were between 18 and 30 years old. The post-90s generations are the main users. Because of the times, most of them have the opportunity to experience or witness the golden age of China's cybercafés, and more or less have the experience of playing video games in their childhood. When the post-90s generations are adults, they have a greater probability of becoming cybercafé users, and the fact is the same. With the development of the cybercafé industry, the proportion of users aged 28 and older increased slightly in 2018, indicating that middle-aged people also gradually regard cybercafé as one of the ways of leisure and entertainment.

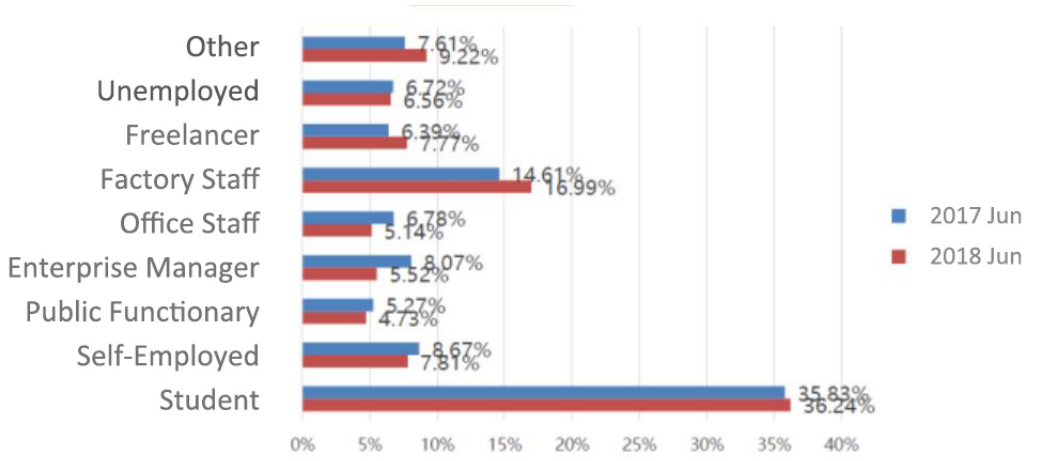


Figure 2.8 Cybercafé User Occupation in China from 2017 to 2018 (Xie, 2019)

From Figure 2.8, we can see that the main users of cybercafés are students, followed by factory employees. Students are more likely to be exposed to computer games than most people who are already working. However, due to restrictions, it is difficult for students to play games for a long time while under parents' supervision, so many students choose to go to cybercafés to play PC games.

Figure 2.9 Income of Cybercafé User in China from 2017 to 2018 (Xie, 2019)

From this picture, we can see that most users of cybercafés are low-income groups. A horizontal comparison of Figure 2.9 shows that non-income groups, such as students, contribute a certain percentage. For the remaining low-income groups, factory employees account for a large proportion. Although cybercafés are still a place where low-income people find access affordable, judging from the changes in 2018, people with monthly income of 1000-3000 RMB have dropped significantly. This shows that the upgrade of Internet cafes in China has also increased the overall fee structure of cybercafés. As a result, some low-income people can no longer afford cybercafés.

2.1.4.2 User Behavior

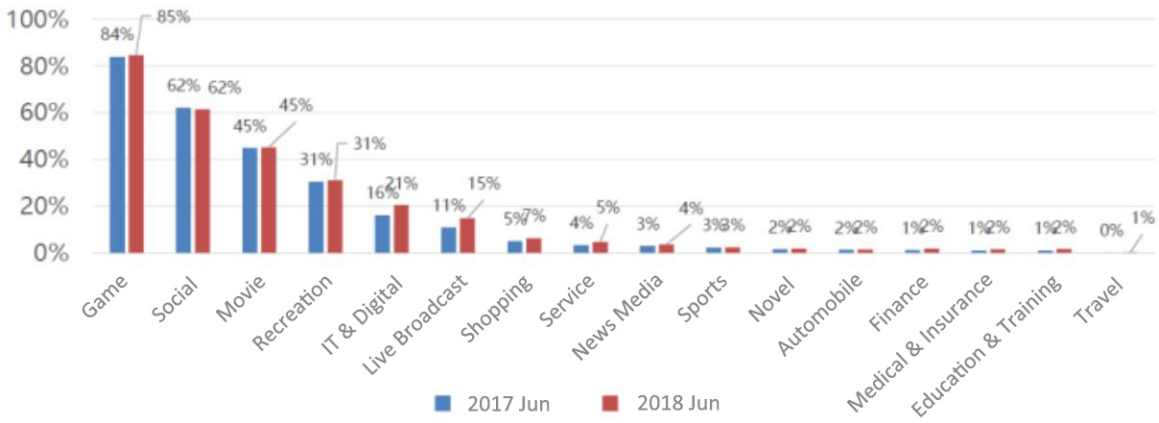


Figure 2.10 Online Behavior of Cybercafé User in China from 2017 to 2018 (Xie, 2019)

From Figure 2.10, we can see that the main purpose of users going to cybercafés is to play PC games, followed by social interaction. This is in line with the results discussed above. In China, cybercafés are mainly used as computer gaming centers, which are social and entertainment platforms for players.

Figure 2.11 Online Time per Access of Cybercafé User in China from 2017 to 2018 (Xie, 2019)

From this picture, we can see that the stay time of cybercafés users in Internet cafes is mainly between 1-4 hours, which is a relatively rational game time. Of course, there are also some users who spend more than 9 hours online. This shows that cybercafés generally hide some social problems, such as net cafe refugees.

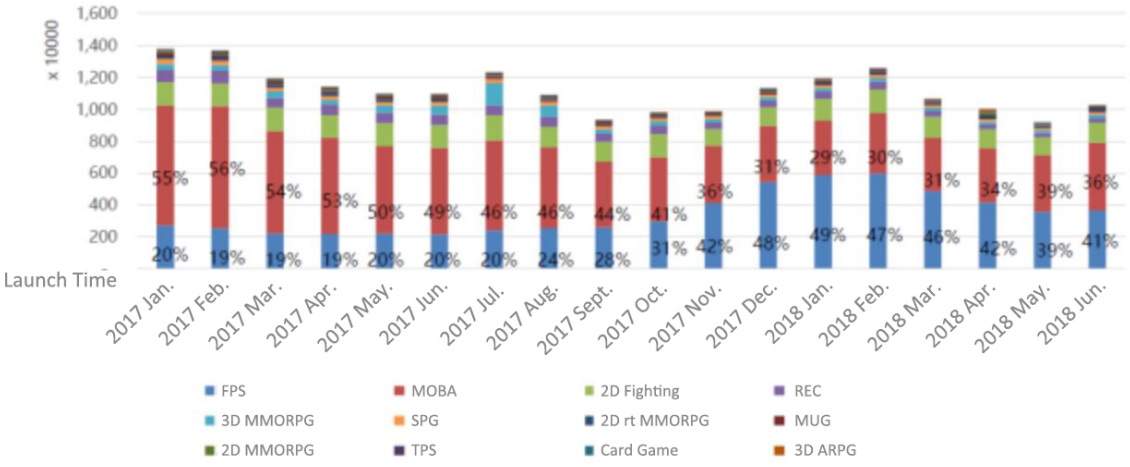


Figure 2.12 Average Daily Activation Times of Different kind of Games (Xie, 2019)

From this picture, we can see the changing trend of popular games in Chinese cybercafés from 2017 to 2018. It is obvious that Multiplayer Online Battle Arena (MOBA) games took the first place in early 2017, but over time, the popularity of these games has gradually decreased, and replaced by FPS games. This shows that the popular game types in cybercafés change over time. There can be many influencing factors, such as a new game masterpiece every year, or a popular game of the year, or because of a certain E-sports competition.

2.1.4.3 User procedures of cybercafé

In Europe and the United States, the user procedures of cybercafé can be roughly divided into two steps: first, pay and get the password; second, use the computer to access the Internet according to the time limit (Lee, 1999).

In Southeast Asia, especially in China and South Korea, users will begin with an identity verification procedure when they enter cybercafé because of the government's policy of protecting young students (Jou, 2012). At the same time, the charging system of cybercafé is also bound with identity authentication, that is to say, customers can create an account with their ID and recharge it (Jou, 2012). Each time they surf the Internet, the fees will be deducted according to their usage time. Therefore, the customer's process is: authentication and payment, online, offline.

2.1.5 Environment & Layout of Cybercafé

This section will mainly explain the spatial environment and layout of cybercafés.

2.1.5.1 Environment of Cybercafé

In addition to excellent equipment and high-speed Internet, the environment of cybercafé has become a factor to attract tourists and shape brands in recent years. In the early years, the indoor environment of cybercafé is poor, which was closely related to the social orientation of cybercafé and the groups that often patronized them. Since Internet cafes are not traditionally places of entertainment, most owners did not spend money on improving the environment. As a result, most Internet cafes in China in the 1990s and 2000s were mostly densely packed, dimly lit, poorly ventilated places. On the other hand, since most of the customers were unruly young people, it is not surprising that cafes smelled of smoking and eating. A survey report on the indoor environment of three random cybercafé pointed out that the indoor light was dim and the air flow was poor (Liu, Chen & Chang, 2014).

With the development of the economy and the change of policy, the owners of cybercafé gradually realized the importance of indoor environment to cybercafé. After WYWK company proposed the New Cybercafé concept in 2009, a batch of new cybercafés with good interior decoration and environments appeared on the market. These new cafes have adopted the decoration concept of fashionable western cafés, turning them into bright and clean places for social interaction and entertainment. At the same time, they have enhanced indoor ventilation and set up non-smoking areas, effectively ensuring indoor air quality.

2.1.5.2 Layout of Cybercafé

The layout of cybercafé is largely affected by its type and service philosophy (Jou, 2012). As mentioned in cybercafé's history, the early cybercafé was a product that implanted the Internet as a technology in coffee shops (Lufkin, 2015). In this case, the Internet is just an additional function, and the cafe is still a place for coffee. Therefore, Internet devices were often

placed in a small area, while the rest of the dining and entertainment areas took a larger part (Lufkin, 2015).

Over time, cybercafé gradually become an independent place, and its layout also changed. At present, most cybercafés are generally divided into three areas: front desk, open area and independent area (Chu, 2013). The front desk is usually located near the entrance of the Internet bar. Its function is to provide charging service and relatively limited catering service. In some countries that restrict the age of Internet bar customers, the front desk also undertakes the function of identity verification (Chu, 2013). Open area is the main Internet access area of cybercafé. Users can walk around freely and choose the seat they want. Although many cybercafés divide their open area into different subareas according to the functional orientation (such as leisure area, E-sports area), there is no obvious separation between these areas. However, each independent area is different, which provides user with a relatively private space. People usually call it a compartment. In the compartment, users can enjoy the Internet experience without being disturbed by the outside world.

The proportion of the above three areas in different types of cybercafés is also different (Chu, 2013). Some luxury cybercafé will have more independent areas, while some may not have independent areas. Some Internet cafes pay attention to catering services, and separate leisure catering areas near the front desk (Jou, 2012). On the contrary, there is no catering service at the front desk of other cybercafés.

2.2 E-sports

E-sports, also known as Esports, eSports, or electronic sports, is a form of competition using video games (Hamari & Sjöblom, 2016). Although competition has been part of the video

game culture for a long time, it was in the 2000s that major international tournaments and professional gaming leagues were launched, which marked the rise of E-sports. Over the last decade, E-sports has become one of the fastest growing industries in the world (Korman, 2018). For better understanding of what E-sports is, this part will introduce E-sports from three aspects: sports, games and fans.

2.2.1 Sports

Despite the growing popularity of E-sports around the world, labeling video game competitions as a sport remains controversial. While some people think that spending hours in front of a computer playing those PC games is the opposite of sports, on the other hand, supporters argue that E-sports is a physical activity that requires organized training and obeys certain rules, and thus qualifies as a sport ("eSports, sport or business?", 2017). No matter what the final conclusion is, E-sports is as good as any sport in the context of its current influence and its professionalism as a competitive competition. The following section will introduce E-sports from several important competition components.

2.2.1.1 Leagues & Tournaments

The first recorded video game competition was the Spacewar Game held at Stanford University on October 19, 1972. The event was called "Intergalactic Spacewar Olympics" which including a single-player tournament and a team competition, with a year's subscription to *Rolling Stone* for the grand prize (Good, 2012). This is an example of early video game competitions, which were generally restricted to local areas and were smaller in size. Then in 1978, a new arcade video game called *Space Invaders* broke the limitation in area. It innovatively used a high score tracking mode that allows all players to see the game's score

leaderboard, which connected players from all over the world (Borowy & Jin, 2013). Two years later, the famous game company Atari held The Space Invaders Championship, which is the earliest large scale video game competition. It successfully attracted more than 10,000 participants across the United States, and established competitive gaming as a mainstream hobby.

In the 1990s, the emergence of fighting game *Street Fighter II* popularized the concept of Deathmatch mode, which means two players challenge each other face-to-face, and the best wins. This gaming mode is so direct and exciting that the fighting game became very popular in the 1990s, and the high score competition mode gradually fell out of favor (Patterson, 2011). In 1996 the International Evolution Championship (EVO) E-sports championship was founded. In the mid-1990s, many video games benefited from the popularity of the Internet. PC games in particular, developed the multiplayer online battle mode based on the Internet, which promoted the video game competition to a higher level. Tournaments established in the late 1990s include the Cyberathlete Professional League (CPL), QuakeCon, and the Professional Gamers League. From then on, tournaments became much larger, and corporate sponsorship became more common. Increasing viewership both in person and online brought Esports to a wider audience (Gloria, 2003).

In 2004, a competition of a *Street Fighter III*: *3rd Strike* semi-final match held at Evolution Championship Series left a mark in E-sports history. During this match, player Umehara managed to block 15 consecutive hits of his opponent 's combo while having only 1% of vitality. The reaction time of each perfect block is only one sixth of a second, yet Umehara made it 15 times under huge pressure and finally won the game (Narcisse, 2014). This moment was later called Evo Moment 37, which became a legendary moment representing the quick response ability and good psychological quality embodied in e-sports. In 2006 the G7 Teams

Federation were formed by seven prominent Counter-Strike teams. The goal of this organization was to increase stability in the E-sports world, particularly in standardizing player transfers and working with leagues and organizations (G7 Federation, 2006). Also in September 2006, FUN Technologies held a Worldwide Webgames Championship in which 71 players competed for a $1 million grand prize. It was an experimental competition unlike any traditional one, yet the grand prize showed how much confidence the industry held in E-sports' future.

When it came to the 2010s, E-sports really took off. Although many of the biggest events were established before 2010, the number of events and prize money doubled several times, not to mention the viewership (Miller, 2010). With the boom of modern E-sports, more and more video game companies started to pay attention to the potential of their E-sports products. Nintendo hosted Wii Games Summer 2010, which lasted over a month, with more than 400,000 people taking part. This was the largest competition in Nintendo's history. In 2014, 343 Industries announced *Halo* would be revived as an E-sport game with the creation of the Halo Championship Series and a prize pool of US$50,000 (Jasmine, 2014).

Since 2013, some of the US universities such as Robert Morris University Illinois and the University of Pikeville have recognized E-sports players as varsity level athletes and offer athletic scholarships. In addition, the Olympic Organizing Committee is also considering the inclusion of E-sports in the Olympic Games. The organization committee for the 2024 Summer Olympics in Paris were in discussions with the IOC and the various professional E-sport organizations to consider E-sports for the event, citing the need to include these elements to keep the Olympics relevant to younger generations. Although the organization committee decided not to include E-sports as medal events, they didn't deny the possibility of holding other activities related to E-sports during the Olympics Games (Morris, 2018).

2.2.1.2 Professional Teams

Professional E-sports is different from hobbies. It is far more complicated than sending a group of talented nerds from cybercafés to arenas that attracts millions of viewers. Those who want to win the world-level E-sports competitions need a professional and capable team to support them.

A game team often starts from a few like-minded game masters, but the starting point of an E-sports team is generally higher. Above all, an E-sports team needs to find sponsorship to start their career. Depending on the league, teams that are self-funded might not get acknowledged as an official team, and that's why sponsorship is necessary (Navarre, 2020). Participating in small tournaments and local competitions is a good way to show talent and strength, and victory is the most assured way to draw sponsors attention, which is no different with other pro sports.

The core of an E-sports team is usually made up of coaches and players. Just like other traditional sports, a coach is the leader of a team who is always present and focused, ready to guide their team through any hardship (Navarre, 2020). This includes, but is not limited to, growth of individual skill of the players, in-game strategy, team cohesion, motivational responsibilities and discipline. While for casual players the main goal might be having fun, the competitive nature of most E-sports games renders the objective of winning an essential component and a priority of the overall gaming experience (Tang, 2018). For professional teams, working in such a highly task-based environment puts players in a tough position where in order to win they must be able to collaborate under huge pressure. In order to let the players overcome this dilemma, the coach must keep close contact with the team members, and establish a strong

bond of trust within the team. The sense of team cohesion is greatly strengthened when members feel they can trust others on the team to look out for them (De Jong, Dirks, & Gillespie, 2016). As there are many affairs to manage, the coach of a team is likely to have several positions. On teams with very low budgets, the head coach might also be the manager, owner, and founder of the team. For the team with sufficient funds, inviting several professional coaches to share the pressure of the team and making more scientific team training plans may be a good choice.

Like athletes on the field, the performance of E-sports players will directly affect the result of a competition. Therefore, the team is very careful about the responsibility division and training direction of every key player. After years of exploration, most E-sports projects have come up with several assigned positions for players. Just like any collective games of traditional sports, different positions in E-sports are also made to adapt to the rules of the game, and each one has a straightforward role to play. Owing to each E-sports game being unique, with its own mechanics and characteristics, the position of players can be different even within the same type of game. For example, positions in *Dota 2* are Hard Carry, Mid, Offlaner, Position 4 Support and Position 5 Support, while in *League of Legends* they are Top Laner, Mid Laner, Jungler, AD Carry and Support. Both of games are MOBA game, but to professional gamers, they're two completely different things. As we can see, the structure of an E-sports team varies. There is no single layout, just like traditional sports (Navarre, 2020).

After players select their position, a mass of individual ability training and team training begins. With more than 380 million viewers worldwide and the E-sports market valued at 865 million U.S. dollars, teams are under a constant pressure to be top-notch (Marinkovic, 2020). In order to win, professional E-sports athletes are used to training under heavy load. For example Team Liquid players practice together for eight hours a day, scrimmaging against other pro and

Challenger-level teams. In the hours before and after that team practice, they play on their own for nearly every waking minute (Harrison, 2015). Some players may take time out to video-chat with family members or relax with significant others. However, others do nothing but play the game — which changes every few months to introduce new strategies and wrinkles for players to master. The boundaries between players' lives and their training are blurred, and what is more extraordinary is that some of them do not see themselves as physical human beings ("E-sports Players are Training like Traditional Athletes", 2019). Korean players, Chae "Piglet" Gwan-jin and Kim "Fenix" Jae-hun, are notorious for pushing the physical boundaries for how much a person can practice. They often sleep only four hours a night and practice between 12 and 14 hours per day (Harrison, 2015). Perhaps such harsh training can shorten the career of a professional E-sports player, but this was the tone of the early E-sports training, the more you practice, the closer you get to victory.

However, influenced by the old, corporeal wisdom of traditional sports, transformation arrived in the growing world of professional E-sports. In 2017, Team Origen hired Kasper Hvidt, a former captain of Denmark's national handball team, to be its sporting director. Hvidt, 43, had no previous exposure to gaming. However, by forming a traditional sports training team (which including a physical trainer, a sports psychologist, a massage therapist, a medical doctor and a nutritionist), he completely changed the routine and life of the players (Harrison, 2015).

Till today, E-sports have become a highly competitive discipline with multiple teams battling each other across the world (Marinkovic, 2020). It can be predicted that in the future, scientific team management and training will become more and more important, and traditional professional sports is the best teachers of E-sports.

2.2.1.3 Media

So far, E-sports has been transformed from a non-mainstream hobby into a sport. It is well known that the ability to play and compete is a necessary step in this transformation, while on the other hand, broadcasting and viewing are the crucial components to enable widespread adoption and popularity (Paradise, 2017). Without the help of media, E-sports could not have developed so rapidly.

In the early days, the promotion of video games competition mainly depended on newspapers, magazines, and television broadcasts. In 1983, a group of game master organized a multicity tour called "Electronic Circus". It was an arena contest that anyone could take part in and challenge the highest scorre (Borowy & Jin, 2013). Although there was no concept of E-sports at that time, it managed to attract lots of people and get published by newspapers and popular magazines, including *Life* and *Time*. At that time, video game competitions were also covered on TV shows or even films, like *Tron* in 1982.

In the 2000s, due to the rise of Internet games, televised game competitions became increasingly popular. The German GIGA Television covered E-sports until its shutdown in 2009. The United Kingdom satellite television channel XLEAGUE.TV broadcast E-sports competitions from 2007 to 2009. There were also many well-known E-sports TV show that took place in Asia. Among them, television coverage in South Korea is the best established. Owing to the full support of government, *StarCraft* and *Warcraft III* competitions were regularly televised by dedicated 24-hour cable TV game channels Ongamenet and MBCGame (Kim, 2007). Under the publicity of TV programs, the concept of E-sports has gradually spread, which has planted the seeds for the explosive growth of the 2010s.

The previous part mentioned that E-sports took off in the 2010s. In the years since, all the metrics keep going up, including numbers of competitions, viewers, and bonus scale. One of the important factors causing this change is that the route of transmission of E-sports has greatly changed by streaming.

"Streaming" is a term which refers to live online streams of internet personalities and top level gamers playing their favorite games while thousands watch (Tassi, 2013). This new, real-time media soon became the most common method of watching E-sports tournaments. Twitch is one of the most popular online streaming platforms which routinely streams popular E-sports competitions for free. In 2013, viewers of this platform watched 12 billion minutes of video on the service, with the two most popular Twitch broadcasters which are League of Legends and *Dota2*. During one day of Valve's DOTA tournament stream, Twitch recorded 4.5 million unique views, with each viewer watching for an average of two hours (Popper, 2013).

What is the reason that streaming fit in E-sports so well?

Firstly, live streaming provides global E-sports audience with a convenient and reliable way of watching. The fans of E-sports come from all over the world, which requires the live streaming of every E-sports competition to break the regional restrictions as much as possible. In a fierce competition, any delay can make the competition less desirable (Fischer, 2019). In this context, the technical conditions of live streaming make it surpass all other traditional media.

Besides, E-sports industry can better handle cloud-based workflows. Unlike other sports, part of E-sports itself takes place in a virtual world connected by the Internet. Therefore, in terms of content dissemination, E-sports can better adapt to complex, continuous remote production (Fischer, 2019). This makes it possible for Esports programs to produce high level effects at a low cost.

Thirdly, live streaming breaks the one-sided viewing barriers of traditional media. One of the characteristics of E-sports is that athletes and audience can be converted to each other to some extent (Popper, 2013). Many viewers are also loyal players of such games, with both the need to watch the events and the desire to become game anchors. Live streaming meets this need.

In a few words, both streaming and E-sports are born with the development of technology, so they have a natural high degree of compatibility. In the future, live streaming will help E-sports attract more attention, and E-sports will in turn help the live broadcast industry become more prosperous. The two are merging into a new culture.

2.2.2 Games

Electronic games are the mainstay of E-sports, but not all games can become E-sports. So, what kind of game has the potential to become an E-sport? For game publishers, what is the reason for them to turn their games into E-sports projects? The following part will classify and explain.

2.2.2.1 Characteristics of Video Games

Understanding video games is the premise of analyzing E-sports games. In this section, the author will list three classification methods of video game features which may overlap. The author believes that it is a good thing that different classification methods can provide different perspectives on video games.

2.2.2.1.1 Interactive Characteristics of Video Games

Although it is still controversial to call video games the Ninth Art (for better understanding, the First Art to Eighth Art are: Literature, painting, music, dance, sculpture, drama, architecture, film), it is undeniable that video games have the advantage of high interactivity in artistic expression, which is different from any other art (Yan, 2014).

The interactive characteristics of video games can be divided into three aspects: player-to-computer, player-to-player, player-to-game (Friedl, 2002).

Player-to-Computer

The behavior of players in the virtual world is all based on the hardware of the real world (Friedl, 2002). Although sometimes skilled players may ignore this, the first level of interaction is that the player exchanges information with game controller such as computers (Blomberg, 2018). From the current mainstream video game equipment on the market, there are three ways of sensory communication for players to exchange information with gaming hardware: vision, audition, tactile (Yan, 2014). This sensory stimulation deficiency allows most adult players to realize the gap between the game world and the real world (Yan, 2014).

After the interaction between players and game controller, the information data will be transmitted to the game software for the second level of interaction (Friedl, 2002). Through the timely processing and feedback from the software to hardware, the player's will can be embodied in the virtual world (Blomberg, 2018). Because game software is the ultimate factor to guide players to make actions, the player-to-computer interaction of electronic games is significantly different from other Human–Machine interaction (Yun, 2011). First, player-to-computer interaction in video games emphasizes process and experience, not results. When the game is

over, it is difficult for players to get meaningful results from human-computer interaction. Second, the goal of player-to-computer interaction is determined by the game, not by the user. In the process of playing, the players are controlled by the rules set in advance, and the ultimate goal is determined by the game.

Player-to-Player

This kind of interaction refers to engagement within the game, not including the players' exchange of game experience in the chat. In the early days, most video games are single-player games. With the development of the times, the multiplayer game and the online game are on the stage respectively. The game is no longer just the binary world of players and AI (Yun, 2011). In online games, the individual actions of each player may affect the perception of the game world by other players, which has changed the narrative method of video games (Yan, 2014).

Today, the behavior of players in the video game is becoming more and more abundant and diverse. The activities of players in the real world can almost all be mapped to the game, such as mobile, collection, exploration, war, etc., and even in the game values are different from real life (Yan, 2014). According to the behavior of players in the game and the objects of these behaviors, players can be divided into four types: achievement type, exploration type, communication type and aggressive type (Meng, 2008). The driving force of achievement type players is to challenge the limit, achieve the goal set by the game, and surpass other players. Exploration type players like to explore the virtual world freely, and they often don't take completing the game tasks as their primary goal. Communication type players pay more attention to the interaction with other players in the process of the game, rather than the game itself.

Aggressive type players are not interested in winning AI, and they are eager to fight and win with real people (Meng, 2008).

Within the video game, the interaction between players can be roughly divided into three types: individual, temporary team and guild (Yan, 2014). The first type means the interaction between individual players and individual players. Their behavior only represents themselves, just like two strangers meet in the real world, but their interaction behavior is restricted by the game itself. The temporary team system is a popular interactive way in online game (Yan, 2014). In each game, players are automatically assigned to a team, aligning with teammates to defeat the opponent. The guild system is the product of large-scale multiplayer online games, which refers to a relatively fixed group of players with the same tendency (Yan, 2014). There is often a tight organization and strong cohesion within the guild, which makes the guild players have continuous interaction online and offline.

Player-to-Game

This kind of interaction is the process of information exchange between players and games, which can be divided into two types: immersion and creation (Yan, 2014).

Immersion refers to players extracting information from the game through game behavior, such as enjoying the music, landscape, props, story text and so on provided by game developers, and immerse themselves in the game wholeheartedly to obtain the game experience. In fact, immersion in games is an aesthetic process (Yan, 2014). Traditional media (such as books, TV) can only provide visual and auditory stimulation in the process of aesthetic appreciation, and construct related imagination in the brain, so as to produce resonance and stimulate emotion. However, the virtual world of video games is not only visual, audible and

perceptible, but also its natural interactivity makes players feel as if they have experienced everything of the characters themselves (Yan, 2014). It is worth mentioning that the degree of players' immersion in a game is related to the rules and playing methods of the game. Ernest Adams (2004) divides players' immersion into three types: Tactical Immersion, Strategic Immersion and Narrative Immersion. Tactical immersion emphasizes the operability of video games, and players should have the game proficiency corresponding to the difficulty of the game to achieve the task goal (Adams, 2004). This type of immersion is particularly obvious in shooting, action and sports games. Strategic immersion is mainly reflected in simulation management and role-playing. In the game process, players must make the right decisions as masters in the game. In addition to the satisfaction of success, they also have to bear the frustration of wrong decisions (Adams, 2004). Narrative immersion emphasizes the player's experience of the game plot, which is very close to the immersion of readers or audience in literature, film and television works (Adams, 2004).

Another kind of interaction between players and the game is creation, or secondary creation. Compared with other entertainment media, video games leave more blanks for its users, such as an "unfinished" work (Adams, 2004). In essence, it provides a game framework composed of scenes, characters, sounds and other contents, as well as the rules behind the game. The narration that has not yet been formed in the game is waiting for the arrival of players (Yan, 2014). In the process of gaming, the player is not only the audience, but also the creator. More strictly speaking, the player is a person who creates the second time under the existing game framework. Of course, players with certain game design and programming skills can even jump out of the game and modify the game framework. Many famous video games come from the second creation of players. For example, *Counter-Strike (CS)* is a player-adaptation of *Half-Life*.

2.2.2.1.2 Video Game Structural Characteristics from Psychological Taxonomy

Unlike the interactive characteristics of video games, the structural characteristics refer to "those features inherent within the video game itself."(King, Delfabbro, & Griffiths, 2009, p.1). Although there is no generally accepted conclusion about the structural characteristics in the academic circle, many scholars have shown great interest in the game structure, and put forward their summary of the structural features of the game from different fields, especially from the perspective of psychology. Wood et al. (2004) were the first to publish a psychological framework of the structural features of video games. King, Delfabbro, and Griffiths (2009) expanded upon Wood et al.'s (2004) list of psycho-structural characteristics in video games by reorganizing some features into new categories mean while suggesting additional features in light of recent theory and research findings. As can be seen in Figure 2.13, there are five main sections and several sub-features in this framework. The next paragraph will introduce the five main sections respectively.

Feature type	Sub-features	Example
Social features	Social utility features	In-game voice and text chat
	Social formation/institutional features	Guilds/clans in MMORPGs
	Leader board features	"Hall of fame" high score list
	Support network features	Internet forums, strategy guides
Manipulation and control features	User input features	"Combos", "hot keys"
	Save features	Checkpoints, "quick-save"
	Player management features	Managing multiple resources
	Non-controllable features	Scripted events, loading screens
Narrative and identity features	Avatar creation features	Choice of sex, race, attributes
	Storytelling device features	Cut-scenes, mission briefing
	Theme and genre features	"Role-playing", "shooting"
Reward and punishment features	General reward type features	Experience points, bonuses
	Punishment features	Losing a life, restarting a level
	Meta-game reward features	Xbox 360 Achievement points
	Intermittent reward features	Increasing difficulty of levels
	Negative reward features	Gaining health, repairing items
	Near miss features	Difficult "boss" at end of level
	Event frequency features	Unlimited replayability of game
	Event duration features	MMORPGs have no endpoint
	Payout interval features	Rewarded instantly for playing
Presentation features	Graphics and sound features	Realistic graphics, fast music
	Franchise features	Trademarked names, e.g. Mario
	Explicit content features	Violence, drug use, nudity
	In-game advertising features	Real-life brands, sponsors logos

Figure 2.13 Summary of the five-feature model of video game structural characteristics (King, Delfabbro, & Griffiths, 2009, p.93)

Social features refer to the social aspects of video games, such as the way players communicate with other players in online and offline games, and the function of creating a cooperative and competitive player community; Manipulation and control features refer to the way that players can interact and control with the attributes in the game through physical control scheme; Narrative and identity features refer to the avatar's appearance and behavior in the fictional game world, which greatly affects the genre and gameplay of the game; Reward and

punishment features refer to the way how players are reinforced for wining and punished for losing, which could be immediate game effects or delayed in-game results; Presentation Features refer to the aesthetic quality of video games, which in most cases means to the visual and sound characteristics of the game (King, Delfabbro, & Griffiths, 2009).

It is worth mentioning that this game structure framework draws on gambling research in the field of psychology, and its original intention is to study the addiction of games (King, Delfabbro, & Griffiths, 2009). The author also makes it clear that the purpose of this framework is not to challenge ludology (this means the study of games and gaming, especially video games. "[L]udology, like the games it studies, is not about story and discourse at all but about actions and events" (Definitions from Oxford Languages, n.d.)), video game semiotics and other dominant video game frameworks, but it undoubtedly provides a new perspective to study the structural characteristics of games.

2.2.2.1.3 Video Game Characteristics from Social-Semiotics Perspective

Since the birth of video games, there has been a debate about its core significance, mainly between ludology and narratology (Ryan, 2006). Besides, as an audio-visual interactive activity with distinctive characteristics, video games have concerned semiotics experts for a long time. Pérez-Latorre, Oliva, and Besalú (2016) put forward a social semiotics (a specific contemporary branch of semiotics) framework to analysis video game's characteristics, which according to them, is able to integrate the "narrativist" approach, ludology and procedural rhetorics to a coherent whole. They believe that this framework can help in understanding "not only the audiovisual surface of videogame design but also its overall structure, including the game's deep

structure: its procedural core, formed by rules and game mechanics." (Pérez-Latorre, Oliva, & Besalú, 2016, p.3)

According to the research of this article, video game design is able to accomplish the three semiotic functions stated by M. Halliday: "(1) ideational function: represent meanings about actions, states and events linked to the human experience of the world; (2) textual function: form texts, complex semiotic entities which can function as complete messages and (3) interpersonal function: represent meanings about those engaged in communication." (Pérez-Latorre, Oliva, & Besalú, 2016, p.4).

The authors put forward a further explanation: "ideational function is conceived as the visual design use or value for representing actors and processes, it is thus linked to 'representational meanings'." (Pérez-Latorre, Oliva, & Besalú, 2016, p.4). In video games, ludo-narrative dimension has made a great contribution to represent the world, subjects, and events, which is corresponds to the ideational function in semiotics (Pérez-Latorre, Oliva, & Besalú, 2016).

Regarding the textual function, it is associated with "the picture's basic constitutive elements: layout and formal composition, and their signification potential ("compositional meanings")." (Pérez-Latorre, Oliva, & Besalú, 2016, p.4). In video games, the rules (system-gameplay) of the game are independent of the virtual world represented by audio-visual narration, which is the basic composition of a game.

Thirdly, the interpersonal function is "linked to the symbolic relationships between author and viewer suggested by the image." (Pérez-Latorre, Oliva, & Besalú, 2016, p.4). This part corresponds to the interpersonal functions in semiotics.

Finally, because the above three dimensions are conveyed to the players through the audiovisual narration of video games, this part has three semiotic functions at the same time.

The corresponding relationship between social semiotic meaning and the dimension of game design is shown in Figure 2.14.

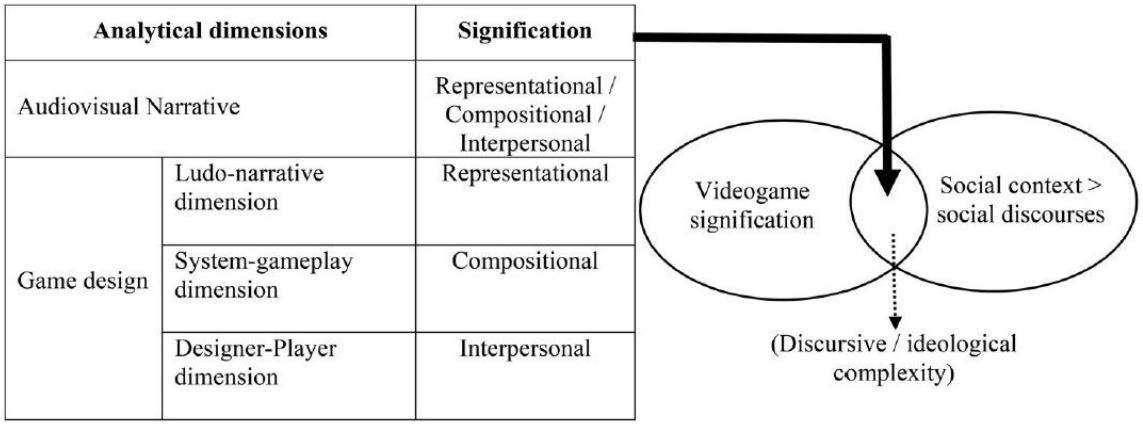


Figure 2.14 A social-semiotic approach to videogame design (Pérez-Latorre, Oliva, & Besalú, 2016, p.6)

In addition, the authors also mentioned "semiotic resources" as a social semiotic term. "Semiotic resources" have been defined as "the actions and artefacts we use to communicate, whether they are produced physiologically (...) or by means of technologies" (van Leeuwen, 2005, p.3). The authors analyze the semiotic resources of the first two dimensions in game design, in order to explain the analysis of the social semiotic structure of electronic games in more detail (Pérez-Latorre, Oliva, & Besalú, 2016).

Summary of semiotic resources in the ludo-narrative dimension:

Representation of the character/player

Action rules

State rules

Game mechanics

Behaviour-inducing rules

Representation of fictional world

Design of the space-time environment

Rules of specific areas and states of the game

NPC behavioural patterns

Operating rules of objects/instruments

Representation of activities

Patterns of action-objective

Victory and defeat conditions

Game mechanics

Design of redundancy vs. variability

Tactical/strategic structures

Summary of semiotic resources in the system-gameplay dimension:

Gameplay units (problem-solving patterns): structure

Objective

Rules

Ludic roles of the game's agents

(Game-representation disassociation)

Gameplay units (problem-solving patterns): development

Game mechanics

Dominant strategies and gameplay approaches

(Game-representation disassociation)

Overall view of gameplay design (focused on problem-solving)

2.2.2.2 Features of E-sports Game

So far, video games have developed into nine different genres according to the way they interact with players (Adams, 2009). Some of these games are more inclined to interact with a single player, and they are not born for E-sports. Other video games that deliberately set up multi-player interactive sessions have failed to become well-known E-sports game due to various reasons. Among the current 1,181,019 video games, only 50 games are listed as widely accepted E-sports competitions (Sobolev, 2020). In fact, any video game title that is played competitively for money is an E-sport. So the real question is what characteristics make a game successful and recognized in E-sports. However no one or organization can give an exact answer to this question. The only way to find out is to analyze the current popular ones. And the following three features are the answers summarized in this article.

First of all, the way the game is played needs to be intensely competitive. “Through the defining characteristic of competition, justification is made that E-sports are genuine sports and the participants are genuine athletes, not just players of a game (Electric Sports World Cup [ESWC], 2015) ”(Jenny, 2016, p. 6). Competition is a necessary condition for games to become E-sports, and intense, competition content is the key to the next level. Such games are inherently

difficult and require players to continuously learn and exercise to achieve victory. Moreover, players have a lot of room for growth in these games. Just like a football game or other traditional sports, each team member needs to work really hard to get the final victory. Such a victory is a convincing result and an unforgettable experience, which is more meaningful than the fun of ordinary games (Gilroy, 2019). Audiences tend to like this kind of complicated experience. In addition, a high upper limit means high ornamental properties. Part of the reason why people love to watch sports games is that audiences want to see actions beyond ordinary people. So when a game provides a platform for professional players to show their strength, the game itself has a better chance to be recognized as an E-sports game.

Secondly, the game should offer an excellent viewing experience. This usually refers two things: excellent art design and built-in spectator mode. An attractive appearance is a basic element of an E-sports game. After all, no one wants to stare at a disharmonious screen for several hours of competition. But then, how to move these good-looking pictures to make it easier for the audience to understand what happened in the game is the most crucial part. Unlike traditional sports, part of E-sports competition takes place in the virtual world, which makes it trickier to watch (Gilroy, 2019). According to the types of games, game designers have devised special spectator modes. For example, *PUGB(Players Unknown Battle Ground)* is a large-scale sandbox survival game with a maximum of 80 players and a dozen teams competing on the same map. It is almost impossible to watch everyone's perspective at the same time during the game, but it is also not necessary. Bluehole Studio designed team streaming based on live streaming technology, so that the audience can switch to their favorite team perspective at any time. In contrast, in *Dota2*, there are only 2 teams and 10 characters per game, and the audience's focus point is the status of each characters. Valve added a live scoreboard which is a pop up that

streams real time game information straight to a web page. Spectators can see how much gold each character has, their level, whether they've gained their ultimate ability and their current kill/death scores (Senior, 2011). These well-designed spectator modes help the viewer understand the whole competition, whether they have played the game or not.

The third element is, the game needs to maintain a long-term dynamic balance. As mentioned earlier, video games are not only the rules of competitions, but also the platforms for E-sports. Therefore, the game must provide fair rules and a balanced competing environment, otherwise the game will quickly lose its appeal (Unikrn, 2020). On the other hand, games are different from the real world. Although uncertain factors can be added to simulate reality, it is still a program after all. The immutable game will gradually expose the shortcuts toward victory, which will soon lead the game to a dead end. Therefore, the game has to constantly update, making adjustments and providing new vitality to the game, meanwhile maintaining a new balance. "We're making a complex, competitive PvP game. You have to be a lot more careful as you make decisions." Tom Cadwell, Riot's VP of Game Design, said, "If I make a *LoL* (*League of Legends*) champion too easy or too hard, or I make a play balance decision wrong, it has dramatic impacts on the experience of everybody all the time. So we have to be a lot more careful and really think deeply about, if we do this, what are the side effects? What are the unforeseen consequences?" (Zacny, 2014). This is the difficulty of designing e-sports games, and it also explains why there are not many successful e-sports games today.

Last but not least, as the premise of the above three features, the game itself must be fun. If a game isn't fun to play, then it's not going to be enjoyable to watch and players will lose interest quickly (Ford, 2020).

2.2.3 Fans

Besides the development of science and technology, the rapid rise of E-sports is based on its large number of fans and potential fans. While hard to quantify, the total fanbase for E-sports is believed to top 500 million (Victoria, 2018). In order to get better understanding of E-sports, the fan groups of E-sports, including their characteristics, behavior, and the differences between their communities need to be explored.

2.2.3.1 Characteristics of Fans

Who are E-sports fans? Decades ago, there was stereotype that the fans of E-sports are geeks, nerds, dorks and those who are not interested in traditional "macho" activities (Tassi, 2012). Now, this view is clearly out of date. In August 2019, *Data Reportal* research estimates that nearly 1 billion unique users watch E-sports, which is over 22% of the current internet population. As can be seen, the E-sports demographic is alive and well (Sims, 2020). Among these people, there are indeed someone do not like traditional sports and are addicted to video games, but more people just treat e-sports as a form of entertainment in their lives, just like how they treat traditional sports. Even traditional sports athletes will join the ranks of e-sports. DeMarcus Cousins, who "played for the Sacramento Kings for six-plus seasons before bouncing between the New Orleans Pelicans, Kings and Golden State Warriors and being waived by the Los Angeles Lakers in February" – was recently signed by NRG to become an E-sports streamer. (Poulter, 2020). And he was not the only traditional sports athlete who has jumped into the streaming game, as many athletes have been picking up controls, mouses, and keyboards (Poulter, 2020). Miami Heat power forward Meyers Leonard has been streaming *Call of Duty: Modern Warfare* on Twitch (Poulter, 2020). "I would bet that 50% of people under the age of 30 have

played a Call of Duty game during their life," Miller said, "Even a large percentage of NBA players bring their consoles on the road with them during the season and use gaming to relax." (Poulter, 2020). Now that e-sports has gradually become a mainstream hobby, it is not so strange to be keen on playing video games or watching e-sports matches. Even more, scholars found that both E-sport spectators and traditional sport spectators appear to attend sport events based on similar intrinsic and extrinsic motives (Pizzo et al., 2018). So in nature, e-sports fans are not limited to a special group of people; they are no different from traditional sports fans.

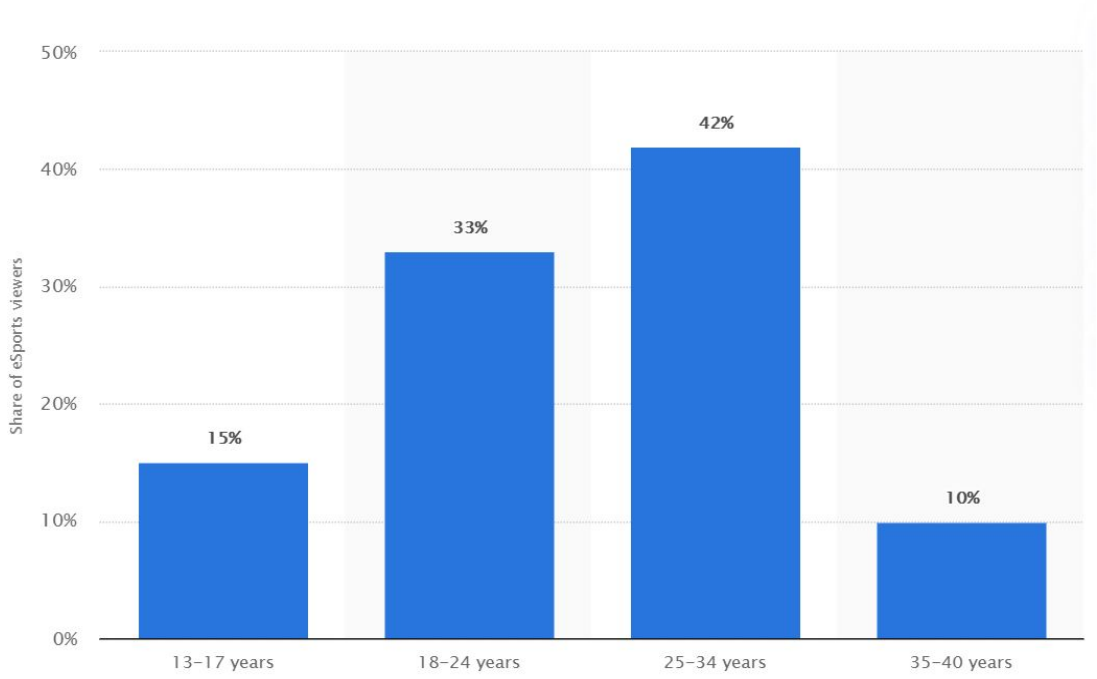


Figure 2.15 Distribution of eSports fans in the United States in 2017, by age group (statista.com, 2019)

On the other hand, from the perspective of age groups, the majority of E-sports fans are millennials and Gen Z, while older people are increasingly embracing E-sports (Sims, 2020).. This implies that E-sports, or online games in general, are no longer limited to a younger audience.

2.2.3.2 Behavior of Fans

Before the concept of E-sports was formed, there was only one type of fan base for video games: players. The reason is simple: the best way for people to learn about the content and appeal of a game is to play it for themself. However, the development of E-sports and social media has created an alternative for those potential fans, which is become a viewer. Even someone with no gaming experience can learn about the rules of the game and relevant knowledge of the tournaments through media like live streaming (Pannekeet, 2019). Although this experience is different from playing games directly, it does not prevent him or her from being a fan of E-sports. In that way, will the viewer that accesses the game through media gradually become a player? How much overlap is there between the players and the viewers?

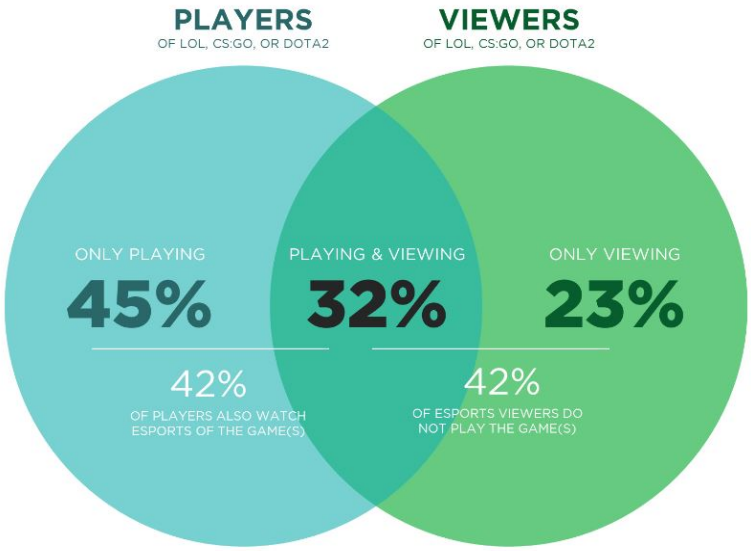


Figure 2.16 Gaming Enthusiasts: Viewing and / or Gaming (Pannekeet, 2017)

As shown in Figure 2.14, according to a survey of fan behavior in the top three global E-sports franchises (*Dota2, CS:GO, League of Legends*), 45% of fans only play the games, and 23% of fans only view E-sports from media (Pannekeet, 2017). The overlap is only 32%.

Although the viewership is not as large as the number of players, this phenomenon has proved that E-sports has become a successful spectator sport. Just like soccer fans don't always play soccer, fans contribute tickets to matches, which is an incredibly important part of the whole ecosystem. The viewership among E-sports fans is just as important as the player who will buy and play the video games. In the future, E-sports need to take care of both players and viewers at the same time.

2.2.3.3 Communities

Generally speaking, it's more likely for E-sports fans to form different communities according to the game titles they follow than behaviors. There are currently E-sports leagues and competitions for over 30 different game titles (Singer & Chi, 2019). Neither the player nor the viewer has time or interest to follow several titles. In fact, according to a survey of combined fanbase of the top three global E-sports franchises (*Dota2, CS:GO, League of Legend*), 70% of fans only watch one of these franchises, and 69% of players only focus on one game title (Pannekeet, 2017). Of course, this is overlapping parts between two titles, and one can even see fans that follow three game titles at once, but the proportion is only a small part.

It is important to know that each E-sports game has its very own fanbase. This fanbase will typically remain loyal to a specific game, genre, or format. So there's a drastic difference between different fanbases, even within the E-sports community, making it impossible to lump them all together (Understanding E-sports Communities, 2020).

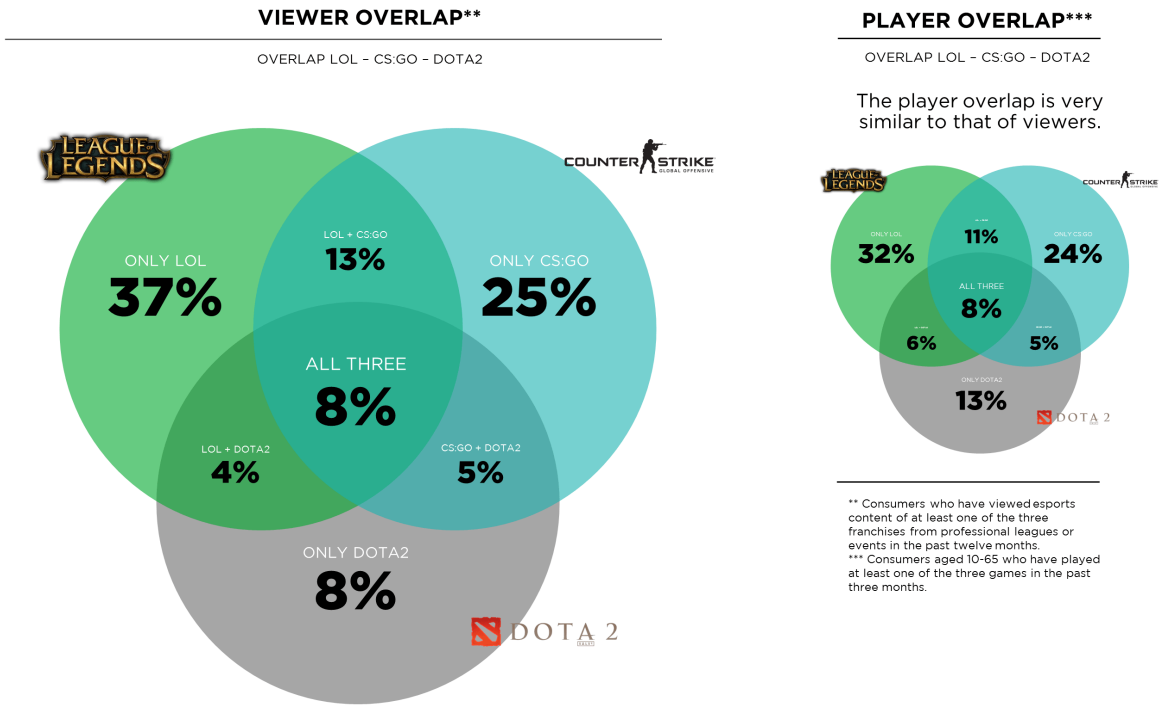


Figure 2.17 Viewers: 70% Watch Only One Franchies (Pannekeet, 2017)

2.2.4 Ecosystem of E-sports

E-sports have developed rapidly in recent years and has formed a relatively stable but still improving ecosystem (Mitch, 2020). As we can see in Figure 2.16, this kind of ecosystem is significantly different from the traditional sports ecosystem.

Since E-sports apply games as a competitive platform, the game developers and publishers naturally become the center of the entire system. They own the games, which means they can sell the franchise rights and modify the rules. On the other hand, they are also one of the main organizers of various tournaments. Game developers and publishers obviously have the greatest say in the e-sports ecosystem, but at the same time, in order to maintain the long-term development of e-sports, they must also think carefully about every step they make.

Players and teams are athletes in the entire E-sports arena. As E-sports competitions become more and more professional, it is difficult for amateur teams organized by players to survive. Professional teams need certain financial resources to maintain, which is why almost all participating teams need sponsor support (Although the prize money belongs to a few people, the rest of the teams can still rely on sponsors to maintain). On the other hand, although the career life is short, players have other ways out. Players can evolve their content creation skills to become commentators, analysts or even community developers for both the publishers and third-party tournament organizers (An Introduction to the E-sports Ecosystem, 2020).

As for brands and investors, they are the biggest source of income for the entire e-sports industry. E-sports revenue topped $696 million in 2017, and 38% came from sponsorship with an impressive $266 million (E-sports by the Numbers, 2020). This is not surprising as the report clearly indicates that the E-sports audience is far more likely to spend big money on games, digital media subscriptions, hardware and peripherals, making it impossible for gaming hardware manufacturers to stay away (The Evolution of the E-sports Ecosystem, 2020).

In the entire E-sports ecosystem, cybercafés are in a very delicate position. For E-sports teams, cybercafés are a training ground for newcomers. For local events, cybercafés are the most suitable venue. For sponsors, they are the best experience platform. For game publishers, they are also the best offline promotional point. Due to cultural differences, Internet cafes in Europe and the United States did not rise rapidly due to E-sports, while in some Asian countries, cybercafés have integrated into the local E-sports ecosystem and become part of the E-sports culture.

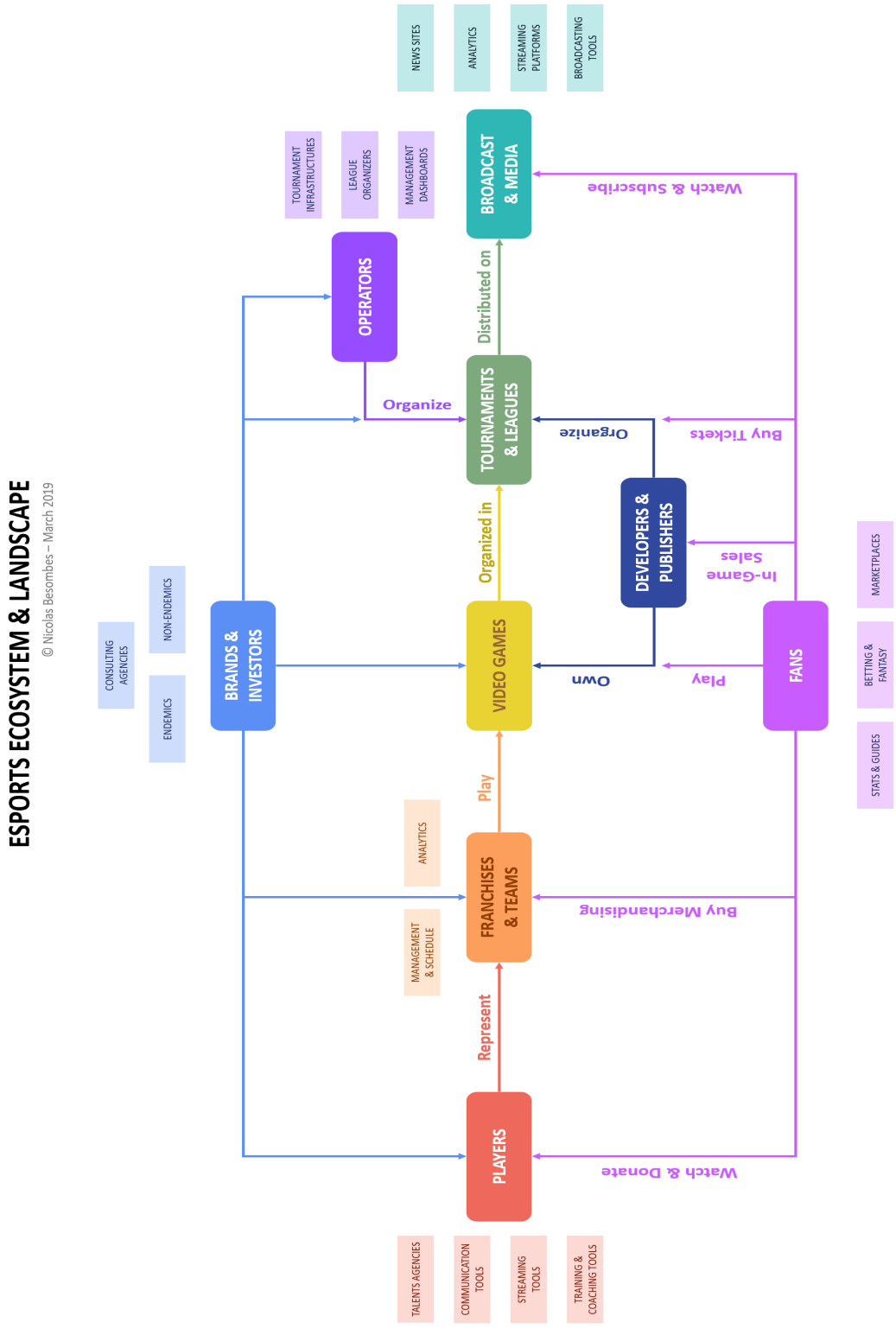


Figure 2.18 E-sports Ecosystem & Landscape (Besombes, 2019)

2.3 Themed Entertainment Design

Themed entertainment design is an art of creating unforgettable experiences. It combines multiple disciplines such as theming, experience design, space design, interior design, etc., to narrate a unified thought or style from multiple angles, thus bringing visitors a more fascinating entertainment experience. Theme parks and rides, special events, live shows, exhibits, museums and themed restaurants are just a few examples. Themed entertainment design can also be applied to cybercafé design, which mainly involves three disciplines: theming, physical experience design, interior design.

2.3.1 Theming

This part will introduce the core design ideas and design methods of this article: theming. The cybercafé and E-sports mentioned in the previous article are the specific locations and directions of the theme respectively. This section will specifically introduce what theming is, why a cybercafé should be themed, and how to achieve it.

2.3.1.1 Definition of Theming

What is theming? Theming refers to "the use of an overarching theme...to create a holistic and integrated spatial organization of a consumer venue." (Lukas, 2007, p.01). A theme can be understood as "a unifying idea that is a recurrent element." (Webster's dictionary, 1913). So theming is the process of designing and constructing an object or space so that a unified idea can be expressed by some recurring elements, characteristics, and symbols.

In this thesis, theming is applied to a specific indoor space in order to create a memorable and meaningful experience for individuals or groups that visit or use the space. A unified idea for

a space or environment can be expressed through the use of architecture, decor, signage, music and sound design, costuming, integrated technology, special effects, and other techniques (Lukas, 2007).

2.3.1.2 Why Theming?

Theming usually involves the modification and integration of various aspects of things or spaces. Such a process is complicated and expensive. Moreover, unthemed yet created spaces serve functionalistic purposes (Goss, 1993). However, after spaces are themed, either as part of their creation or in the context of a redevelopment of a given place, the intent behind various themed spaces can appear uncertain (Borghini et al, 2009). Nevertheless, theming has never faded out of people's vision. It even has become more popular and becomes a professionalized art and practice (Åstrøm, 2020). Why is theming needed? From the perspective of business, individual and society, this part will discuss three reasons in detail.

Branding

Most retailer brands are ‘themed’ nowadays to distinguish themselves from their competition (Mackey, 2015). The theme is a unified central idea that is one level higher than the basic functions of things and spaces (Lukas, 2007). When similar products cannot be distinguished by customers through functional differences, theming will offer the brand a unique identity. This uniqueness is often reflected in the overall environmental differences. Themed environments can be a way of embodying a brand by adding sensory experiences, tether it to a physical location, and envelop visitors in a brand atmosphere through which the physical product

becomes the memorabilia of the experience rather than the goal (Åstrøm, 2020). Such thematic branding strategy is very successful.

On the other hand, theming will also weaken the uniqueness of its identity when a brand develops to a certain extent (Åstrøm, 2020). For example, Starbucks, with more than 24,000 stores over 70 countries makes either the logo or interior style become unremarkable. Brands can only strive to find new uniqueness within the framework of traditional themes and provide new experience to entertain their guests. For example, Disneyland in Paris incorporates the local French architectural style, and KFC stores in China launch Chinese flavor hamburgers. In any case, new brands need to apply the uniqueness brought by theming to stand out from similar brands before they have the opportunity to consider the next challenge.

Appealing

Themed spaces tend to be more attractive, because “the primary purpose of these spaces is not to fulfill human needs but to play on human desires.” (Lukas, 2007, p. 03). As David Lowenthal has said, "we crave imagined locales more than we do actual ones." (Young & Riley, 2002, p. 18). Themed spaces are something created from people’s imagination that can’t be found in mundane landscapes; rather, “they lie in wishful and willful geographies of the mind.” (Young & Riley, 2002, p. 12). In order to bring the imaginary scene to reality, “spatial theming has consistently tied the realm of the physical with the immaterial, the symbol and the cognitive.” (Lukas, 2007, p. 14). To put it on a simple level, theming is a form of simulation. Simulation operates through projection-to another place, time, world, or culture. In themed spaces the total fantasy of simulation is created through the overall ambiance that consists of architecture, decoration, technology, and human performance (Lukas, 2007).

Once the customers are in the themed space, they will be attracted by this ubiquitous ambiance. By substituting into their imagination, people will gradually step into the fantasy space through the physical one, and form a bond between this themed world and their mental world (Lukas, 2007). When the experience comes to an end, the customer will transfer the bond into physical elements, that is, the sensory stimuli which constitute the overall atmosphere, such as the gorgeous Disney Cinderella castle. When a concrete thing can evoke people's memory of the beautiful fantasy, the strong attraction is established inside the theme.

Change the image

Theming can not only change people's views on the original function of the space (Borghini et al, 2009), but also affect social impression of all people related to the themed space. As mentioned above, theming is a form of simulation that created by overall ambiance which consist of various sensory stimuli. Such sensory stimulation not only affects the visitors in the themed space, but also affects the bystanders' perception of the themed space. Extending this thinking among people, the same phenomenon of the senses can influence social class. David Howes has written that “the dominant group in society will be linked to esteemed senses and sensations while subordinate groups will be associated with less-valued or denigrated senses.” (2005, p. 10). Conversely, when people focus on the sensory level provided by a place, it is easy to associate the social class of the place. Las Vegas is a typical example. The grand architecture of these casinos might lead the public to believe that those who gamble here are either rich or noble. The same principle also applies to cybercafés. Reasonable theming can eliminate society's prejudice against video games and players, which is one of the original intentions of this article.

2.3.1.3 Principles of Theming

Theming is a relatively comprehensive and complex practical subject which is difficult to accurately describe. “Theming often acts on the body in ways that are imperceptible but definitely felt, similar to what Bronislaw Malinowski noted as imponderabilia.” (Lukas, 2007, p. 80). Therefore, theming is easier to start from the macro design principles. The following are a few theming principles that designers have developed through practice.

Authenticity

One of the most telling aspects of theming is its seeming naturalness; in other words, it is authentic (Lukas, 2007). However, stories told by many themed spaces have nothing to do with realism, yet customers seem to be willing to pay for these illusions. In fact, both fantasy-type themes (Disneyland, for example) and real-world themes (the Venetian hotel, for example) are very appealing to consumers, because “the emphasis in theming is representation, or how something is said, not what is said.” (Lukas, 2007, p. 81). Therefore, the authenticity mentioned before is not for the theme itself, but the manifestation of theming.

How to make a themed space look more authentic? Scott A. Lukas (2007) mentioned that “through the coalescing of symbols, language, and experience offered in myth, visitors to themed spaces will often accept the constructed realities of such spaces as authentic, even original.” (p. 8). However, this does not mean the authenticity of theming can be simply illustrated by piling up details. Authenticity, as a semiotic-sensory property, "is created when signs no longer draw attention to themselves" (Lukas, 2007, p. 07). This implies that no unexpected elements should appear in the theme spaces, that is, every element of the designed space should relate back to the big idea of the space, and each element should relate in a consistent manner to the other elements

(Lukas, 2012). When the existence of various elements in the space reaches a balanced state, the entire themed space will continuously release reasonable sensory stimulation just like the real world. “As the patron picks up on sensory cues, he or she is taken with the performative dimensions of the theme and the sense that things seem real or authentic because they are happening.” (Lukas, 2007, p. 81).

Multi-senses

“Theming has sometimes been understood only as a static phenomenon-as a combination of architecture, interior design, signage, and associated forms of performance that relate to the common theme.” (Lukas, 2007, p. 75). This is just the most noticeable aspect of theming. Although sight has been called the most expressive of the senses, the creation of authentic themed spaces is never left to one sense. “The senses, in a combinatory manner, establish the reality of the unreal conceptions and values that are particular themes.” (Lukas, 2007, p. 82).

In fact, as the simulation object of the theme space, space or place in reality is also composed of a variety of senses. As Stephen Mills (1998) once said, "A sense of place is perhaps, the ultimate synthesis, the bringing together of all dimensions of environment, perception and experience into a vast whole." (p. 1). Combined with the sense of authentic mentioned in the previous part, the themed space will try to restore this multi-dimensional sensory experience as much as possible in the process of imitating, so that customers will have a feeling of "I am there."

Often, themed spaces carry a narrative throughout the space to instill a sense of connection between the customer and the theme. Visual cues, like signs, pathways, lighting; olfactory ones, such as introduced scents or the smells of a buffet; touch cues, like the nuanced

features of a wall or a combination of geometric angles; auditory effects, including machine sounds, artificial sounds of nature; and taste cues, with numerous emphases on eating, are used as a sensory order of immersion (Taussig, 1992).

Polysemy

In the perception of many tourists, themed space often has a stereotype, that is, the content expressed by a theme is single and limited (Lukas, 2012). On the contrary, as projections to the mind, themed spaces play on the multiple memes or units of information that are present in any patron's cognition. Which means themed space is not based on one principle or one stable meaning, but on multiple styles and originals (Lukas, 2007). As Gottdiener (2001) has written, "themed milieus are designed to allow polysemy."(p. 127). On the other hand, symbols, as one of the basic elements constituting the theme space, also have polysemy. Victor Turner (1986), symbolic anthropologist, mentioned the many properties common to symbols, including the feature of multi-referentiality-the attachment by people of multiple meanings to symbols. To be effective, theming must be structured along diverse conceptual and interpretive lines (Lukas, 2007). “Theming is at its height when it achieves a consistent, varied, and overarching form.” (Lukas, 2007, p. 07).

2.3.1.4 Approaches of Space Theming

This section will introduce three design tools for space theming. They have different dimensions and play unique roles in different stages of theming.

2.3.1.4. 1 Hierarchy of Need for Theme Space Design

In 1943, psychologist Abraham Maslow published an influential paper that elaborated the "Hierarchy of Needs" of human beings. As shown in Table 2.1, the bottom of the pyramid depicts the most basic needs of humans, while the most complex sits on the top. Maslow believed that the basic needs had to be met before the top ones could (Lukas, 2012).

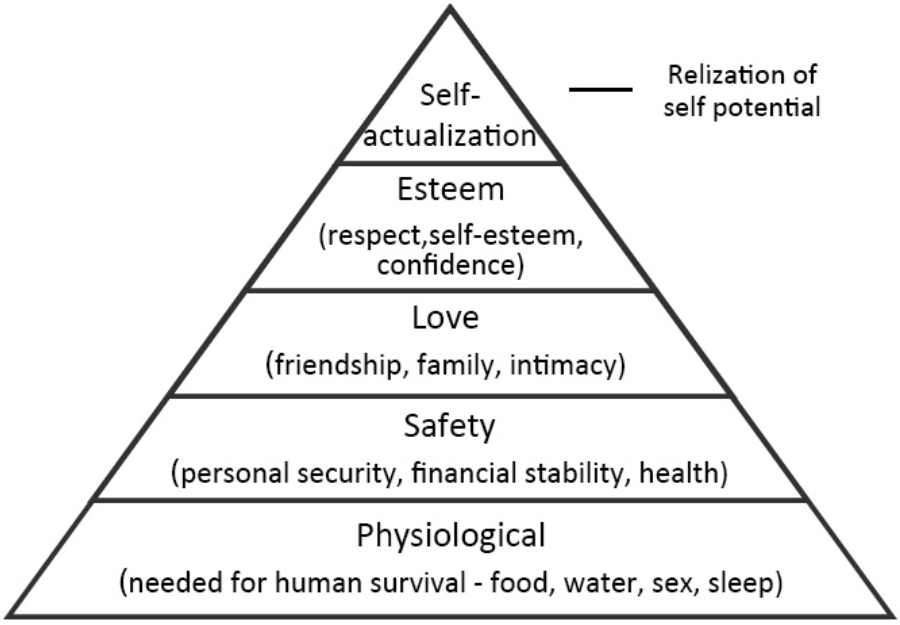


Table 2.1 the Hierarchy of Need (Maslow) (Lukas, 2012, p. 82)

Designers have also adapted the Hierarchy of Needs into the context of design projects. One version is given by Scott A. Lukas (2012) with Table 2.2. “In their version, designers can benefit by first looking at how function must be met, followed by an analysis of the reliabilty and usability of the design, then the proficiency of it and, finally, the creativity of it and how people use it in innovative ways.” (p. 82).

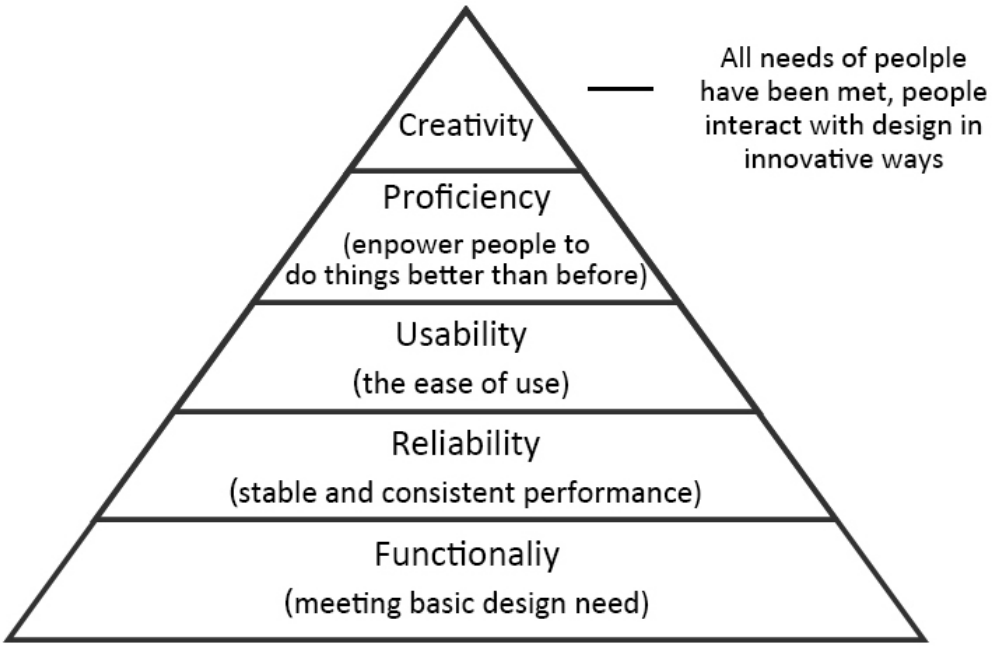


Table 2.2 the Hierarchy of Need (Adapt for Design) (Lukas, 2012, p. 82)

On this basis, Lukas provided an additional version of hierarchy that is adapted to themed and consumer space design, which is shown in Table 2.3. In this version, Lukas (2012) put Meaning at the bottom of the pyramid, with the consideration that “the idea behind the space is where all good spatial design projects must begin” (p. 82). The second level is the Reliability of architectural space, which is the basis of function realization. Then he put Function on the third level, because Lukas believes that “function only works if sound meaning and relatedness is behind it” (p. 82). Next is Aesthetics, which is on the fourth level. At last, there is Transcendence. Lukas described this level as "What a place can be, it must be.", which is an adaption of Maslow’s "What a man can be, he must be." (Lukas, 2012, p.82). When a space reaches the top level, it becomes part of the culture.

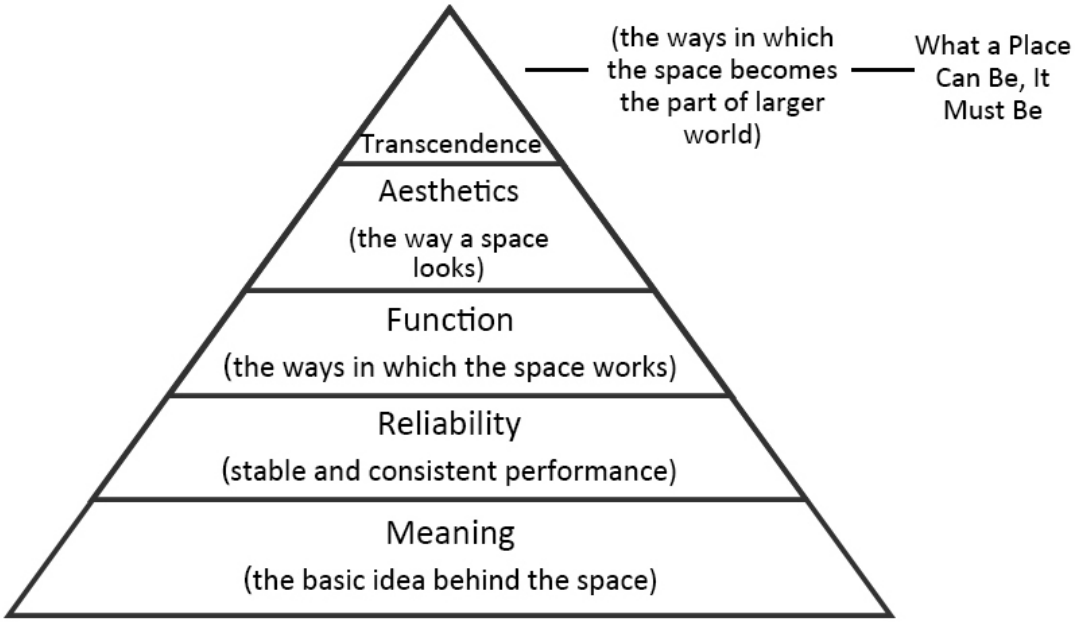


Table 2.3 the Hierarchy of Need (Adapt for Themed and Consumer Space Design) (Lukas, 2012, p. 82)

2.3.1.4. 2 Basis of a World

The first step in establishing a theme should be to set the world view. As mentioned above, the authenticity of a theme space has nothing to do with the authenticity of its backstory, but relies on the consistency of the spatial elements. Placing a pixel hoe from *Minecraft* into a medieval castle with a lot of detail may confuse the guests. To avoid this, designers should first set the basis of the world.

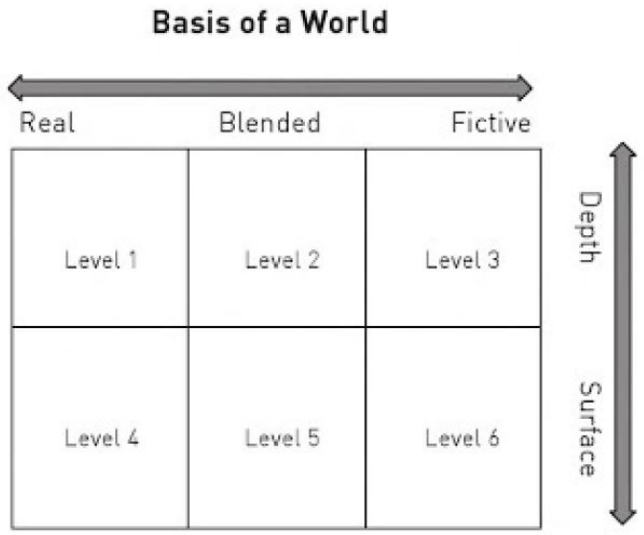


Figure 2.19 Basis of World (Lukas, 2012, p. 46)

Type of World	Level (Chart 2-1)	Basis	Examples	Common Uses
Real (Depth)	Level 1	Based on the real world, attempts to create in detail	The Venetian (Las Vegas)	Historical museums, casinos, some theme parks
Real (Surface)	Level 4	Based on the real world, focuses on less detail and more surface	Europa-Park (Rust, Germany)	Theme parks, themed restaurants
Fictive (Depth)	Level 3	Based on a fictive world, attempts to create in detail	The Wizarding World of Harry Potter	Theme parks, themed restaurants, lifestyle stores
Fictive (Surface)	Level 6	Based on a fictive world, focuses on less detail and more surface	World Joyland (Changzhou, China)	Theme parks, some lifestyle stores
Blended (Depth)	Level 2	A blend of real and fictive world, attempts to create in detail	Celebrity Solstice	Cruise ships, some casinos, branded shops, and restaurants
Blended (Surface)	Level 5	A blend of real and fictive world, focuses on less detail and more surface	(Some) Tiki bars	Some shopping malls, lifestyle stores

Table 2.4 Type of Worlds (Lukas, 2012, p. 47)

Lukas (2012) proposes a world-basis classification of theme spaces, as shown in Figure 2.18. In this chart, he divides the world outlook into three categories: Real, Blended (somewhere between real and Fictive), and the Fictive. On the other hand, in terms of the details degree of shaping the theme world, Lukas divides it into Depth and Surface. Under this combination, there are six different styles of theme worlds. Table 2.4 illustrates this in detail.

2.3.1.4. 3 Adapting Languages

Language	Concept 1	Design Application	Concept 2	Design Application
Film	*Mise-en-scène*	Total Design	Edit	Spatial Transition
Video Games	Simulation	Re-created Experience	Action & Goals	Design Cues
2- and 3-D Art	Collage	Combined Elements	Medium	Appropriate Spatial Design
Culinary Arts	Flavor Combinations	Composition	*Amuse-bouche*	Dominance
Performance Art	Happenings	Spatial Excitement	"Everyone is an artist."	Guest Involvement
Dance	Choreography	Rhythm	Connection	Part–Part Relationships
Theater	Set Design	Unity	Staging & Blocking	Design Emphasis
Music	Improvisation	Improvisation	Harmony	Elements "Talk" to One Another
Fiction & Poetry	Setting	Ambiance	Foreshadowing	Anticipation

Table 2.5 Adapting Design Languages (Lukas, 2012, p. 39)

As can be seen in Table 2.5, themed space design is driven by meaning. In order to generate forms and functions from meaning, designers need to adapt theme languages into design languages. Themes are diverse, they came from different disciplines that hold unique perspectives and languages. This diversity is not only the charm of the theme space, but also the difficulty of theming, for there is little chance to achieve complete translation between different disciplines. Designers need to play the ultimate association ability to find common points between the two fields or even multiple fields. In Table 2.6, Lukas translates terms from different fields (such as film, video games) into design application terms. Of course, this is only an example. Different designers may have different translated versions. As Lukas said, "We all come from different backgrounds but we can learn the power of using the language of various fields to create stunning and interesting spatial designs" (2007, p.39)

2.3.1.4. 4 Design Story & Space Design

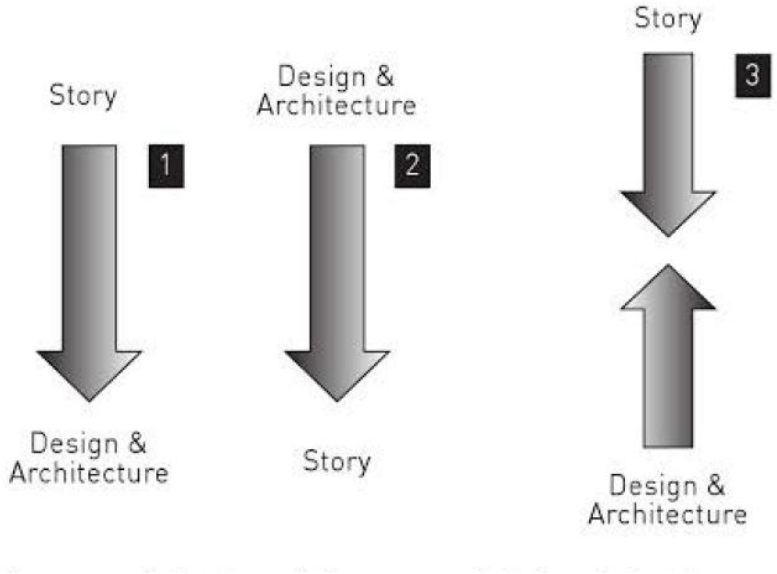


Figure 2.20 Story and Design (Lukas, 2012)

In the process of space theming, design story has always been an important topic. “A story is a key aspect of the immersive world. It's what gives the space context and meaning and it gives the guest a reason to be in that space.” (Lukas, 2012. P.52). Design story is told in three-dimensional space, using the form of architecture, design and material culture (Lukas, 2012). Besides, it may also include actors, performances and technical forms. “Design stories create a world where people can connect, interact, enjoy and explore.” (Lukas, 2012, p.52).

As can be seen in Figure 2.20, there are three possible scenarios in which story and space design interact. In scenario 1, story is the initial element used to drive spatial and architecture design. On the contrary, the architecture and space drive the story in scenario 2. “A client might approach the designer and ask for a project that will be built around an iconic architectural structure or feature.” (Lukas, 2012, p. 52). The core of the whole project is the existing space features or architectural features, and the designers need to use a design story to package it to achieve a better display effect. In the last scenario, space and story have the same impact on each

other. Story is written for a place, which creates inspiration in architecture and space design; design further inspires the story and changes it to fit the design.

2.3.1.4. 5 Microtheming

"Microtheming refers to the specific and nuanced ways in which theming is developed on a minute level" (Lukas, 2007, p. 76). It is a method that usually used to portray the theme world degree of depth. If used successfully, it can have a strong and lasting impact on guests. In the book *The Immersive World Handbook*, Lukas (2012) provides four ideas when using microtheming (2012).

First, the designer must think beyond functional sense. According to people's common sense of the real world, the themed space often adds many detailed items that do not have practical functions but add a sense of authenticity.

Second, the designer should think from the perspective of the guest. When a guest walks into the themed space, what does he or she expect to see? "Lived personal space is alive because it bears the imprints of the people who make it their own. Consumer space should be no different" (Lukas, 2012, p.118).

Third, designers should "Consider microtheming and detailed design as an opportunity to introduce mystery and magic into the space" (Lukas, 2012, p. 118).

Finally, using subtle details and symbols as the starting point of the story expands the space. The more subtle the feature, the more curiosity it can inspire in people regarding to the story. When they finally understand the whole story, these subtle features will become inner marks and have a profound impact on the guest.

2.3.2 Sensory Design of Space

In the previous section, Multi-senses has been mentioned as one of the principles of space theming. In fact, this idea comes from a separate design category, which is sensory design of space. This section will introduce it from the perspective of theory and design tools

2.3.2.1 Theory

Sensory design of space is a relatively new design concept in the field of architectural design, which is different from architectural typology, modernism and functionalism (Malnar & Vodvarka, 2004). It mainly emphasizes the role of sensory functions (multi-senses) in shaping space into place (Malnar & Vodvarka, 2004).

2.3.2.1.1 Space to Place

Walter (1988). points out that "Modern 'space' is universal and abstract, whereas a 'place' is concrete and particular. People do not experience abstract space; they experience places." (p.142). It can be understood as: space is material and relatively abstract before being experienced, while human "experience" can transform the material space into a projection of the spiritual world, that is, "place". Just as Bachelard states, "A house that has been experienced is not an inert box. Inhabited space transcends geometrical space." (cited in Jung & Laszlo, 1993, p.287)

The "experience" mentioned above can be regarded as a process, which can be divided into three stages: Sensory Modes, Memory, Mental Image (Malnar & Vodvarka, 2004). First of all, people will have an immediate physical response to the stimulations in an environment (space). At this time, the human body will enable multi-sensory abilities to receive information

comprehensively (Malnar & Vodvarka, 2004). From the perspective of Gestalt Psychology, Kohler (1947) argues that "instead of reacting to local stimuli by local and mutually independent events, the organism responds to the pattern of stimuli to which it is exposed; and that this is a unitary process, a functional whole, which gives, in experience, a sensory scene rather than a mosaic of local sensations" (p.103). However, not all sensory information will enter human consciousness. As *Sensory Design* points out, the full comprehension of place relies not just on "the flow of data received through the sense organs", but also on "the data after it is processed and interpreted" (Malnar & Vodvarka, 2004, p.21). The processed data here refers to "memory", which is the second stage of experience. Our memory is dynamic, and "often seeming to form and reform experience without our conscious permission." (Franck & Schneekloth, 1994, p.233). When new data (obtained through senses) enters the awareness, it will be immediately combined with memory. Some of the information is incorporated into concepts that already exist in the memory, thus being reinforced and formed into new memories over time, while other sensory information is weakened or even filtered out (Malnar & Vodvarka, 2004). Finally, the memory-sifted information forms a 'mental image'. Golledge and Stimson (1996) conclude that the final product of perception and cognition is a mental representation of the objective environment. Also, Frances Downing noted "Such an image presents to the mind more than just an initial remembered percept; it contains multiple versions of involvement that reach into the emotional and intellectual realms" (cited in Franck & Schneekloth, 1994, p.235). To some extent, this point of view explains what Bachelard refers as "transcends geometrical space". So far, we can say that the process of a 'space' becoming a 'place' is actually the process of mental images obtained from sensory data after memory processing.

2.3.2.1.2 Preference Features of Space

As we know from the above, places in people's memory are all made up of space. But conversely, not all spaces can be places because of the screening of information by human brain. (Malnar & Vodvarka, 2004). Thus, a series of questions arise: what kind of space can become a place? What kind of space do people prefer? Do they have anything in common? Rachel Kaplan and Stephen Kaplan (1989) put forward a psychological conclusion: People's preference for space involves two basic informational needs, ‘Understanding’ and ‘Exploration’. The combination of these two needs result in four different spatial characteristics: Complexity, Coherence, Legibility, and Mystery.

The authors of *Sensory Design* interpret these four characteristics: Complexity refers to the diversity of elements in space; Coherence means sense of order, and its existence makes complexity embodied; Legibility refers to people's understanding of the role of space, and it has a lot to do with whether people can form clear mental images; Mystery represents the information hidden in the space. It is a kind of hint that attracts people to discover those spatial secrets (Malnar & Vodvarka, 2004).

In addition to the four spatial features proposed by the Kaplans, there is also a proper term in Neo rationalism to express the sense of place: genius loci (Malnar & Vodvarka, 2004). The concept of genius loci which means the ‘spirit of place’ originated from ancient Rome (Asdiana & Fachruddin, 2020). In the context of modern architectural theory, genius loci has profound implications for place-making (Norberg-Schulz, 1979). Walter (1988) states that the genius loci represented the independent reality of a place, its generative energy. Malcolm Quantrill (1986) believes that genius loci is a complex of sensory details in spatial environment,

which is able to compress time into memorable spatial images, "generating an architecture of spatial consciousness".

2.3.2.1.3 Perception & Culture

From the above we know that people's experience of a space begins with their sensory modes. However, sensory modes are different from person to person, and they are greatly influenced by culture (Malnar & Vodvarka, 2004). Constance Classen states: "As our habits of eating, dress, language, and so on are determined by our culture, so are our habits of perception, and as the former express cultural codes, so do the latter." (cited in Howes, 1991, p.59). Walter J. Ong points out that "cultures vary greatly in their exploitation of the various senses and in the way in which they relate their conceptual apparatus to the various senses" (cited in Howes, 1991, p.26). Monice Malnar and Frank Vodvarka (2004) conclude that: “The clear implication is that not only is sensory response critical to any cultural outcome (like design), but the specific societal context (the sensory ratio of that culture) will need to be addressed if it is to resonate with its users.” (p.55).

Based on the research, the authors of *Sensory Design* postulate a formula which they considered as an operational device. The formula is PS/CM=CP (Malnar & Vodvarka, 2004), as shown in Figure 2.21.

$$\frac{\text{Perceptual systems}}{\text{Cultural modifiers}} = \text{Contextual percept}$$

Figure 2.21 Contextual Percept Diagram (Malnar & Vodvarka, 2004, p.56)

In this formula, PS (Perceptual Systems) means "Sensation mediated by learning structures", and CM (Cultural Modifiers) represents "the enviro-cultural factors that influence what, when, whence, and how we look" (Malnar & Vodvarka, 2004, p.56). What needs to be addressed here is that the authors "regard perception as an integrated system (sensation plus interpretation)." (Malnar & Vodvarka, 2004, p.56). Thus, CP(Contextual Percept) can be understood as sensation and interpretation under specific conditions.

2.3.2.1.4 Integrated Place Schematic

By synthesizing different but interrelated viewpoints, the authors of *Sensory Design* create an Integrated Place Schematic (Malnar & Vodvarka, 2004) as shown in Figure 2.22

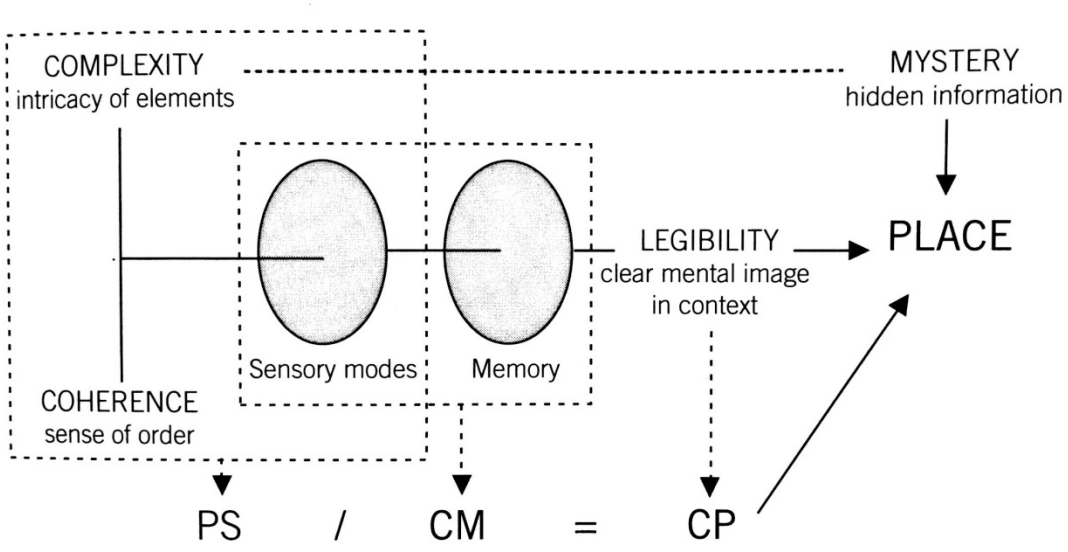


Figure 2.22 Integrated Place Schematic (Malnar & Vodvarka, 2004, p.237)

In this construct, the theory that "three stages of human experience space" (which is on the middle axis) is regarded as the theoretical core. The four spatial features of the Kaplans are put in different positions in logical order. Complexity and Coherence are interrelated and the most intuitive features, which can be quickly recognized by the sensory system, and so are

connected to Sensory Modes (Malnar & Vodvarka, 2004). Legibility is reflected in the processed perceptual data, so it is combined with Mental Image. Mystery, as the extension of Complexity and the opposite of Legibility, is directly linked to the final result, Place. On the other hand, Perception and Cultural design formula, as the influencing factors of alienation perception, are placed at the bottom of the formula. PS (Perceptual Systems) has impact on Complexity, Coherence, and Sensory Modes; CM (Cultural Modifiers) affects Sensory Modes and Memory; CP (Contextual Percept) affects the Mental Image of space and eventually becomes part of the Place.

2.3.2.2 Design Tool

Integrated Place Schematic shows that Sensory Modes is the starting point of whole theory, which means that designers need to control and allocate the multi-sensory stimuli involved in the space at the beginning of design (Malnar & Vodvarka, 2004). According to the Integrated Place Schematic, the authors of *Sensory Design* create "a matrix of common aspects of sensory response as it relates to space" (Malnar & Vodvarka, 2004, p.244) as shown below.

	LEGIBILITY		
Sense	Complexity	Coherence	Contextual
Visual	Figure (detail)	Ground (context)	Icon
Sound	Signal (note)	Keynote (ground)	Soundmark
Odor	Immediate (context)	Ambient	Episodic (memory)
Haptic ①	Gradient (surface)	Context (type)	Attribute
Haptic ②	Tension (muscular)	Resistance (mass)	Task
Haptic ③	Compression	Expansion	Expected
Haptic ④	Degree	Range	Comfort
Orientation	Self (body)	Space (surround)	Activity

Table 2.6 Legibility Schematic (Malnar & Vodvarka, 2004, p.246)

The Legibility Schematic divides each sensory stimulus (Haptic 1-4 are touch, kinesthesia, plasticity, temperature/humidity awareness) provided by the spatial environment into three different directions: Complexity, Coherence and Contextual.

Complexity and Coherence represent the two corresponding features of each sensory stimulus, detail and context. “The complexity of the individual part is only understood against the coherence of the larger paradigm.” (Malnar & Vodvarka, 2004, p.246). Contextual means a place-specific identity, and it is neither Complexity nor Coherence. “They are the specialized things, sounds, odors, and so on, that are so integral to the character of a place that we cease noting them in figure-ground terms.” (Malnar & Vodvarka, 2004, p.246). And finally “the tripartite relationship, which forms a legibility gauge, applies to all the senses, suggesting design suitability” (Malnar & Vodvarka, 2004, p.246).

Based on the Legibility Schematic, Malnar and Vodvarka devised a design tool: Sensory Slider. As can be seen in Figure 2.23, the schematic is composed of eight bars, each one describing the extent of Complexity / Coherence tendency for a particular sense. A symbol (■) would be placed into the slide bar to show the feature of each sensory stimulation in space. To the left means that the intensity of sensory stimulation tends to be overload, and to the right means low intensity. On the other hand, a different symbol (●) represents the place-specific identity (Contextual) described earlier, and the explanation keyword would be shown on the right of each sense’s slide bar.

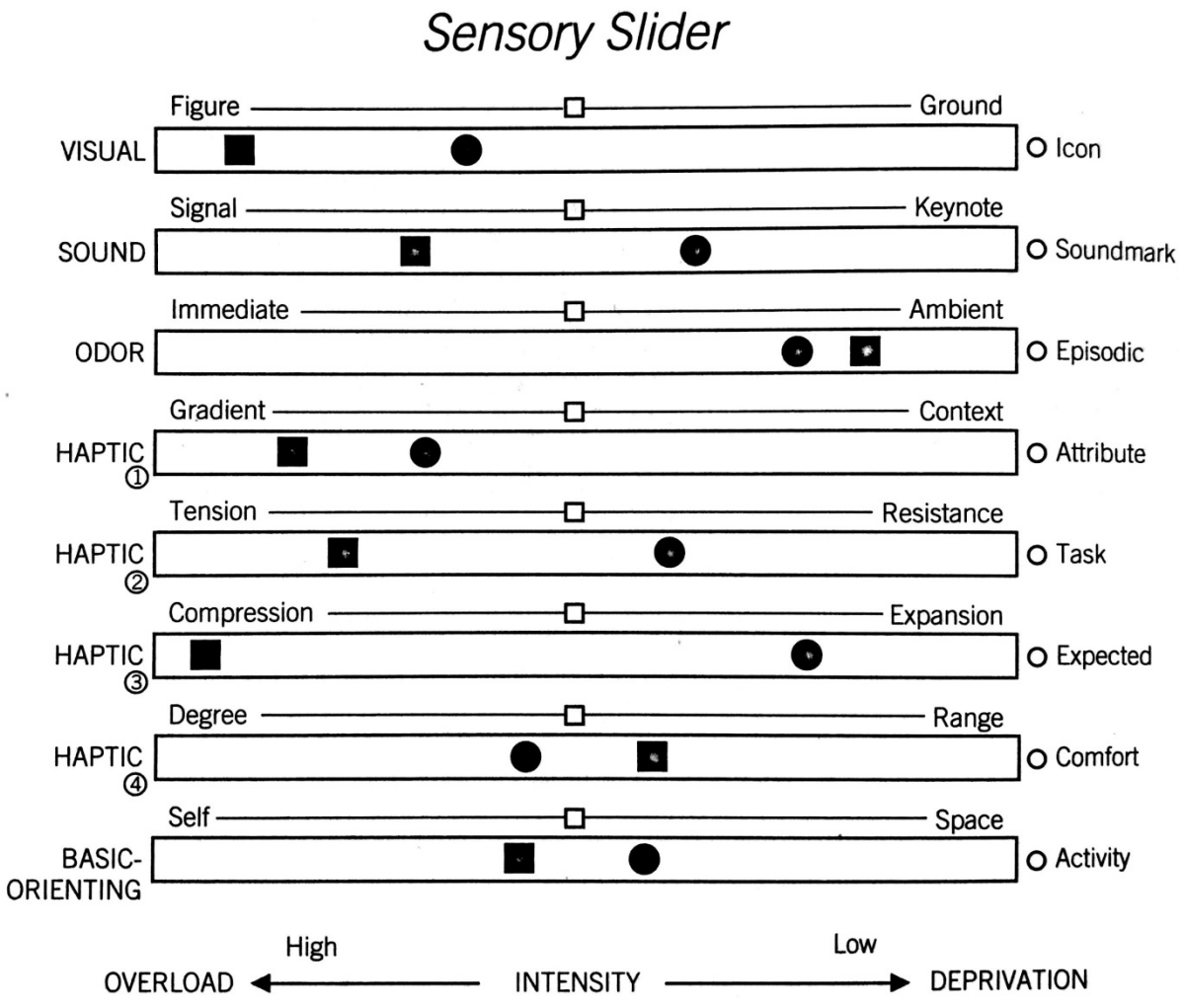


Figure 2.23 Sensory Slider (Malnar & Vodvarka, 2004, p.248)

2.3.3 Interior Design

This part will introduce interior design, which is also the last step of themed entertainment space design. After determining the theme and the meaning behind the space, the interior design will give the actual function of the themed space and implement the theme idea in detail.

2.3.3.1 Elements

Line

The line is the very basic interior design element. Lines can be made up of the edge of the table, the shape of the door frame, or decorative lines on the wall. In a space, lines can guide the visual order. “Vertical lines create the impression of height and similarly horizontal lines create the impression of more length.” (Rao, 2006, p.3). In a limited space, the combination of lines is often regular. Too many lines of different nature in a space may create an impression of visual chaos (Rao, 2006).

Form

In interior design, form is also referred as shape, area or mass (Rao, 2006). Form is the carrier of material, color, and pattern, and also the cutting knives of lines. Form is the foundation of a space. The existence of form will also affect the visual order of the space.

Texture

Texture is the surface characteristics of any object (Rao, 2006). There are many kinds of textures, each with a unique touch. But visually, textures can be roughly divided into smooth and rough. “A rough texture absorbs light and smooth surface reflects light.” (Rao, 2006, p. 04). In space, designers can use texture characteristics to change visual features. For example, small rooms are more suitable for using smooth textures.

Color

People react emotionally to different colors in different ways (Rao, 2006). Generally speaking, cool colors will make the whole space more relaxing and smoothing, while warm colors show more stimulation. The collocation of color in the space needs to follow certain rules, and designers can apply different color schemes according to the purposes of use.

Pattern

"Pattern is a kind of surface enrichment." (Rao, 2006, p. 04). Patterns can exist in two-dimensional objects, such as wallpaper. It can also appear in three-dimensional form in space, such as embossing. Pattern can show scenes or elements outside the space, which is a good way to add meaning to the whole space.

Light

Light is an art and utilitarian element, which is closely related to color and texture (Rao, 2006). In addition to normal lighting, lighting can also create dramatic effects in the room. "Artistic placement of lights can bring out important areas and keep subordinate areas in shadow." (Rao, 2006, p. 04).

2.3.3.2 Method

Rao(2006) mentioned a scientific method of interior design in the book *Interior Design (Principles & Practice)*. As can be seen in Figure 2.19, the method can be divided into four stages and thirteen steps (Rao, 2006). Going through these four stages may help both designer and client fully understand its practicality.

Stage 1

The real purpose of an interior space should be clearly defined at the outset. This basic purpose should be at the core of interior design, and all relevant actions should revolve around it. Once the purpose of an interior is determined, then the activity in the space should be clearly discussed with the client (Rao, 2006). Objects in the space, such as furniture or decorations, will be set according to the details of the activity. “Based on the above discussions with the client, an Interior Designer should prepare an 'Interior Activity Diagram' showing the flow and organization of space into various units.” (Rao, 2006, p. 112).

Stage 2

According to the details of the first stage, the interior designer should start the interior design process. In this step, interior designers can give full play to their own thinking and creativity with no limitation. Next, the designer puts his ideas into a concept plan. This part is presented for the client, preferably with graphics and text. After thorough discussions with the client, designer should meet the necessary changes to accommodate the client’s views, and then make the final drawings (Rao, 2006).

Stage 3

Once the project has started, the interior designer should make regular inspections to monitor and ensure that the project is carried out as planned. During the inspection, the designer and the customer can improve the original plan according to the problems found. As important as the project closure, designers need to follow the plan to ensure that every design is completed.

Stage 4

The fourth stage is mainly evaluation and feedback. After the interior design is completed and put into use, a preliminary investigation should be conducted at least one year later to understand whether the basic purpose of interior design has been achieved. Designer should conduct a scientific analysis of the survey results and record the results for future use.

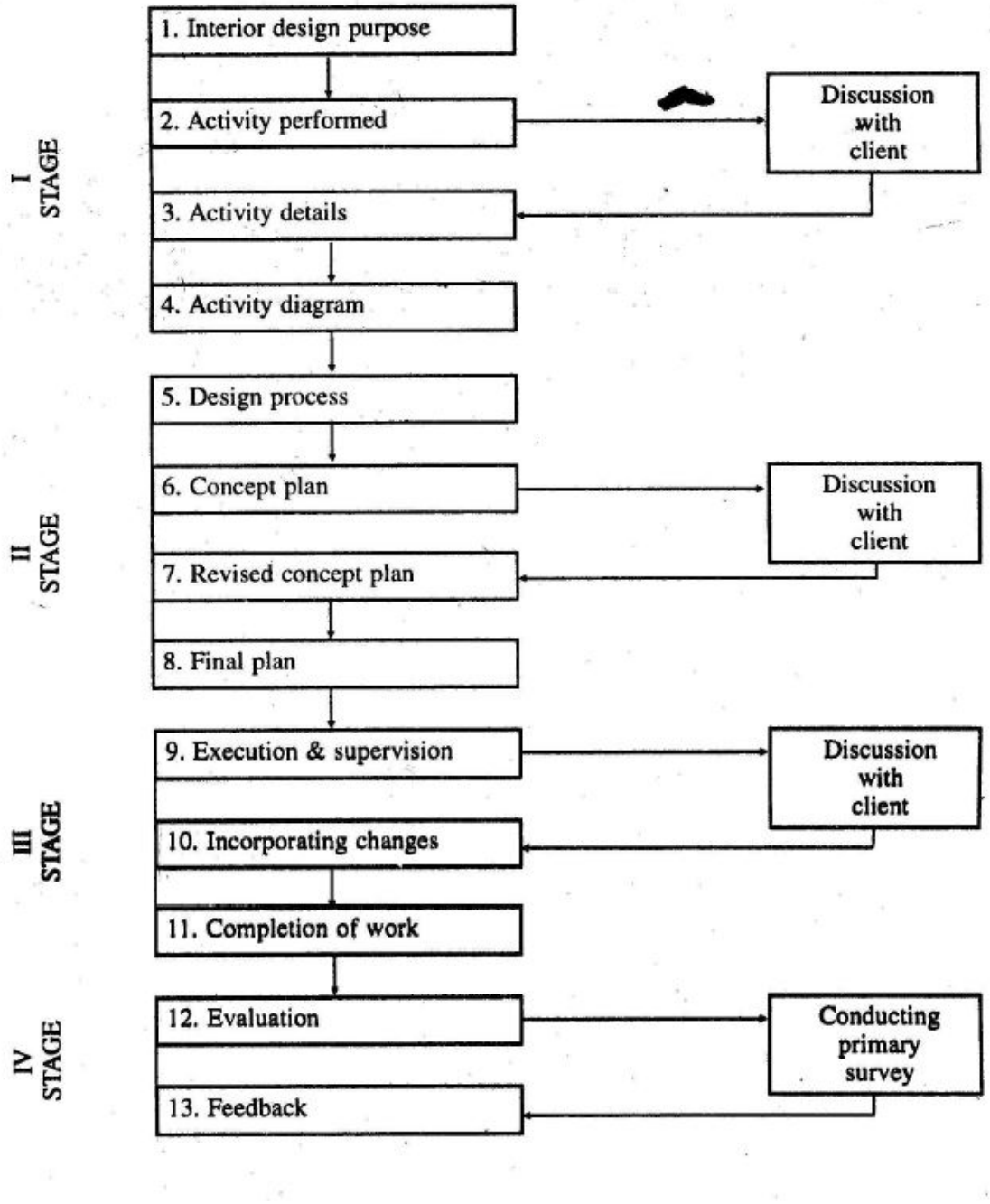


Figure 2.24 Interior Design Methodology (Rao, 2006, p. 113)

2.4 Conclusion

Cybercafés are the product of the times. It became popular with the advent of the Internet era. To this day, due to the rise of mobile Internet, it is gradually transformed into an entertainment place ---- a game hall. Although cybercafés have not been successfully transformed in Europe and the United States due to cultural differences, they have become very popular among young people in Asian countries, especially China and South Korea. Cybercafé have even become a part of video game culture.

On the other hand, E-sports, which is closely related to cybercafés, has become so popular in recent years that it has even surpassed some traditional competitive sports. Today, the controversy surrounding e-sports still exists, but it has nothing to do with the professionalism and popularity of e-sports. It can be said that E-sports is a phenomenal industry that needs to be taken seriously by society, rather than dismissed as just a little game between children.

Combining these two parts, cybercafés to E-sports, is very similar as the football field to football games. Cybercafés provide a place for E-sports fans to play the games, watch events and socialize face to face, which is hardly to be replaced by online activities in the next few years. Therefore, the author believes that a more in-depth combination of E-sports and cybercafés is the trend of the whole ecosystem. Theming is a good way to realize it. Chapter 3 will introduce the design method of an E-sports-themed cybercafé.

Chapter 3 Design Guidelines

3.1 Overview

Before introducing the design guidelines in Chapter, this part will first lead readers to review some important theories in Chapter 2 and explain how the author developed them into the core theory supporting the design guidelines. Then, this part will show the overall design process of Chapter 3.

3.1.1 Theory Development

3.1.1.1 Hierarchy of Need (Adapt for E-sport Themed Cybercafé)

In the section of '2.3.1.4 Approaches of Space Theming' in the literature review, the thesis introduces that Lukas (2012) developed the Hierarchy of Need (Adapt for Themed and Consumer Space Design) from Abraham Maslow's theory. Based on Lukas's theory, the author developed a new version of Hierarchy of Need that is adapted for E-sports themed cybercafé design.

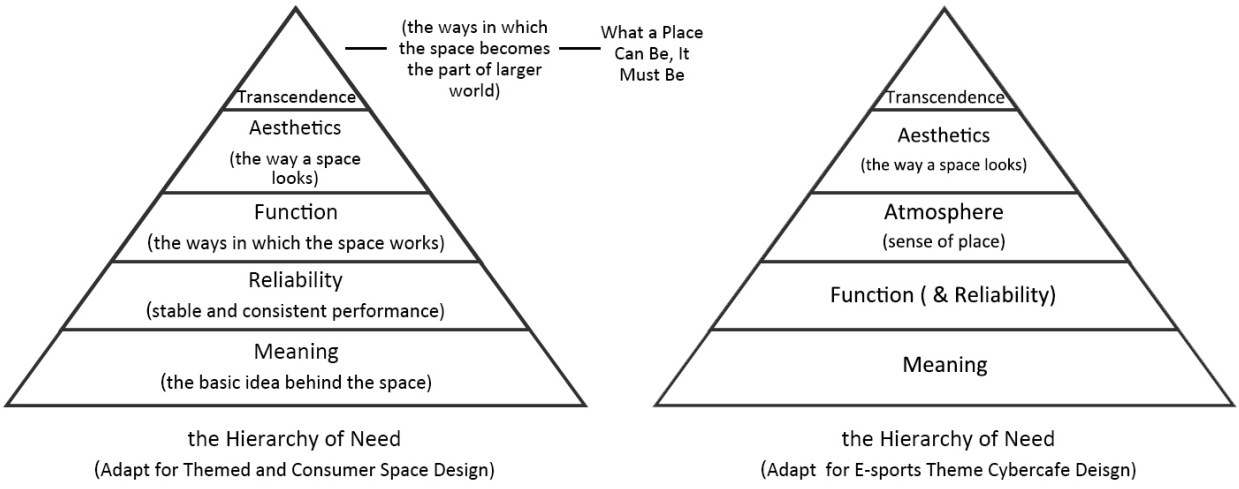


Figure 3.1 Comparison Between the Two Hierarchies of Need

As shown in Figure 3.1, “Meaning” is the bottom and basic level of both pyramids. This is because “the idea behind the space is where all good spatial design projects must begin.” (Lukas, 2012, p.82), and this theory applies to the themed cybercafés. At the second level, the author changed “Reliability” into “Function (& Reliability)”. The reason is that the cybercafé is a long-term busines place, which needs to provide stable and reliable internet access function, thus the function of the whole space already includes reliability. “Atmosphere” occupies the third level of the author’s pyramid. This word comes from the understanding of ‘sense of place’ and ‘genius loci’ in *Sensory Design* (Malnar & Vodvarka, 2004). This level is the focus of the whole thesis, which largely determines the difference between a themed cybercafé and an ordinary one. The fourth level is “Aesthetics”, and the fifth level (the top) is “Transcendence”, just as described in Lucas's (2012) Themed and Consumer Space Design Hierarchy of Need.

In general, the Hierarchy of Need (Adapted for E-sports themed cybercafé design) is the backbone of the whole design guidelines, which will be introduced in detail in Concept Generation section. It is worth noting that "Transcendence" will not appear in the Concept Generation section as an independent design step. According to the explanation of "Transcendence": “the way in which the space becomes a part of a larger world” (Lukas, 2012, p. 82), the transcendence level for an E-sports themed cybercafé can be understood as an illusion of entering the fictional world of game space. This feeling is hard to be realized within an independent design step, yet it’s possible to accomplish by reasonable cooperation of the other four steps (Meaning, Function, Atmosphere, Aesthetics).

3.1.1.2 Sensory Design of Space

This section mainly describes the core concept and design tools of space atmosphere (sense of place) design.

In the section '2.3.2.1.1 Space to Place' in the literature review, the thesis explains how a person recognizes a space as a place through the process which includes Sensory Mode, Memory, and Mental Image (Malnar & Vodvarka, 2004). According to this theory, the author puts forward the Place Schematic for E-sports Themed Cybercafés, as shown in Figure 3.2.

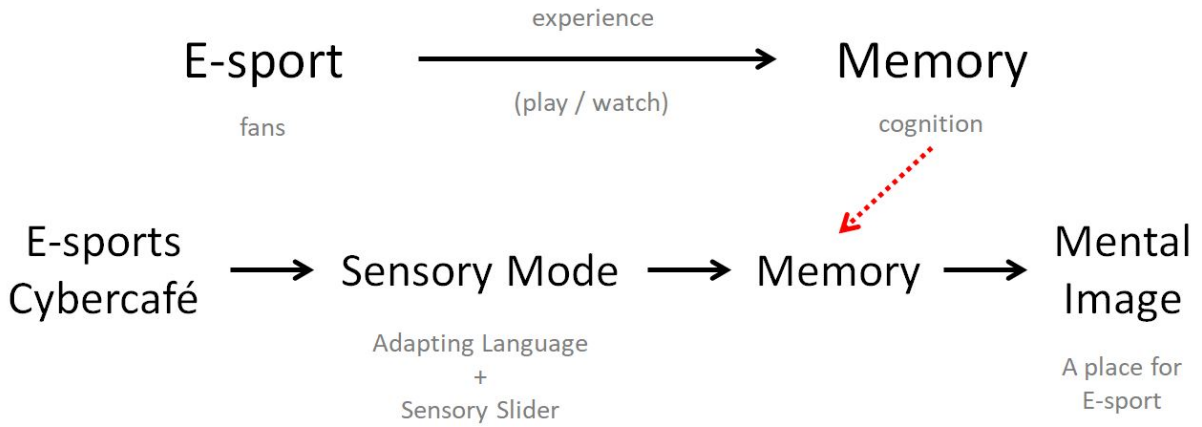


Figure 3.2 Place Schematic for E-sports Themed Cybercafés

Fans of E-sports, whether they are players, audiences or both, will retain memories of specific E-sports games because of their own experiences. In their cognition, there are one or more fiction world outlooks in video games. When these fans enter an E-sports themed cybercafé, their sensory modes will automatically collect information. After their memory screening, some of this sensory information is ignored, while other information is enhanced by arousing previous memories (related to E-sports experiences). Then, that enhanced sensory information will form a mental image, which is exactly what the E-sports fans think they feel about the cybercafé (Malnar & Vodvarka, 2004). It can be said that whether the space of E-sports themed cybercafé

can become a part of the larger world (Transcendence) in people's consciousness mainly depends on the relationship between the final mental image and the virtual world in their mind.

To make users form perfect mental images, designers need to start with the sensory modes in which the Sensory Slider (Malnar & Vodvarka, 2004) may be useful as a design tool. But this is not enough, because the full application of this tool requires the designer to find contextual representatives of multi-senses (such as icons in the visual), which means the designer needs to have a detailed understanding of the characteristics of the target E-sports project. This thesis will provide a design tool for analyzing the characteristics of E-sports, which can help designers to find suitable features and apply them into the Sensory Slider.

3.1.1.3 E-sports Characteristics Analysis

The previous part mentions the importance of the E-sports characteristics for shaping themed space atmosphere. In fact, these characteristics will also have a profound impact on Meaning, Function and Aesthetics of E-sports themed cybercafé. According to the definition of theming: a process of designing and constructing an object or space so that a unified idea can be expressed by some recurring elements, characteristics, and symbols (Lukas, 2007), the design process of E-sports cybercafé is based on the characteristics of E-sports.

From the perspective of methodology, the concept of analyzing the characteristics of E-sports originates from a theming method: Adapting Languages (Lukas, 2012). The core idea of Adapting Languages is that designers can “adapt languages of various fields and use them to create design projects” (Lukas, 2012, p. 39). According to this idea, an important task of designing E-sports themed cybercafé is to adapt the languages of video games (E-sports is an activity based on video games) into design application. However, with video games as the not-

yet-determined Ninth Art, so far it has not formed a unified art language, which means there is no way that the thesis can directly be applied to this design tool.

Instead, the author studied three different classification methods of video games characteristics (Friedl, 2002; King, Delfabbro, & Griffiths, 2009; Pérez-Latorre, Oliva, & Besalú, 2016), meanwhile adding the features of E-sports which are independent of video games, which finally results in an analysis table of E-sports characteristics in space theming.

As can be seen in Table 3.1, the vertical column of the table is classified according to the Hierarchy of Need (Adapted for E-sports themed cybercafé design), while the horizontal column is divided into two parts: cybercafé and theme. This table has two purposes: first, it is convenient for designers to compare the original meaning, function, atmosphere and aesthetics of cybercafé when carrying out space theming; second, it gives designers more direction and logic by grading the E-sports characteristics and corresponding to the hierarchy of space theming. The thesis will explain the contents of this table in detail in the Concept Generation section.

Adapting E-sport Characteristics Into Cybercafé			
	Cybercafé	Theme: E-sports	
Meaning	Techno-social Space	Gaming Space	Genre Title World Outlook
Function	Internet Service, Social Space	Interaction Characteristics	Player - Computer Player - Player Player - Game Audience - Match
Atmosphere	Relaxed, Comfortable, Less interference	Contents Characteristics	Narrative Features Business Features
		Rules Characteristics	Manipulation & Control Features Reward & Punishment Features Social Features
Aesthetics	Suitable for local aesthetic (culture)	Narrative Features	Character Features Activity Features World Features
		Business Features	Franchises & Teams Features Brands & Investors Features Tournaments & Leagues Features
		Manipulation & Control Features	User Input Features Player Management Features Non-controllable Features
		Reward & Punishment Features	General Reward / Punishment Type Features Meta-game Reward Features Payout Interval Features
		Social Features	Social Utility Features Social Formation / Institutional Features E-sports Fans Culture

Table 3.1 Adapting E-sports Characteristics into Cybercafé

3.1.2 Overall Design Process

As shown in Figure 3.3, the design guidelines are divided into five steps: Identify, Concept Generation, Evaluation, Final Delivery, and Construction.

First of all, the designer shall identify the basic elements at the beginning of the design project, including the theming direction and target location research. Theming direction is set in the first step of design criteria, because it is very important and will affect a lot of follow-up work. In Figure 3.3, two different colors represent the design process of different theming direction. Location research refers to the designer's collection of information about the location of the E-sports theme cybercafé, including local culture, surrounding environment, potential users, and spatial layout of the cybercafé (if any). Secondly, the designer sorts the collected information and communicates with the client to start the concept generation stage. In this stage, various theories and design tools mentioned in the "Concept Development" will be used to carry out divergent design, and finally multiple plans will be obtained. Thirdly, the designer will evaluate several plans and select a final one to delivery. The last step is construction. More detailed explanations will appear in what follows in the thesis.

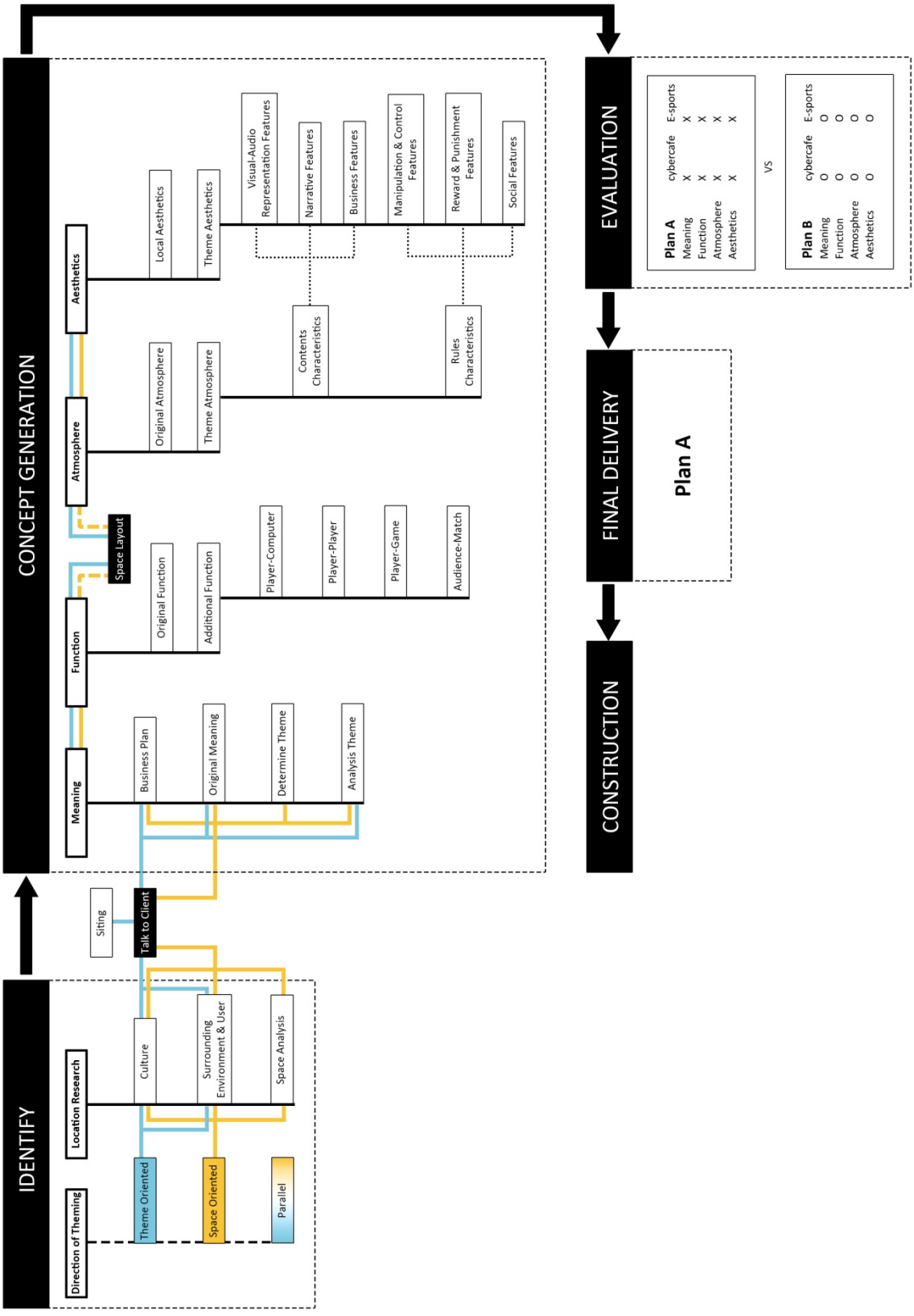


Figure 3.3 Guidelines for Designing E-sports Cybercafé

3.2 Identify

At the very first stage of the whole design process, designers need to identify the direction of theming. According to the different environmental conditions and original design intentions, the theming direction of a space can be roughly divided into three categories (which will be discussed in detail later). A clear direction can effectively reduce the contradictions in the later design process. Secondly, designers need to identify the basic characteristics of a project. For a themed space design project, the first thing is to clarify the geographic location of the project, which helps designers to understand its cultural background, surrounding environment, user groups, and space layout (if any). Designers need to collect and analyze data as much as possible in this stage. The results of these analyses will affect stage 2.

3.2.1 Direction of Theming

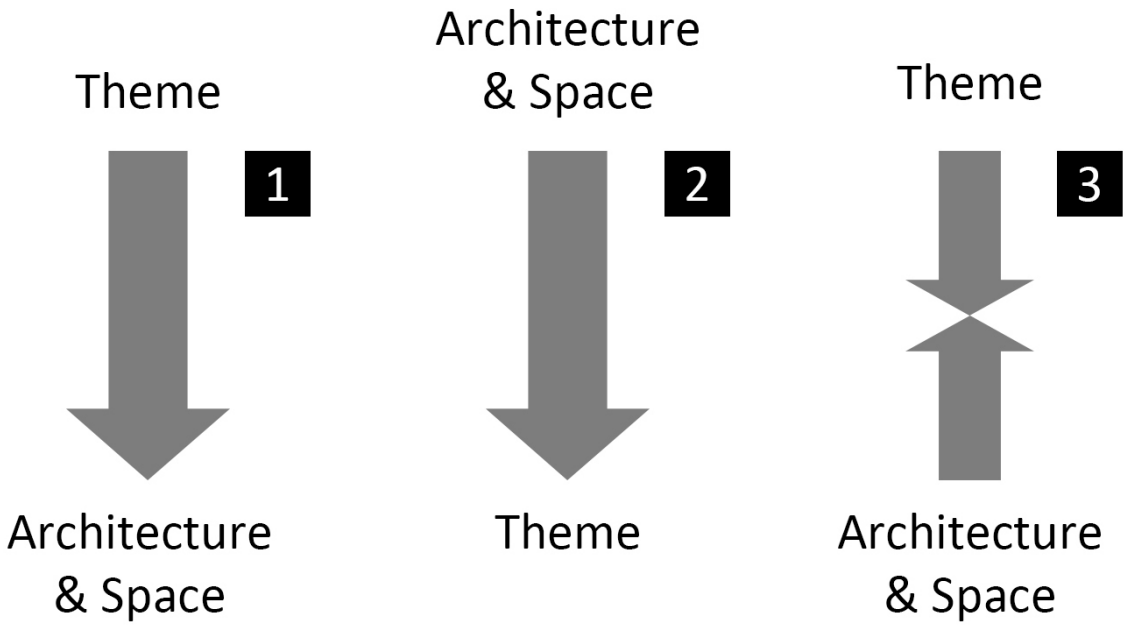


Figure 3.4 The Relationship between Theme and Space Design

Figure 3.4 is the adapted version of Figure 2.20, whose original source is Chart 2-3 in *The Immersive World Handbook* (Lukas, 2012). Since theme is a part of a design story (Lukas, 2012), the author believes that theme can replace design story in Chart 2-3, which also applies to these three types of relationships.

As can be seen in Figure 3.4, it presents three possible scenarios in which theme and space design interact. In order to make the following articles easier to understand, the author names scene one as Theme Oriented, scene two as Space Oriented, and scene three as Parrallel.

3.2.1.1 Theme Oriented

In this scenario, theme is the initial element used to drive spatial and architecture design. In an ideal situation, the location, scale, business plan, space function and atmosphere of the themed space will all determined by the theme. What designers need to do is respect the original spirit and style of the theme and make the design show the sense of place expected by Party A. Disneyland is a typical example. Disneyland Park in Anaheim, California, was built in 1955, covers 160 acres and has five parks (Marling, 1998). Visitors can see the 77-foot-high Sleeping Beauty Castle, the 1:100 Matterhorn, and countless spatial details and objects from the fairy tale world. It can be said that almost every building and scenery in the theme park is built to show Disney's fantasy world. Although in the construction process of Disneyland, many of the original ideas that were more grand and crazier have not been realized because of the influence of practical factors, tourists can still feel they are in a fantasy world (Marling, 1998). There is no doubt that Disneyland is very successful in presenting the theme.

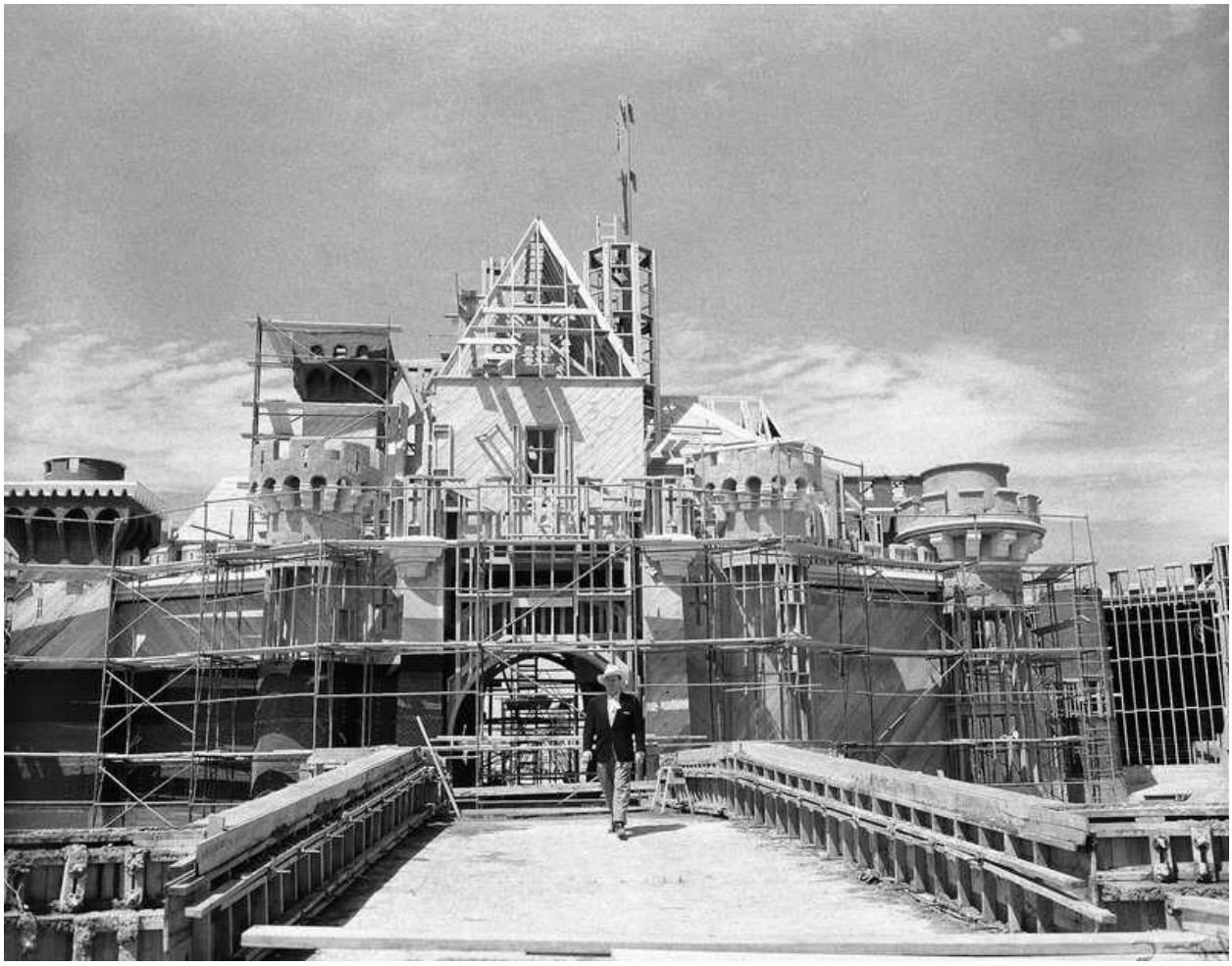


Figure 3.5 Walt Disney walks on the bridge in front of the partially finished Sleeping Beauty's Castle at Disneyland. (AP Images, n.d.)

The case of Disneyland theme park can represent theme-oriented space design to a certain extent (for it is a relatively ideal situation). So far, the concept of this kind of theme direction is simplified into a principle, that is, designers need to carry out the space design from scratch by following the fantasy world that the theme points to.

3.2.1.2 Space Oriented

In this scenario, the characteristics of space and the architecture itself are the initial elements driving the theming process. In this case, Party A is often the owner of a known space

or place. He or she wants to transform the space to a certain extent (without destroying the original features), but lacks the theme which is to combine with the space. For designers, the primary task is to analyze the characteristics of the known space or architecture, that is, the 'sense of place' mentioned before. Next, designers need to find the suitable theme according to the obtained information, and establish the relationship between the known space characteristics and a theme through the design.

Figure 3.6 Beijing's 798 Art District (Berry, 2017)

As an example, the transformation process of 798 Art Zone is in line with this kind of theming direction. 798 Art Zone is an art exhibition center transformed from an abandoned military industrial area. Its architectural style is a typical German Bauhaus functional style, which has been preserved in the process of reconstruction by artists. Today, after limited renovation, the inner space of the factory has become a modern art exhibition hall with white walls, concrete floor and high arched ceiling built 50 years ago. Out of the building, those red

bricks and chimneys full of industrial flavor still exude the fashion sense of the post-industrial era.

From the case of 798 Art Zone, we can also make a relatively general summary of the space oriented theming process, that is, designers need to find the appropriate theme according to the characteristics of the space itself, so as to achieve the effect of making the best use of things and create the icing on the cake.

3.2.1.3 Parrallel

In real cases, there are few such ideal situations as Disneyland and 798 Art Center. In other words, typical theme oriented or space-oriented theme space design is not common. More cases are parallel design, that is: the theme and space interact with each other. In this case, the known target space often lacks obvious features, and Party A only has a vague concept of the theme.

Or it can be further explained that Party A cannot build the theme space from scratch like Disneyland due to the influence of realistic factors, but can only transform the known space that lacks features. However, Party A is unable to make a decision due to lack of strong will or relevant information to judge which space theme can bring more profits. Faced with such a dilemma, the designer needs to further collect information and keep in communication with Party A to determine whether Party A prefers theme-oriented design or space-oriented design, and then use the design ideas of the first two theming directions, then make appropriate concessions in the subsequent design process.

3.2.2 Location Research

Location research refers to the survey of the possible location (or the known location) of the E-sports themed cybercafé.

Cybercafés are different from Disneyland and 798 Art Zone. It is not a tourist resort, but a place of entertainment in people's daily life. First of all, the space of a cybercafé needs to meet people's long-term online and social demands. Secondly, most users of cybercafés come from people living in nearby places, and many of them are frequent visitors (Xie, 2019). Therefore, spatial and location information is very important for the design of theme cybercafé. After understanding the theming direction, the designer should carry out the investigation of the location of the cybercafé as soon as possible to collect information about the local culture, the surrounding environment and potential users, as well as the spatial structure and layout (if any).

For a general space design project, the general geographical location should be informed to the designer as known information. For example, the location information may include countries, cities, and districts.

3.2.2.1 Culture

After knowing the basic location information of the design project, the designer's first task is to investigate the local culture.

The influence of local culture on designing E-sports themed cybercafé has three aspects. For a simple understanding, designers can think about these three aspects in the way of answering three questions. First, are E-sports cybercafés popular in local culture? Second, in the local culture, which elements are more popular in a certain E-sports theme (Theme Oriented)? Which kind of E-sports themes that are in line with the characteristics of space have a wider

group of local fan base (Space Oriented)? Third, how does local culture affect people's sensory mode (Malnar & Vodvarka, 2004)? Do local people have any particular preference for space and architecture?

The first aspect of cultural influence can be analyzed from two parts. First of all, are cybercafés integrated into local culture? In other words, designer should find out whether local residents (a certain proportion of people) have included the behavior of going to cybercafés in their daily life. If the answer is yes, then the designer needs to investigate the main activities of local customers in cybercafés. In **2.1.3** of Chapter 2, this paper discusses the different cultural phenomena of cybercafés in Europe, America and Asia. In short, the cybercafés in Europe and America are mainly used for coffee and office work, while the cybercafés in Asia are more like game halls. Obviously, E-sports theme cybercafés will be more popular in Asia. However, the designer's investigation of culture should not float on the surface. For a certain cultural area, the E-sports theme cybercafés is not popular at present, which does not mean that it will not be popular in the future. Designers should pay attention to the evolution trend of regional culture (related to E-sports and cybercafés). Because the E-sports industry is still in the development stage, many countries or regions have enough E-sports participants, but in their mind, the activities related to E-sports only take place at the arena or their own home (on the computer), so they lack the understanding of the theme of E-sports cybercafés. The author believes that as long as appropriate publicity and guidance are put into the local culture, there will also be a trend of playing games or social activities in E-sports cybercafés. This situation can also be regarded as potential.

Second, after confirming that the local culture has the potential to develop E-sports theme cybercafés, designers need to make further use of the local culture according to the theme

direction, that is to screen or adapt the known elements. In the theme-oriented design direction, designers need to investigate which elements of a certain E-sports theme (specific game title, game type, or world outlook) do local E-sports fans prefer? For theme space, respecting and adapting to local culture is a very important design principle (Lukas, 2012). For example, a large part of the success of Disneyland in California can be attributed to the fact that Walt Disney's fantasy Park conforms to the cultural context of American tourists. As one of the most famous scenic spots in Disneyland, Main Street retains the style of American streets 100 years ago, which is a very typical American cultural symbol (Marling, 1998). For other regions, Disneyland will also adjust its design according to the culture. Tokyo Disneyland in 1983 and Paris Disneyland in 1992 are obviously different from California Disneyland. In the process of construction, they integrated elements of local culture, although these elements may not necessarily originate from Disney's animation stories (Marling, 1998). For another theming direction, it may be easier for designers to spend their time on local cultural surveys. Because the building itself reflects the local culture, in a more ideal situation, even the historical sense and cultural characteristics of the building or place itself can form a theme. In this case, the designer's learning of the local cultural context is more to choose a theme of "sense of place" in line with the known space among the existing E-sports themes. Of course, this doesn't mean that designers have to use the most obvious design elements in E-sports games to cater to local culture. In fact, many things that were originally local cultural symbols have gradually become the symbols of cultural stereotype after many inaccurate interpretations in cultural works. Designers need to learn more about local culture and avoid these stereotypes. In addition, the design direction dominated by space also needs to refer to the local popularity of the target theme.

Third, culture can affect people's sensory patterns. In **2.3.2.1.3**, Chapter 2, the thesis mentioned that "cultures vary greatly in their exploitation of the various senses and in the way in which they relate their conceptual apparatus to the various senses." (Howes, 1991, p.26). And "not only is sensory response critical to any cultural outcome (like design), but the specific societal context (the sensory ratio of that culture) will need to be addressed if it is to resonate with its users." (Malnar & Vodvarka, 2004, p.55). It's hard to ignore the cultural influence of sensory aspect in the later stage of "atmosphere" and "aesthetics" design. Therefore, designers need to investigate the impact of local culture on sensory aspect, such as sensory proportion and specific sensory habits.

The following table is the local culture survey table recommended in this paper. Because there are overlapping parts between "theme oriented" and "space oriented" in the cultural survey, the author puts them in one table to facilitate the reference of projects with "parallel" design direction.

<table>
<tr><td rowspan="2">Level 1</td><td>Living Conditions of Local Cybercafé</td><td colspan="2">Usage Habits of Local Cybercafé</td><td>Local E-sports User Groups</td></tr>
<tr><td></td><td colspan="2"></td><td></td></tr>
<tr><td rowspan="3">Level 2</td><td colspan="2">Theme Oriented</td><td colspan="2">Space Oriented</td></tr>
<tr><td colspan="2">Preference E-sports Element</td><td>Cultural Feature of Space</td><td>Local Popular E-sports Theme</td></tr>
<tr><td colspan="2"></td><td></td><td></td></tr>
<tr><td rowspan="2">Level 3</td><td colspan="4">Local Sensory Habits</td></tr>
<tr><td colspan="4"></td></tr>
</table>

Table 3.2 Local Culture Survey

3.2.2.2 Surrounding Environment & User

After the completion of local cultural research, designers need to focus on more specific and realistic issues, namely: the surrounding environment and potential users of cybercafé.

In view of this aspect, different theming directions will lead to different logical order. For theme-oriented space design, Party A may not have a definite location. At this point, the designer needs to give the logic of cybercafé's location searching. As mentioned in the previous article, at the beginning of its birth, cybercafés were regarded by some people as the "techno-social" place, the intersection of online and offline, and had its own core attributes (Laegran & Stewart, 2003). With the development of science and technology, more and more attention has been paid to the social attributes of cybercafés. Now cybercafés have evolved into a place of entertainment in people's daily life. This positioning determines that cybercafés need to be built in places with relatively dense flow of people, such as a commercial area, catering area, entertainment area or college area. For E-sports theme cybercafés, the location conditions have added another layer, that is, the location where E-sports fans are relatively concentrated. According to the data, the main group of E-sports is young people aged 18 to 34 (statista.com, 2019). The statistics of cybercafés also show that students account for the largest proportion of users, more than 35% (Xie, 2019). Therefore, for the E-sports theme cybercafé, it is a good choice to set up in the place where young people gather.

For space-oriented design (as well as the theme oriented design after the site selection) that has a specific location, what the designer needs to do is to make a detailed study of the environment around the cybercafé. Designers need to pay attention to three points. First, whether there are competitors nearby, that is, the same type of cybercafé. Second, the customer flow and per capita consumption level of cybercafé location. Third, the E-sports preference of nearby

potential users. Among them, the first and third points will jointly affect the theme selection of E-sports cybercafés and the level of interior decoration. When there are no competitors nearby, the theme of E-sports cybercafés only needs to consider the preferences of nearby users. When there are competitors nearby and the preference of users nearby is not unique, it is easier to become popular by choosing topics different from competitors. When there are competitors and the user preference is unique, designers need to put more energy under the same theme to create a more attractive cybercafé space. As for the second point, customer flow and per capita consumption level will limit the scale and pricing of cybercafés, and further limit the cost of design and decoration of it.

The following is an example of the survey form for the surrounding environment and users of cybercafé. Designers can refine it to achieve a better information collection effect.

<table>
<tr><td>Theme Oriented</td><td colspan="2">Space Oriented</td></tr>
<tr><td>Possible Locations</td><td colspan="2">Nearby Competitor Information</td></tr>
<tr><td rowspan="5">1.
2.
3.</td><td colspan="2"></td></tr>
<tr><td>Customer Flow</td><td>Per Capita Consumption Level</td></tr>
<tr><td></td><td></td></tr>
<tr><td colspan="2">Users' Preference of E-sports Theme</td></tr>
<tr><td colspan="2"></td></tr>
</table>

Table 3.3 Surrounding Environment & User Survey

3.2.2.3 Space Analysis

This part is only suitable for space oriented and parallel theming direction. The first step of spatial analysis is to draw the layout map for a certain location. No matter whether the space itself has obvious characteristics or not, the size and layout of the space have constituted the restriction and guidance to the cybercafé design. This is particularly important for many parallel theming directions, because not every space (site) has obvious characteristics. Most of the time, designers can only get basic information such as space size and layout from the known site.

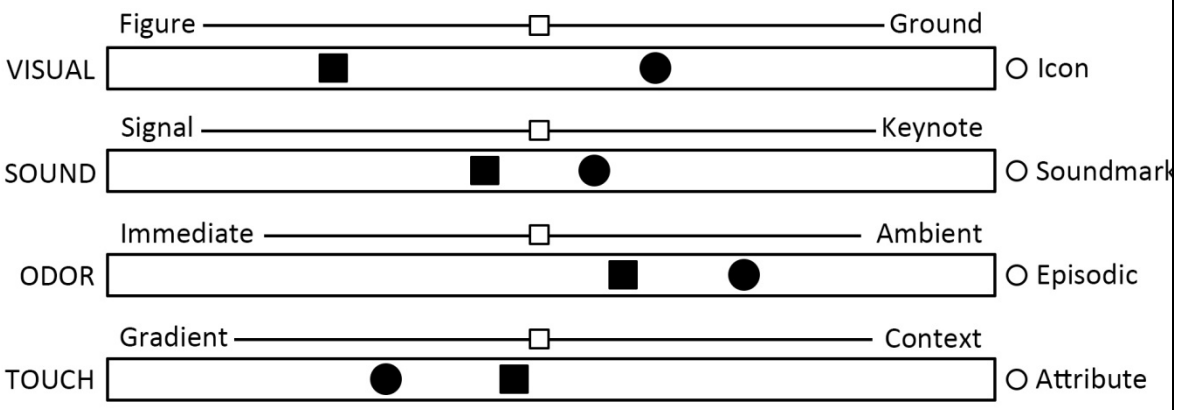
If the designers are lucky enough to get a project with prominent spatial features, this thesis may provide a spatial analysis idea, so that the designers can collect the spatial features and find the appropriate E-sports theme in the subsequent design. In the Chapter 3, overview, this thesis mentioned a space atmosphere design tool: Sensor Slider. This tool was originally used in the early stage of space design. Designers achieve a certain sense of place through the distribution of stimulation intensity of various senses and the design of place symbols (Malnar & Vodvarka, 2004). For the known space with characteristics, the designer can reverse use the Sensory Slider, and according to the known space atmosphere, think about the source of sensory stimulation that causes this kind of atmosphere (sense of place). This idea includes collecting the symbols of the spatial features from various sensory angles, and recording the stimulus intensity data of various senses provided by the space.

After gathering the space information, the designer can substitute it into the local popular E-sports games obtained from the cultural survey, and search for the game features that fit the spatial characteristics (even if there is a weak connection). It is worth noting that the goal we are looking for is virtual game features, and the most common ways of showing this kind of features is via visual and auditory effects (King, Delfabbro, & Griffiths, 2009). Therefore, when

designers use the Sensory Slider to analyze the known space, they will unconsciously first use part of the sensory mode including visual and auditory. This paper suggests that, in addition to the visual and auditory characteristics, designers can give priority to at least two sensory models of local culture's preference for spatial analysis according to the previous cultural survey.

In an ideal situation, some elements in E-sports games, such as specific scenes, are created according to the spatial characteristics of reality. For example, the prototype of the virtual city Los Santos of GTA 5 is Los Angeles. In this case, the features of known space can be directly transformed into game features, even classic game symbols. A player who is familiar with the game can easily identify this symbol, and then produce a strong sense of substitution. However, the reality is that there is often no such lucky coincidence in the projects that designers need to face. What the designer can do is to excavate every feature of the known space as far as possible, and establish the relationship between the real space and the virtual game as far as possible through the design.

The following is an example table to record the information collected by the sensor slider for designers' reference.

Sensory Slider


Analysis of Sensory Characteristics			Corresponding Game Features	
Intensity of Sensory Stimulation		Contextual Symbol	Game A	Game B
Visual			Icon A_1 Icon A_2 Icon A_3	Icon B_1 Icon B_2
Sound			Soundmark A_1 Soundmark A_2	Soundmark B_1
Oder			Episodic A_1	Episodic B_1
Touch			Attribute A_1	Attribute B_1 Attribute B_2

Table 3.4 Space & E-sport Feature Analysis Form

3.2.2.4 Talk to Client

After collecting a lot of information in the Identify stage, the designer should have formed preliminary design and planning ideas. Before entering the next important stage, the designer should stop for a while and discuss with the client about the next step.

For theme-oriented direction, the most important task at this stage is site selection. According to the information acquired in the Identify stage, the designer will suggest several suitable locations to the client, but the final decision is affected by the client's investment intention and the business plan related to the theme.

For space-oriented direction, designers need to present the analysis results of the combination of spatial features and game features to the client, and propose several alternative theme schemes. The final scheme selection needs the business plan drawn by the user and the designer.

No matter what kind of theming direction, a preliminary consensus between clients and designers should be reached at this step: a basic range of design options.

3.3 Concept Generation

This part will introduce the second stage of design guidelines, which is the main process of design: Concept Generation. In this stage, designers need to complete the space conception of the E-sports themed cybercafé through four design steps: Meaning, Function, Atmosphere, and Aesthetics. These four steps are derived from the Hierarchy of Need (Adapted for E-sports Cybercafé Design) which is shown in Figure 3.1.

3.3.1 Meaning

After the previous discussion with the customer, the designer should reach a preliminary common view with the customer. The main task of the Meaning is to translate a relatively oral and vague consensus into a specific business plan and theme space meaning.

3.3.1.1 Business Plan

Drafting a business plan marks the beginning of a design project. Generally, a business plan contains business goal, achieving methods, and a time frame. It also describes the nature of the business, the organization's background information, the organization's financial forecasts, and the strategies it intends to implement to achieve the set goals (wiki, 2018)

This part will explain the E-sports themed cybercafé to a certain extent from the perspective of market and customers, problems and solutions, opportunities and challenges, competitors and cooperation, and business model. No matter which direction of theming is chosen, it can refer to this business plan content.

What needs to be added is that theme-oriented design needs to determine the space scale at this stage according to the expected passenger flow, business model and other factors.

Market & Customers

The target market of E-sports themed cybercafé is the middle and high-end E-sports fans nearby. They often have a certain level of consumption power, and have the habit of going to the cybercafé for entertainment and social activities. Usually, these E-sports fans hope to experience the fun of E-sports with friends in a cybercafé with a better environment and atmosphere. Their

demand for E-sports theme cybercafé is mainly divided into three aspects: the first is high-end hardware equipment; the second is the unique atmosphere of Internet cafes, that is, a sense of substitution into the gaming space; the third is social.

Problems & Solutions

The problem faced by E-sports themed cybercafé is the homogenization of cybercafés. With the development of E-sports industry, many cybercafés realize that the proportion of E-sports enthusiasts in users is gradually increasing. Therefore, most of these cybercafés have chosen to upgrade their hardware devices. However, in the environment and atmosphere aspects, many of cybercafés have not kept pace with the times. Some of them may upgrade the internal environment, but the content is rarely associated with E-sports. Their design goal often stops at "looking cleaner and more high-end than ordinary cybercafés". A few of them will try to add specific E-sports elements to the environment, but most of these elements are floating on the surface and lack a system, so it is difficult to resonate with senior E-sports fans. This thesis provides a systematic design method of E-sports space theming, through the meaning, function, atmosphere, aesthetics, gradually realize the content extension of the target E-sports project. After this kind of themed design, the cybercafé will be far better than other common ones, and keep the content uniqueness with high-end cybercafés, which is difficult to imitate.

Opportunities & Challenges

The biggest difference between the E-sports themed cybercafé described in this thesis and other ones is the atmosphere it can provide. This unique atmosphere is both an opportunity and a challenge. As the E-sports industry is based on different E-sports games, all kinds of

competitions, teams, sponsors and fans are composed around the title of E-sports games. However, there are great differences in the mechanism, playing method, style and world outlook between different titles, which makes it so the theme of E-sports Internet cafes can only choose in-depth design in one aspect (one aspect refers to a specific game title, or a single game type, or a world outlook). The consequences of such design will bring both opportunities and challenges.

Opportunity: the target E-sports fans will become loyal fans of the cybercafé, which will be a stable market; some non-target E-sports fans may be attracted by the unique atmosphere and aesthetic style of the cybercafé. Although they do not understand the overall narrative content of it, they will also try to experience the fun of E-sports.

Challenge: some non-target E-sports fans may feel that their hobbies have not been paid attention to, thus losing this part of the market; in addition, the upgrading of E-sports projects may make the decoration of cybercafé obsolete in the future.

Competitors & Cooperation

As cybercafés belong to the daily type of entertainment and consumption places, most of its user groups are concentrated in the nearby area, so the competitors are the themed cybercafés that have the similar space scale and design quality in a certain range. As for the cooperation relationship, first of all, the content and style of the theme of the E-sports cybercafés are derived from the E-sports game, so the client who is in charge of the cybercafé needs to communicate with the game developers of the specific E-sports title and the franchise in advance, and can only use those design elements after being authorized. As the existence of an E-sports themed cybercafé itself is also a kind of advertisement of E-sports project, it is likely to reach mutually beneficial cooperation conditions between cybercafé and E-sports game owners. Second, E-

sports themed cybercafés can make use of their own advantages (unique atmosphere, better environment, and professional equipment) to hold local leagues, or apply to become the venue for small tournaments, so as to attract the support of brand sponsors and the attention of the media.

Business Model

How to make profit is a problem that every kind of cybercafé has to face. E-sports themed cybercafés will not be separated from the traditional business model of cybercafés, namely: membership system. By encouraging customers to become members and recharge, cybercafé can expand the early income, and add preferential policies in the later period to obtain user stickiness. In the foreseeable future, this model will still be the main profit model of all types of cybercafés. However, E-sports themed cybercafés can make use of their own advantages to develop unique sidelines. For example, in the current mainstream E-sports projects around the world, there are in game sales projects, such as the most common game skin. These virtual objects won't make sense in the real world, but for E-sports fans, they are valuable, and probably very worthy. Due to the cooperative relationship between E-sports themed cybercafé and game developers and franchised dealers, cybercafés are likely to apply for additional sales licenses related to in-game sales, which will make E-sports theme cybercafé gain a huge advantage in attracting customers. In addition, as many sponsors of e-sports industry are related to computer equipment, E-sports theme cybercafé can indirectly become the offline sales sites of these brands.

The following is a reference business plan form.

Market	Customers
Problems	Solutions
Opportunities	Challenges
Competitors	Cooperation
Business Model	

Table 3.5 Business Plan

3.3.1.2 Original Meaning

The original meaning refers to the meaning of the cybercafé. In Chapter 2, the thesis discusses the development history of cybercafé. From the tool of Internet's popularization to the current game hall, a cybercafé can always exist because its core meaning never changes: techno-social space. In short, the cybercafé is the intersection of the virtual world and the real world. It gathers technology and people. Although technology will continue to develop, people's social needs will never change. The author believes that the significance of cybercafés lies in connecting people through network technology, and retaining the high contact between people (Kaku, 2011) through social interaction. As long as the E-sports theme cybercafé can maintain and enrich its core significance, it will not lose the power of development.

After the designer and clients draw up a business plan, there will be many novel ideas (whether it is external suggestions or internal ideas). At this time, the designer needs to think about what is the unique additional meaning of the E-sports themed cybercafé, and judge whether these meanings will conflict with the original meaning of the cybercafé. For example, video games have always been related to gambling, and the boundaries between them are vague. In game sales of many video games are related to the winning rate, which is regarded as soft gambling. When E-sports themed cybercafé and franchised dealers reach a cooperative relationship, will the sidelines brought by in-game sales affect the original meaning of cybercafé?

3.3.1.3 Determine Theme

This section is only for space-oriented and parallel theming direction.

After making the business plan, the scope of the theme will further shrink, and the designer and the client will have a clearer choice of the theme. The author summarizes three possible situations for the theme selection of E-sports themed cybercafé: game title, game genre and world outlook.

Game Title

From the analysis of E-sports fans in 2.2.3.3 and the analysis of E-sports ecosystem in 2.2.4, we can get a point of view that the mainstream E-sports projects are usually distinguished according to specific game titles. Readers can understand this as different events in competitive sports, such as basketball and 200 meter race. The advantage of using specific game titles as the theme of cybercafé is that they can attract loyal fans for a certain game title for a long time. If the design of cybercafé is excellent enough, this kind of attraction will even break the limit of distance (that is, not limited by the surrounding environment, fans from afar will also come). In addition, franchises centered on game titles, tournaments and leagues, game teams and brand sponsors all have a lot of cooperation space with theme cybercafé. Its disadvantage is that for fans of other game titles, as well as the corresponding ecosystem, the attraction of cybercafé may not be so strong.

Game Genre

Video game genre is a specific category of games related to similar game features. The genre of video game is usually not defined by the background, story or game medium of the game, but by the way players interact with the game (Ernest, 2013). For example, first person shooter (FPS), which is a type of video game, takes the first person perspective and focuses on

the combat based on guns and other weapons, that is, players experience the action through the eyes of the protagonist ('First Person Shooter' from Wiki, n.d.). Different game titles may belong to the same game genre. For example, *Counter Strike* and *Over Watch* belong to FPS games.

The advantage of using a certain type of game as the theme of the cybercafé is that it can use computers and other hardware facilities with the same properties, and attract fans of a certain genre of game. The disadvantage is that the click ecosystem is more complex, and the space design of the cybercafé itself is difficult to determine the style.

World Outlook

The world outlook of video games refers to the background framework of game narrative. Almost every E-sports game has a narrative background, because the game designer hopes that the behavior pattern of the players in the game is based on evidence, the art style in the game is easy to accept, and the causality in the game is logical.

Figure 3.7 Types of Punk (steampunkages.com, n.d.)

As Figure 3.7 shows, there are six different science fiction world outlooks. It is obvious that they have different art styles, and there are different social ideas and scientific and

technological ideas behind them. This makes the video game with a certain world view as the narrative background gain credibility.

Different game titles may share the whole same world view, or some part of the game may share a world view. Therefore, cybercafés with the theme of game worldview may be more inclined to create a self-contained virtual world to meet the aesthetic needs of users. The advantage of this is that designers can actively use the original characteristics of space (space oriented) to create a space with unique aesthetic style. The disadvantage is that the association between cybercafé and game titles is not strong enough to get funding.

3.3.1.4 Analysis of Theme

This section is for all theming directions.

After determining the theme, designers need to think about the significance of the theme to the cybercafé space. The meaning here refers to the additional meaning corresponding to the original meaning in **3.3.1.2**. In the author's opinion, E-sports theme cybercafé is a unique gaming space. This kind of space is still based on the "techno-social" meaning, but with the addition of video game elements, it has a sense of rebelling against the real world. It always reminds customers that they are standing at the intersection of the virtual world and the real world, which is different from outside. This difference is not just a single function or an aesthetic detail. It needs to cover the whole space as much as possible, so as no one see the flaws and break their illusions. In other words, the existence of E-sports cybercafé is based on another world basis. The designer needs to establish such “basis of a world” of this world early in the design process.

An explanation of this design tools in Figures 3.8 and Table 3.6 can be found in **2.3.1.4.2**. In the author's opinion, there is no difference between the all six levels in Figure 3.7. From the abscissa point of view, the choice of the three attributes, real, mixed and virtual, needs to be consistent with the theme. The choice between Depth and Surface depends on the target market, the average consumption level of users, competitors and the investment intention of client. Obviously, deep theming can make the world expressed in theme space more convincing, but it will inevitably require a longer design cycle and cost more money. In contrast, the surface theme can save a lot of money and time, but the competitiveness of theme Internet cafes in the market for senior E-sports fans will also be compromised. The result here needs more consideration and trade-off from client.

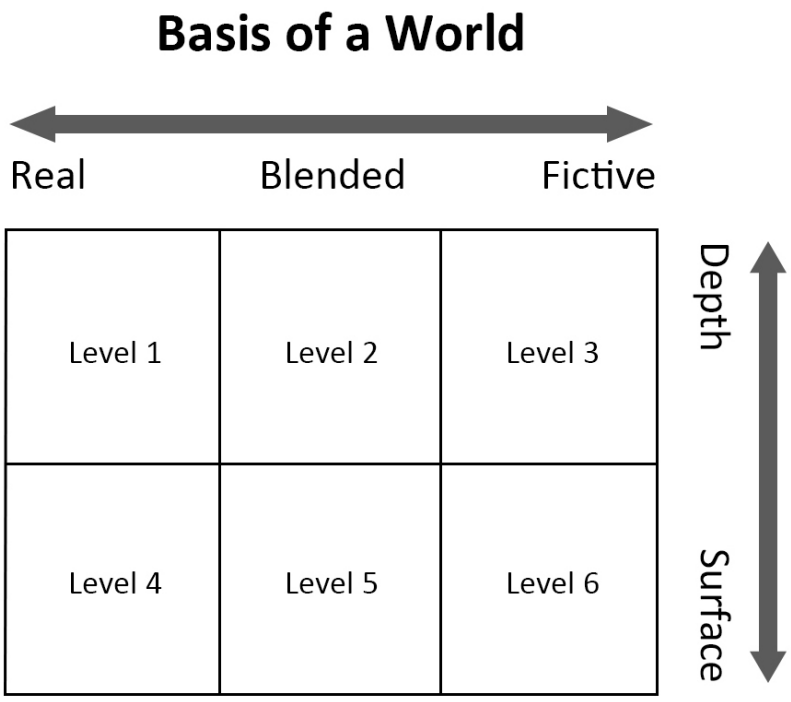


Figure 3.8 Basis of World (Remake)

Type of World	Level	Basis	Examples	Common Uses
Real (Depth)	Level 1	Based on the real world, attempts to create in detail	The Venetian (Las Vegas)	Historical museums, casinos, some theme parks
Real (Surface)	Level 4	Based on the real world, focuses on less detail and more surface	Europa-Park (Rust, Germany)	Theme parks, themed restaurants
Fictive (Depth)	Level 3	Based on the fictive world, attempts to create in detail	The Wizarding World of Harry Potter	Theme parks, themed restaurants, lifestyle stores
Fictive (Surface)	Level 6	Based on the fictive world, focuses on less detail and more surface	World Joyland (Changzhou, China)	Theme parks, some lifestyle stores
Blended (Depth)	Level 2	A blend of real and fictive world, atempts to create in detail	Celebrity Solstice	Curise ships, some casinos, branded shops, and restaurants
Blended (Surface)	Level 5	A blend of real and fictive world, focuses on less detail and more surface	(Some) Tiki bars	Some shopping malls, lifestyle stores

Table 3.6 Type of Worlds (Remake)

3.3.2 Function

As the second layer of "demand pyramid", function will be the extension and embodiment of "meaning". In this part, the author also divides the function design of E-sports theme Internet bar into "original function" and "additional function". The specific aspects of the two functions can refer to Table 3.1. The reason for this arrangement is very simple: in order to facilitate designers to clarify the priority of functions in the design process.

The direction of theming mentioned in **3.2.1** has little influence on the function design stage. The changing factors of theme-oriented design are location and scale, while the changing factors of space oriented design are theme. These uncertain factors have become certain factors in the meaning stage. Therefore, the design criteria in the functional design stage are universal.

3.3.2.1 Original Function

The original function of cybercafé is to provide users with a space to surf the Internet and socialize (Laegran & Stewart, 2003). From the author's point of view, the social interaction

between some users will not affect the online experience of other users in such techno-social space. Designers may use the above principle to filter additional functions.

As for how to build the original functions of cybercafé (such as how to lay optical fiber and other hardware design problems), it is an engineering problem, which will not be described in this thesis.

3.3.2.2 Additional Function

The additional functions of E-sports themed cybercafé are mainly reflected in the unique interactive characteristics of E-sports. The interactive characteristics of E-sports can be roughly divided into four categories: player-computer interaction, player-player interaction, player-game interaction, and audience-match interaction. Since E-sports are based on video games, most of the characteristics of E-sports activities can be traced back to video games. As mentioned earlier in this article, the original function of cybercafé is to provide an environment for people-Internet interaction and people-people interaction, so the additional functions of E-sports theme Internet cafes can also be expanded according to the characteristics of this interaction. According to the information in Chapter 2, the interactive characteristics of video games can be divided into three types, namely: player-computer interaction, player-player interaction, and player-game interaction (Friedl, 2002). As for audience-match interaction, it is a unique attribute which is summarized by the author according to his own understanding of E-sports activities. E-sport is a competition activity based on video games. The main difference between it and people's individual video game activities lies in the competition and the audience. Therefore, the author concludes that the interactive characteristics of E-sports should be based on the original three interactive characteristics of the game, and increase the interaction between the audience and the

game. Next, this thesis will explain what additional functions each interaction may bring to the E-sports themed cybercafé.

3.3.2.2.1 Player-Computer

Since E-sports is an activity based on video games, and the playing method of these games is based on the information exchange between users and computer and other hardware facilities (Yan, 2014), providing high quality hardware facilities is an indispensable additional function for E-sports theme Internet cafes. Generally speaking, hardware facilities refer to computers and various accessories, such as game mouse, game keyboard, ergonomic chair, etc. These hardware facilities are usually expensive. For clients, in addition to interior decoration, more capital will be invested in purchasing this hardware. Fortunately, many brand sponsors in the E-sports industry are related hardware manufacturers. The cooperation between E-sports theme cybercafé and these sponsors is likely to save the cost of some hardware equipment. In addition to the early investment in hardware equipment, the E-sports theme cybercafé also needs to provide technical personnel (maintenance personnel) for the equipment to ensure that this sophisticated electronic equipment can operate stably for a long time.

Second, considering the different consumption levels of users, they have different expectations for the quality of cybercafé hardware equipment. The E-sports theme cybercafé should provide a variety of different levels of hardware facilities, and divide them into different areas when designing the spatial layout.

Third, hardware devices (whether electronic or non-electronic equipment) have certain aesthetic functions, while a certain number of the same hardware devices will affect the overall

atmosphere of cybercafé. Therefore, at the functional level, designers need to make an early plan for the subsequent atmosphere design and aesthetic design.

Finally, it is worth noting that although the current mainstream E-sports events are computer games, with the development of technology applications, emerging hardware devices of video games may replace computers in the future. E-sports theme cybercafés need to continuously pay attention to this trend, keep the equipment updated and stay in the front of the trend, so as to maintain the attraction to customers.

3.3.2.2.2 Player-Player

For E-sports themed cybercafé, the player-player interaction can be divided into two parts. First is the player-player interaction in the game that mentioned in **2.2.2.1.1** of Chapter 2; the other part is the player-player interaction shaped by the cybercafé space. For the first part, the player-player interaction follows the internal rules and playing methods of the game. For the second one, the interactive function of player in the real space provided by cybercafé should be based on the interactive form in the game, and should be appropriately expanded and strengthened.

According to the characteristics of E-sports games (in **2.2.2.2**), the author infers that "communication type" and "aggressive type" players (Meng, 2008) account for the majority of E-sports players. The interaction mode between them mainly focuses on competition, cooperation and communication. E-sports themed cybercafés should design a unique space layout around these three aspects, or additional hardware or software equipment. For example, the current mainstream E-sports games adopt the cooperative competition mode of 5v5 (Zacny, 2014). Users usually play with their friends in cybercafé, thus designer should try to put 5 groups

of computer equipment together when designing the space layout, so as to enhance the sense of cooperation in real space. For competition, cybercafé can also start from the spatial layout to create an online and offline game arena with the same time and space. However, for an E-sports themed cybercafé that wants to attract senior users, the competition should not stop at the design of hardware or space layout. The masters of E-sports often value the honor accumulated by many victories more than the pleasure brought by one victory. Cybercafés can design a local ranking system according to users' competitive mentality to record and show off those excellent players. For communication, in addition to the design of layout and hardware, designers can consider increasing the topic of cybercafé through subsequent atmosphere design and aesthetic design, so as to achieve the function of promoting communication.

On the other hand, considering that E-sports activities generally have a certain threshold, that is, new players need the help of old players to adapt to the competition faster, cybercafé may try to add new things to player-player interaction, such as signing contracts with talents who are good at E-sports to make them become E-sports coaches resident in cybercafé. In fact, this is the same as bowling, golf and other sports with the same technical threshold. As long as a certain E-sports industry is still hot, fresh blood will continue to flow in, and the coaching industry will have room for development.

3.3.2.2.3 Player-Game

In the process of the game, players need to focus on the operation of the computer, so the interaction between players and the game is mainly through visual, auditory, and tactile connection. Outside the game, the interaction between players and the game will be determined

by the sensory stimulation provided by the whole space. (player-game interaction here refers to the interaction between players and game content in a broad sense, not just game competition).

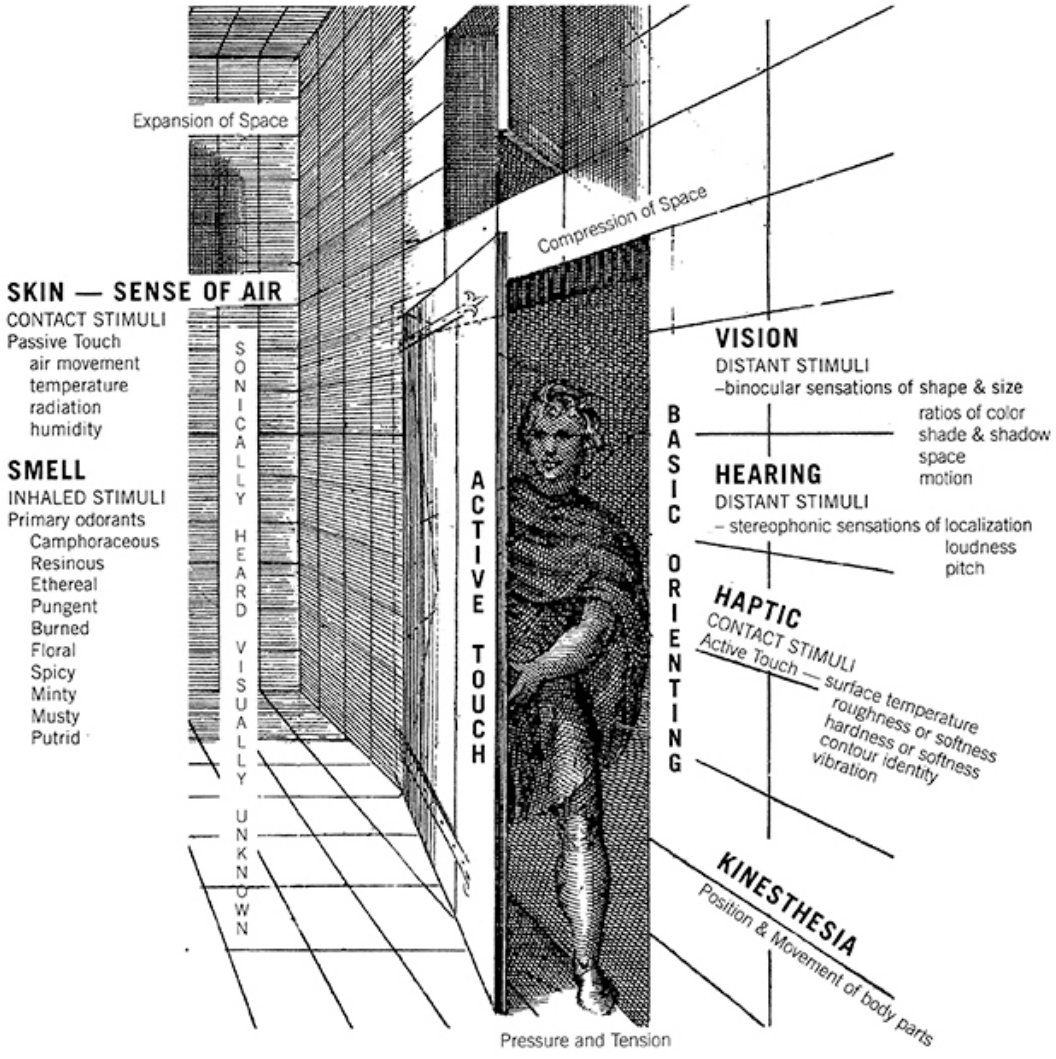


Figure 3.9 Ranges of the Senses (Malnar & Vodvarka, 2004, p.151)

As shown in Figure 3.9, the interaction between human and a space is multi-sensory. The author believes that player-game interaction does not only exist in game competition. The content and the rules of E-sports games will remain in people's memory after the end of the game. Although most of these memories come from the visual and auditory stimuli provided by the computer, players can feel the clues of other sensory stimuli. A classic example is the butter beer

in Harry Potter. In the movie (though not a video game), the audience perceives butter beer visually, but can't get the satisfaction of taste. After that, butter beer will become a word symbol and visual symbol, which may remain in the memory of fans, until a certain day, in the Wizarding World of Universal Studios, the taste in imagination has been fulfilled. This is a form of interaction beyond the film's audio-visual experience. The author believes that the same form of interaction can also exist in the game as the background of E-sports theme cybercafé. The design process of this part of interactive function will be explained in detail in the atmosphere design.

Figure 3.10 Butter Beer in the Harry Potter Universe (Helwig, 2019)

3.3.2.2.4 Audience-Match

This thesis argues that the audience-match interaction is the unique characteristic of E-sports, which is different from the three interactive characteristics of video games. The most important way for E-sports theme Internet cafes to increase their selling points is to hold E-sports events.

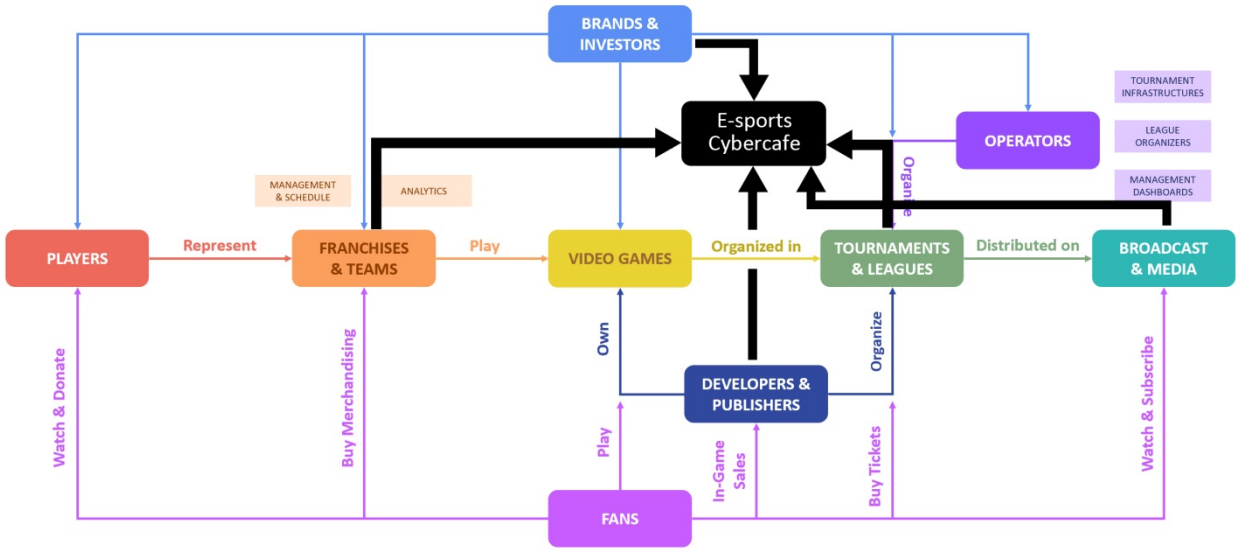


Figure 3.11 E-sports Ecosystem (adapt from Figure 2.18)

As shown in Figure 3.11, after cybercafés have the capability to hold E-sports events, they can be more widely and deeply integrated into the E-sports ecosystem. First of all, the competition of cybercafés can attract more talented E-sports players to join. With talents, cybercafé can cultivate their own E-sports teams and attract more resources in the E-sports industry. On the other hand, cybercafés may try their best to plan and publicize their own competitions, so as to maintain the popularity of their reputation in local competitions. For the next step, they may have the opportunity to establish contact with higher level leagues and tournaments. After the popularity of competition rises, cybercafé can cooperate with streaming media to expand the spread of competition and bring more benefits.

The above are the advantages of E-sports themed cybercafé in holding competitions, and the real problems left to designers are how to plan the space, and how to achieve the balance between the competition and other players (the space of Internet cafes can't be compared with that of large-scale competitions).

3.3.2.3 Space Layout

Space layout is the outcome of the function design stage. For the theme-oriented design, this step needs to determine the space scale and divide the space to a certain extent according to the established functions. For space-oriented design, designers may encounter the situation of changing the original space layout according to the function, so they need to compare the original space layout with the new layout at the same time.

The common space layout of cybercafé can be divided into three parts: front desk, open area and independent area (Chu, 2013). This can also apply to E-sports themed cybercafé. Designers need to think about which area the additional functions belong to. If the designer needs to set up a separate area for an additional function, special instructions are required. Next, let's analyze three common functional areas of cybercafé.

Front Desk

The front desk area includes the entrance and front desk of the cybercafé, which is the first functional area for customers. For an ordinary cybercafé, the front desk area plays a role in welcoming customers, handling charge business, and providing some catering services. For the E-sports themed cybercafé, the front desk area first plays the function of separating the outside world from the E-sports space. Thus, it is a good chance for designers to add player-game

interaction in this area. When entering the space entrance, people's senses will constantly explore the key information in the space to identify what kind of place the space is. In this area, the design of familiar E-sports elements (whether visual, auditory, or other implied feelings in the game) can immediately mobilize the user's memory, and then generate psychological images related to the E-sports theme (Malnar & Vodvarka, 2004), and increase the user's expectation of the internal space of the E-sports themed cybercafé. When the user comes to the front desk, he or she will experience a service of accessing the cybercafé system. This process may be manual service or self-service. Just like the check-in of a hotel, users need to complete the process of identity authentication, payment and get permission. For this process, designers can add the player-computer, and player-game interactive functions. Because in essence, the check-in program of cybercafé is similar to the human-computer interaction of many games, designers can use this opportunity to deepen the binding between Internet cafes and themes. As for the catering services provided by cybercafé, designers can also add the player-game interaction. For specific ways, please refer to the butter beer mentioned in **3.3.2.2.3**. In the front desk area, designers can add new functions according to other interactive ways, such as the local leaderboard (player-player interaction) mentioned above.

Open Area

In general, the open area is the largest area in the cybercafé, where most users are concentrated. The main function of this area is to place computers and supporting hardware for users to surf the Internet and socialize. For the additional functions of the E-sports themed cybercafé, the public area contains almost all of the four types of interactive functions. The first is player-game interaction. In addition to using regular decorations, player game interaction can

be used for various auxiliary functions. As the space of public area is usually large and people can walk freely, some guidance may be needed for new visitors. Designers can focus on road sign design. For example, the icon in the game can be used as the indicator, or the well-known scene in the game can be directly referenced for the layout design of the cybercafé public space, so that the real world and the game world coincide to a certain extent. Second, public space is very suitable for designers to design player-player interaction function. Due to the large available area, designers can freely arrange "competition" and "cooperation" seating layouts. Finally, the audience-match interactive function mentioned above is very suitable for public areas. As for how to deal with the relationship between the audience, the game and other game users, it depends on the wisdom of the designer.

Independent Area

The independent area, also known as the private room, is a relatively independent and small space in cybercafé. Its main function is to provide a relatively private space for users with high consumption levels. For E-sports themed cybercafés, a separate area is more suitable to add player-game interaction function, because in an independent and private space it is easier to carry out a variety of sensory active stimulation, such as tactile reward mechanism connection with video game program.

The following is an example for space layout form.

<table>
<tr><td rowspan="4">Theme Oriented</td><td colspan="2">Space Layout</td><td>Functional Area</td></tr>
<tr><td colspan="2" rowspan="3"></td><td></td></tr>
<tr><td>Additional Function</td></tr>
<tr><td></td></tr>
<tr><td rowspan="4">Space Oriented</td><td>Original Layout</td><td>New Layout</td><td>Functional Area</td></tr>
<tr><td rowspan="3"></td><td rowspan="3"></td><td></td></tr>
<tr><td>Additional Function</td></tr>
<tr><td></td></tr>
</table>

Table 3.7 Space Layout Form

3.3.3 Atmosphere

In this section, atmosphere refers to sense of place (Malnar & Vodvarka, 2004), or genius loci (Asdiana & Fachruddin, 2020).

Atmosphere design is undoubtedly the most important part of the whole design guidelines. First of all, most users in cybercafé are immersed in the game world which means they can't appreciate every detail of space. In that case, atmosphere may become the most profound memory of E-sports themed cybercafé. Secondly, the atmosphere design is the connecting step of the whole concept generation stage. As the third layer of the Hierarchy of Need (Adapt for E-sports Themed Cybercafé), atmosphere design will attach the physical and practical functions of the functional design stage to the spiritual framework. This frame will be filled by the aesthetic phase.

How to carry out atmosphere design? First of all, the atmosphere design should be combined with the function, which means the designers first need to select a functional area to do specific analysis. Second, designers need to think about what to add at the functional level. This thesis argues that the atmosphere design should pay attention to the spiritual needs of the users who use the functional area without reducing the function. For E-sports themed cybercafé, this spiritual demand mainly refers to the imagination of E-sports fans for games and competitions. Players usually imagine that they are in the virtual world created by the game, or that they are overlapped with the doubles in the game, or that they are in the scene of the professional E-sports competition and are the protagonists of the competition. As a special entertainment place for a certain kind of E-sports theme, cybercafés should meet or even exceed the imagination of fans. Third, designers should summarize and classify these abstract spiritual needs. For E-sports themed cybercafé, the classification method according to the characteristics

of E-sports in Table 3.1 is one of them. Fourth, designers should consider how to show these spiritual contents. In this paper, the method of space sensory design is applied. Through the sensory slider, all kinds of features (i.e. classified spiritual needs) are concentrated on a sensory matrix, so as to clarify their implementation method and the content proportion after implementation.

Generally speaking, the outcome of the atmosphere design stage is a thematic feature matrix expressed by multiple senses. It will answer the question below: what kind of spiritual content does the designer want to add to the functional area? What's the ratio between the specific pieces of the content? Which sensory stimuli do they use?

3.3.3.1 Original Atmosphere

According to the convention, the author needs to remind the designer at the beginning of the atmosphere design stage. The original atmosphere of cybercafé is relaxed and comfortable. The purpose of users coming to a cybercafé is to surf the Internet as they like and not be interfered by others. Because cybercafés also have social attributes, the atmosphere of Internet cafes is usually not as quiet as libraries. But due to the use of computers, there is still a need to focus on the activities, so the social bar is generally limited to people who know each other. As the E-sports themed cybercafé, designers will certainly face the problem of trade-offs between many additional atmospheres. The suggestion of this thesis is that the additional atmosphere brought by the theme should not interfere with the normal computer environment. (moderate interruption is a manifestation of the lively atmosphere of E-sports, which is enjoyed by some users.). For example, the lights in cybercafé should not be too dim. In order to pursue the sense of science and technology, some cybercafé will change the indoor lighting into dim blue light.

Although this practice is to increase the atmosphere, it greatly affects the user's computer experience and is not conducive to health. The author hopes that the designer will consider the user's original experience of the cybercafé while pursuing the theme effect.

3.3.3.2 Theme Atmosphere

Theme atmosphere, also known as additional atmosphere, is the focus point of the design guidelines. Follow the design method described in **3.3.3**, this section will be divided into four steps to elaborate.

3.3.3.2.1 Review the World Basis

In **3.3.1.3** of this paper, it was mentioned that in the initial stage of design, the designer analyzes the theme and obtains a "Basis of a World" as the basis for determining the space design style. In the initial stage of atmosphere design, this paper hopes that the designer can review the " Basis of a World " determined before, so that to ensure that there will be no imbalance in the selection of features in the next E-sports, a problem which will lead to the result that the space atmosphere does not match the original style.

3.3.3.2.2 Select Functional Area

Next, designers need to choose a specific functional area.

In theory, the functional area can be divided into a very small space, but there are two disadvantages. First, it greatly increases the complexity of the designer's work. Second, it's easy to disrupt the space and violate the design style (" Basis of a World ") set at the beginning of the design. Therefore, the thesis suggests that designers divide the functional areas according to the

spatial classification of normal cybercafé: front desk area, open area and independent area. If necessary, some additional functions will be separated from the partition, and then further refined.

3.3.3.2.3 Select Theme Characteristics

After selecting a functional area, designers need to decide what spiritual content to add in this area, that is, the characteristics of related E-sports theme. According to Table 3.1, we can see that the characteristics of E-sports in the atmosphere design stage are divided into two categories, contents and rules. Next, let's analyze these two types of features separately.

Contents

Generally speaking, the content characteristics of E-sports refer to all audio-visual content with practical meaning within the scope of E-sports, which shape the surface of the E-sports world. The content characteristics of E-sports include the narrative features of E-sports games and the business features of the E-sports industry.

Narrative features refer to the modeling images of characters, props, scenes, etc. in the game, as well as the music effects related to these contents. In the game, narrative features always convey feedback in the game world to the players and tell them what happened. It can bring players the most direct visual and auditory stimulation, but also the most representative of a specific game of unique content. Adding the narrative features of E-sports in the functional area can enhance the interactive function of player game and audience game, and create an atmosphere for users to live in the game world.

Business features refer to the content related to E-sports events, teams, franchisees, brands & sponsors, and media. It represents all the content in the E-sports industry but not in the game. In E-sports themed cybercafés, this part of the content is usually designed according to the requirements of the partners. In the specific functional area, it can mainly strengthen the interactive function of player-player and audience-match, and create a professional competition atmosphere.

Rules

The rules characteristics of E-sports refer to the mechanism and gameplay outside the content. They decide the relationship between different contents, and how the competition should be conducted, and it is the inner layer of the world of E-sports. If content characteristics convey "what happened" to people (players and viewers), then the rule features explain "why it happens". Of course, compared with the contents characteristics, this part of characteristics is more hidden and inconspicuous. It needs people to continue to explore and understand games. The characteristics of the rules of electric competition include three aspects: the simulation and control feature, the reward and punishment feature and the social feature.

Manipulation and control features refer to the way players control the game. It greatly affects the players' cognition of their own avatar relationship and the relationship between avatar and game world. Although there are many classification methods of video games, the classification methods which are characterized by operation control are most recognized by the public, such as FPS, RTS, MOBA, etc. The operation control feature can influence the interactive experience of player computer and player game from a deeper level. In terms of

atmosphere shaping, such features can be combined with narrative features, bringing a deeper sense of immersion in the game world.

Reward and punishment features refer to the mechanism and effect of judging good or bad, victory or failure in the game. Video games are not as free as sandbox games. Its winning and losing conditions are obvious, rigorous and suitable for professional competitions. Therefore, the appearance of reward punishment characteristics often means that the game or game has a critical progress. This part of the features can arouse the joy or negative emotions of the players or the audience, so it is very suitable to enhance the interactive functions of player-game, player-player, and audience-game interaction in the functional area, so as to promote the sense of achievement brought by E-sports.

Social features refer to the way of communication or association of players in e-games, and the social culture of fans outside the game. This part of features is mainly used to enhance the interactive function of player-player and audience-match in the functional area, and also can create a lively atmosphere of electronic arena for the Internet bar space.

For the above five features, we can continue to subdivide the subsidiary features, but this part of the content will be left to the aesthetic design stage, because the atmosphere design stage does not involve the specific details of things.

After a general understanding of the contents and rules characteristics, the designer needs to determine the proportion of these two types of characteristics in the atmosphere design stage (also can be considered as the frequency of features in the space) according to the requirements of clients and partners, and then determine the proportion of each secondary feature. Table 3.8 is an example. $W_C + W_R = 1$, $C_1 + C_2 = 1$, $R_1 + R_2 + R_3 = 1$.

Characteristics	Specific Weight	Feature	Specific Weight
Contents	W_C	Narrative	C_1
		Business	C_2
Rules	W_R	Manipulation & Control	R_1
		Reward & Punishment	R_2
		Social	R_3

Table 3.8 E-sports Characteristic Proportion

3.3.3.2.4 E-sports Space Matrix

After determining the approximate proportion of theme features, designers need to substitute these features into the Sensory Slider tool to study the sensory forms of these features. At this stage, designers need to refer to the local culture's influence on sensory habits obtained from previous cultural research.

Let's start with a brief description of the Sensory Slider tool. Sensory slider is designed according to the Legibility Schematic (Malnar & Vodvarka, 2004, P. 246) to express the overall sensory stimulation intensity (various senses) in the space and the sensory stimulation intensity of special spatial features in each sense.

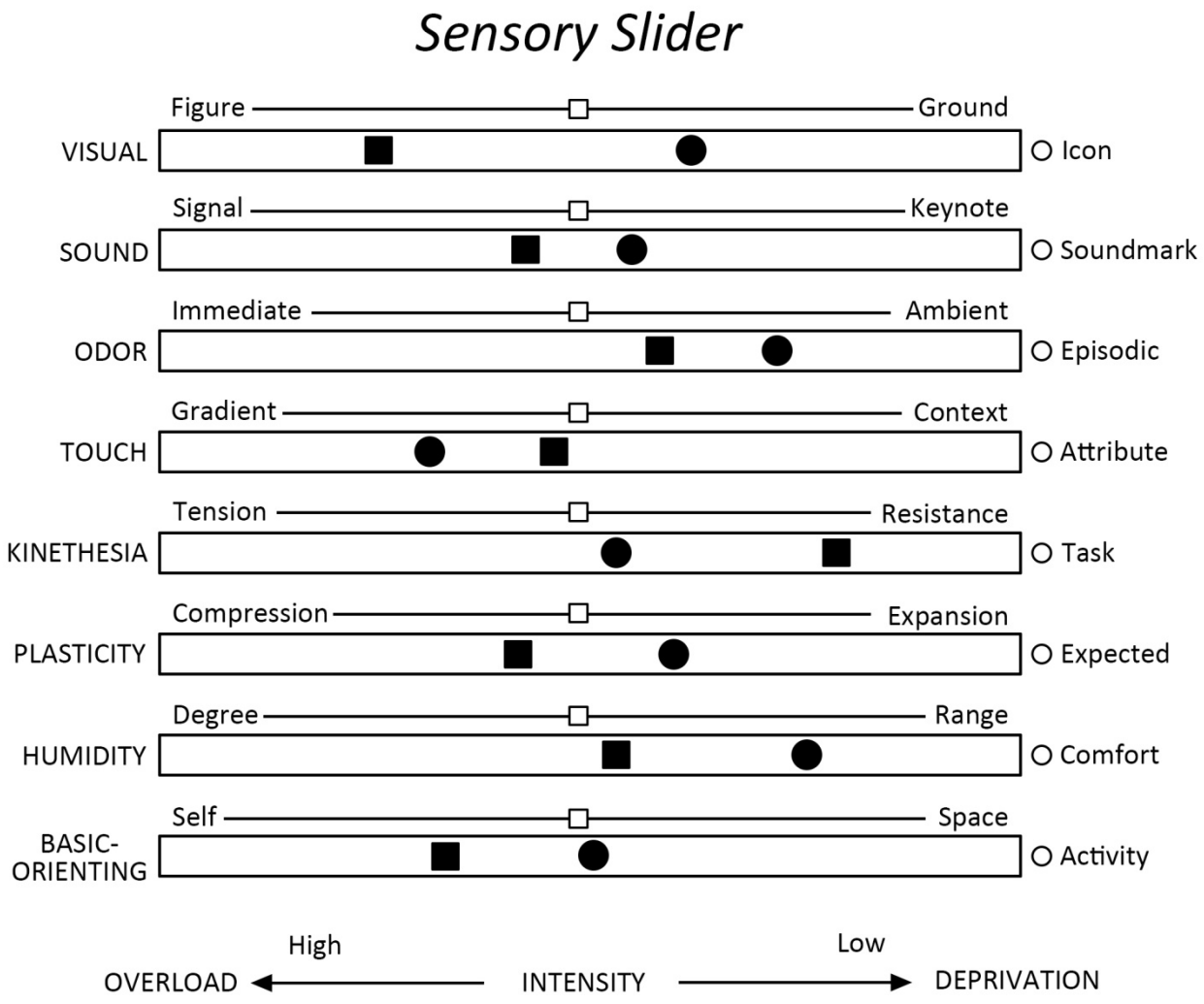


Figure 3.12 Sensory Slider (remake)

As shown in Figure 3.12, "each one describe[es] the extension of figure / ground clarity for a particular sense" (Malnar & Vodvarka, 2004, p. 247). At the bottom of the eight bars, we can see the hint of sensory stimulation intensity. To the left, it represents high-intensity stimulation, that is to say, the figure is more obvious, forming a sharp contrast with the background, which means the complexity of the whole space is stronger; to the right, it

represents low-intensity sensory stimulation, that is, the integration of the figure and the background makes the whole space more coherence. To represent the specific stimulus intensity, the authors of sensory slider used a black box (■) as a slider on top of the bar. On the other hand, in order to represent the sensory stimulus intensity of spatial features, they used a black circle (●) placed on the bar.

For the space of E-sports theme Internet bar, the overall sensory stimulation intensity in the space can still be represented by black box (■). However, there may be more than one type of spatial features in a certain functional area of Internet cafes (so there is more than one symbol). For example, the foreground area of Internet cafes may have both narrative and commercial features in terms of vision, and the proportion of the two is not the same. At this time, a single black circle (●) is difficult to accurately represent the sensory stimulation intensity of spatial features. The author of this study designs a new representation method.

Characteristics	Specific Weight		Feature	Specific Weight	
Contents	$W_C = 0.7$		Narrative	C_1=0.8	C1
			Business	C_2=0.2	C2
Rules	$W_R = 0.3$		Manipulation & Control	R_1=0.2	R1
			Reward & Punishment	R_2=0.5	R2
			Social	R_3=0.3	R3

Table 3.9 E-sports Characteristic Proportion (color mode)

As shown in the Table 3.9, the author uses circles of different colors to represent content characteristics and rules characteristics, meanwhile adjusting the opacity of colors to represent the proportion of the five features. If the opacity of the circle color is low (dark), it means that this feature appears more frequently, and vice versa. The designer substituted five features into the sensor slider as follows.

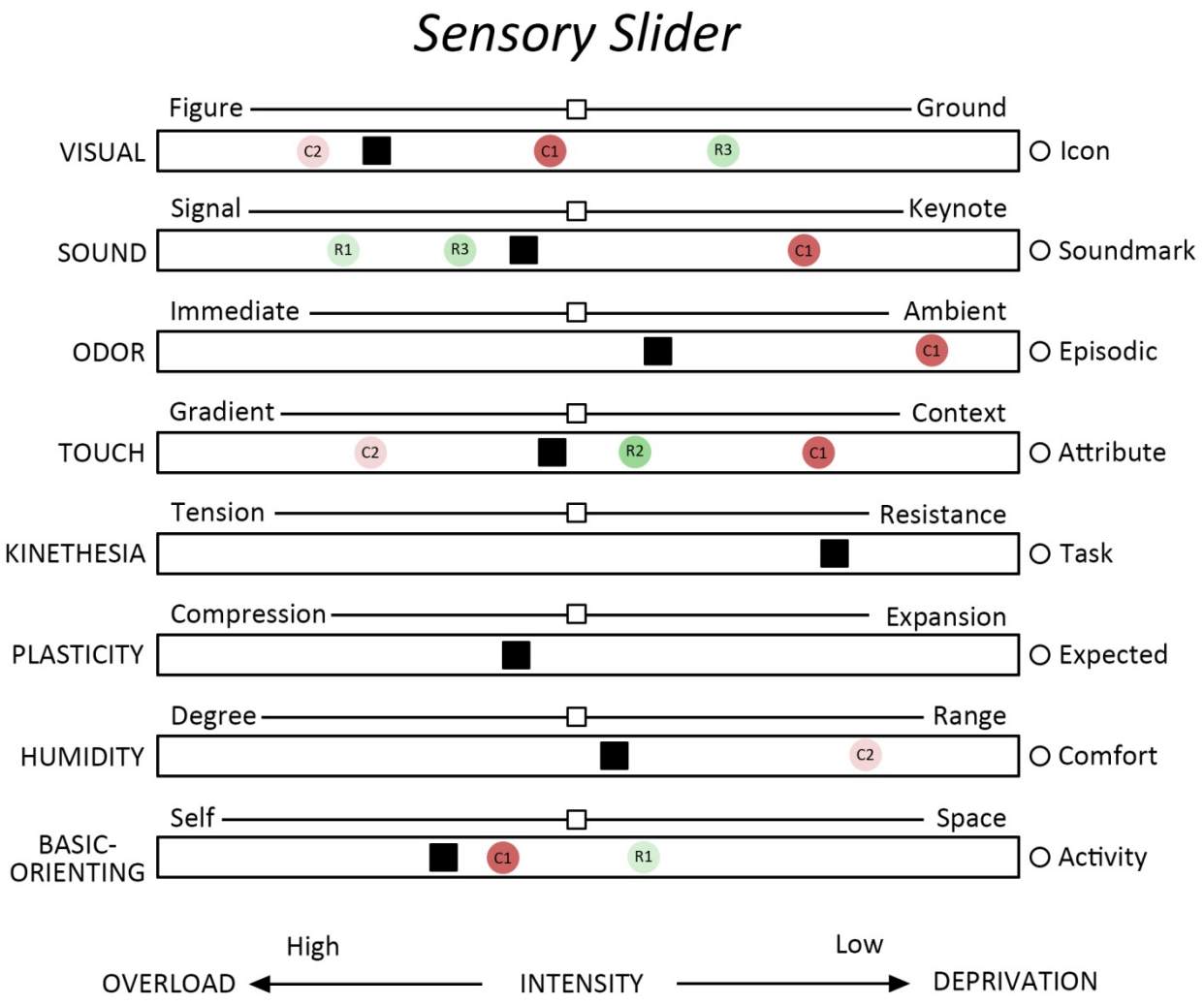
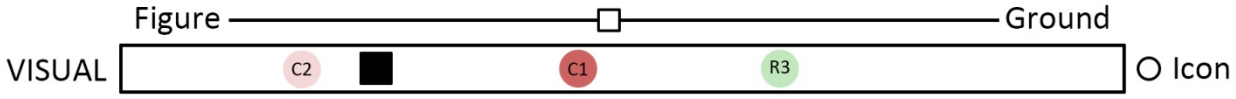


Figure 3.13 Sensory Slider (color mode)

First of all, it can be noticed that the features of E-sports may be concentrated on some senses, while there is no E-sports feature on other sensory bars. The author believes that this situation is acceptable, because not every feature of E-sports can be expressed by senses other

than vision and hearing. Secondly, we can see that the frequency of the characteristics of E-sports has nothing to do with the intensity of its sensory stimulation. For example, as we can see in the visual bar of Figure 3. 12, the business feature (C_2) has the highest visual stimulation intensity, but its frequency in design is only 20%. This kind of situation can be understood as that the commercial features only occupy a small space in a certain functional area, but it is very conspicuous. Designers can continue to think along this assumption. As a visual icon, it is small but very conspicuous. So what could it be (as a business feature)? Designers can list out the specific representatives of each E-sports feature that may meet the situation for a certain sensory bar.



Feature	Icon
Business C2	brand logo, team logo, championship trophy
Narrative C1	Specific game scenes, decorations
Social R3	E-sports term, guild pattern

Figure 3.14 Visual E-sports Feature Analysis Table

As Figure 3.14 shows, designers can list all the specific icons (or sounds, smells, etc) of all the competing features that may appear in a sensory bar. When the designer integrates all the table of the feature analysis of the electric race in this functional area, he or she will get an E-sports space matrix. This matrix includes a number of specific E-sports elements that may add atmosphere to a functional area. Next, designers will further refine these elements in the aesthetic stage, and visualize the spatial design of the whole functional area according to the known sense slider.

3.3.4 Aesthetics

Aesthetic design is the method of concretizing the space atmosphere. At this stage, the designer will further classify the specific E-sports elements in the E-sports space matrix obtained in the previous step. Then, he or she needs to find the similar items of these competitive elements according to the classification, and determine the most suitable element as the representative of a certain competitive feature. Finally, the designer substitutes the selected representative features of E-sports into the previous sensory slider for aesthetic design.

3.3.4.1 Local Aesthetics

At the beginning of the aesthetic design stage, the author still needs to remind the designer: before starting the unrestrained aesthetic design, please pay attention to the local aesthetics. This is not only about the aesthetic design of local cybercafé, but also the aesthetic design of all spaces, places and buildings. In some parts of some cities, the pursuit of novelty is acceptable, while in others it may not be popular. Or perhaps in a short period of time it will be an unpopular design, who knows about the future? Think about the Crystal Pyramid of the Louvre, right?

3.3.4.2 Theme Aesthetics

For a space design project, generally, the aesthetic design will consider structure, material, form, color, lighting, etc. There are also many design guidelines and books in this area, and

designers can refer to these conventional design processes. Here, the author wants to continue the space atmosphere design idea, to carry on with the unfinished work.

Let's see what designers have at this stage. Through the divergent thinking of atmosphere design, the designer obtains a space matrix of E-sports, which includes many specific elements of E-sports that may add atmosphere to a certain functional area. But in the end, these elements are based on the designer's own experience and are based on temporary inspiration, which may be very accurate or may not be accurate. It doesn't matter. Ideas don't come out of nowhere. The designer's instinct has already circled a relatively reliable range for him or her. Then, the designer needs to classify and compare the elements of the E-sports according to the classification system of the characteristics of E-sports.

3.3.4.2.1 Sub-Features

Aesthetics	Suitable for local aesthetic (culture)	Narrative Features	Character Features Activity Features World Features
		Business Features	Franchises & Teams Features Brands & Investors Features Tournaments & Leagues Features
		Manipulation & Control Features	User Input Features Player Management Features Non-controllable Features
		Reward & Punishment Features	General Reward / Punishment Type Features Meta-game Reward Features Payout Interval Features
		Social Features	Social Utility Features Social Formation / Institutional Features E-sports Fans Culture

Table 3.10 Adapting E-sports Characteristics into Cybercafé (half)

Table 3.10 is the second half of Table 3.1. From this it can be seen that the five types of E-sports features described in table 3.10 have three sub-features. This section will introduce these sub-features respectively.

Narrative Features

Narrative features include character features, activity features and world features.

Character features include all characters in E-sports games, whether they are controllable characters or uncontrollable NPCs. Character features include a character's appearance, behavior, personality, background, personal items and positioning in the game. Usually, the characters in E-sports games are avatars that players can play, in which the control of players can be directly reflected in the behavior of the characters. Therefore, character features can also be regarded as the features of player himself in the game world. In the aesthetic design of space, character features usually appear in the form of mural, sculpture, decoration, prompt sound effect and smells.

Activity features are the characteristics of events and behaviors in the game world. In E-sports games, this is usually manifested as the behavior of moving, attacking, communicating, etc., which is very easy to distinguish and directly affects the result of the game. Activities are the connecting points between roles. In the aesthetic design of space, activity features usually appear in the form of structure, color, light, movable objects, temperature change, tactile change, plasticity change and so on.

World features refer to the characteristics of the spatial background in the game. The world features can be a specific game scene, or the world view of the whole game as the narrative cornerstone. In E-sports games, the world features' appearance frequency is much higher than character and activity. However, its sensory stimulation intensity is usually not as

strong as the former two. World features are usually used in the form of background (no matter which sense). For space aesthetic design, the world features of the game can be said to be a replica of the real space or the real world, which can be presented in almost any way. However the characteristics of the game world can only be shown to players through vision and sound. Designers can show many hidden features of game world in real space by deep mining (for example, the surface of the material can be seen in the game, while the touch of the material can be felt in the real world).

Business Features

Business features include franchise and teams features, brands and investors features, tournaments and leagues features.

Franchise and teams features mainly include all derivatives related to E-sports, as well as the characteristics of E-sports teams. The derivatives of E-sports can be divided into in-game sales and so-called out-of-game products. In-game sales include game skin, music package, game special effects package and other virtual products that can be directly applied in the game. Out-of-game products include films and TV works adapted from the game, game models, cosplay clothing and other cultural and entertainment products. Franchise feature is a reference of style and form for space aesthetic design, which makes designers aware of the plasticity of game elements. E-sports teams generally refer to the professional teams that active in a certain E-sports project. They usually appear in the form of clubs, with a certain number of fans, media attention, and cooperation opportunities with game developers. The characteristics of E-sports teams generally belong to E-sports information, which will change with time in the foreseeable short term. Therefore, this part of the feature is applicable to the movable part of the space.

Brands and Investors features are the characteristics of sponsors in E-sports. It includes the logo of the sponsor company, products, spokesperson, corporate culture and so on. Usually, this part of the design will be designated by the sponsor, such as where to put their logo in the space, or brush their theme color in a certain position, or put the company's products in a conspicuous position. Generally speaking, these features can be regarded as advertising features, which often appear in the form of vision, hearing and touch in space aesthetic design.

Tournaments and leagues features include almost all the features of large-scale E-sports competitions. Although a game includes many behind the scenes factors such as planning, later stage, media, on-site interpretation, the most intuitive one is the scene of the game. Many Internet cafes will simply put the answers to the questions related to the theme of E-sports on the characteristics of the competition scene. In fact, many Internet cafes have done so. They learn the supporting hardware for E-sports competitions, turn the space of Internet cafes into the dim blue light and red light similar to the scene of E-sports competitions, and then add a prominent game logo on the background wall. The author thinks that the design of E-sports theme Internet bar is one-sided, because it only covers one secondary feature. Obviously, tournaments and leagues features themselves contains space design, so they can appear in any form in the space aesthetic design of cybercafé, but the question is, what is the significance of doing so?

Manipulation & Control Features

These features include user input features, player management features, and non-controllable features.

User input features refer to the characteristics that players interact with the internal attributes of the game through physical control scheme. For E-sports of cybercafé, this part of

features mainly focuses on mouse control and keyboard control. Of course, it is also inseparable from the hand eye coordination between users and display screen. Different video games have different input features, which will not only affect the user's habits in physical operation, but also greatly affect the user's overall psychological cognition of a game. The players who are familiar with the game operation and the audience who are not familiar with the game operation are the two groups differentiated according to this characteristic. In the design of space aesthetics, such features may exist directly in the form of computer hardware in cybercafé, but designers can also use user input features in other aspects according to its more prominent visual and tactile features.

Player management features refers to the game mechanism features that guide players to achieve the goal of victory by managing all available resources in the game. This feature usually shows the player's understanding of the operation framework of the whole game. For the common electronic games, the failure condition is that the "health value" in the game is reduced to 0, and the players will use all means (such as releasing skills, consuming bullets, controlling money) to avoid failure. In this process, players will experience how the game mechanism controls the performance of game narrative features, so they will master the game playing method. For space aesthetic design, this part of features is more suitable as a space frame or structure. Because it is invisible, even in the game, it also needs the interaction of other visual and auditory features to indirectly show its existence. Therefore, the author recommends designers to learn the concept behind this part of features as much as possible, and hide the game playing method in the space, rather than remind the players through straightforward stimulation.

Non-controllable features refer to a part of the game mechanism that is not controlled by the player. This kind of uncontrollability may be due to the lack of technical conditions or the need of game design. For example, the most controversial non-controllable features in E-sports:

probability. Obviously, the reason why game designers keep the probability in the game is because of the need of game design, in order to increase the uncertainty of the game and enhance the entertainment. However, for professional games, this kind of uncertainty is considered to be an obstacle to the existence of fair competition. The author thinks that uncontrollable factors can be used to describe the mystery of space in aesthetic design, because this feature itself has the property of change, uncontrollability and even unknowability.

Reward & Punishment Features

Reward and punishment Features include general reward / punishment type features, meta-game reward features, and payout interval features.

General reward / punishment type features refer to the common reward and punishment mechanisms in games. Although some games can provide physical rewards, most of the rewards and punishments are psychological. Common rewards in E-sports games include: virtual coin, experience points, upgrades, audio-visual effects when winning, rare items falling, etc. Punishment is opposite to reward. Common punishments include deduction of money, death, audio-visual effects in case of failure, loss of items, etc. For space aesthetic design, designers can supplement the physical rewards that are not available in the general reward / stimulation type features (such as increasing the rewards on touch and smell), and can also use space to reproduce the rewards and punishments in the game, so as to deepen the coincidence between the real world and the game world.

Meta game reward features usually refer to achievement rewards outside the game process, including achievement trophies and percentage of tasks completed. For e-games, which focus on competition, the most common form of meta game reward features is player ranking.

This kind of satisfaction to the player's vanity is much higher than the general reward content in the game. This part of the features can be used for the player-player interaction function of the function design stage, and can also be used to create a lasting competitive atmosphere visually.

Payout interval features refer to the interval features in which players are rewarded in video games. For the vast majority of E-sports games, the rewards players get in the game are instant, no interval. For example, in shooting games, when the player successfully kills the enemy, the visual and auditory effects will immediately give feedback. At the same time, the money and experience system will also give the player rewards. This continuous event consequence relationship shapes the player game relationship, that is, players will not stop the game until the end of the game. In terms of space design, we can refer to the essence of this feature to judge the impact of each interaction from the beginning to the feedback interval.

Social Features

Social Features include social utility features, social formation / institutional features, and E-sports fans culture.

Social utility features refer to player-player communication in the game. This feature usually includes typing, chatting, voice channel of team, interactive action and expression of game characters. This part of the features is very suitable for visual, auditory, tactile stimulation in space to increase the social atmosphere.

Social formation / institutional features refer to the social organizations born in the game, including guilds and teams. These features are used in space design, which can evoke memories of old players and give them a sense of belonging.

E-sports fans culture refers to the specific behavior and language culture of fans existing in a certain E-sports project. As long as the Internet cafe has the possibility to become a competition venue, it must cater to the fans of E-sports. Unprofessional fan culture will obviously reduce users' expectations of Internet cafes.

3.3.4.2.2 Comparison of Similar E-sports Elements

The detailed classification framework of e-game features mentioned in the previous section is the result of the author's synthesis of two kinds of video game classification theories (King, Delfabbro, & Griffiths, 2009; Pérez-Latorre, Oliva, & Besalú, 2016). Designers can also refer to other E-sports feature classification methods to judge and classify the e-sports elements in **3.3.3.2.4**. According to the specific theme of e-sports, designers need to list the similar items of known E-sports elements, and try to find the most popular one. If the specific element does not conform to the "basis of a world", the designer chooses the second specific element. Designers may need to use big data search to find some of the most popular specific elements in a certain E-sports theme.

3.3.4.2.3 Return to E-sports Space Matrix

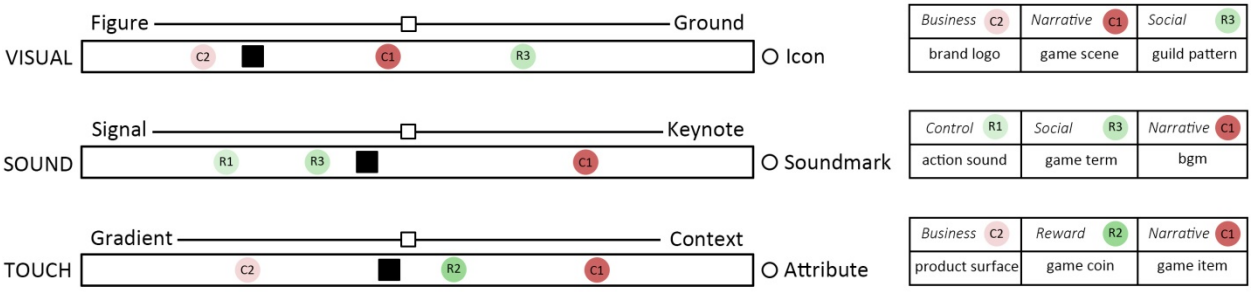


Figure 3.15 E-sports Space Matrix (specific version)

In this stage, the designer will substitute the popular E-sports elements obtained in the previous step into the previous E-sports space matrix. As shown in Figure 3.15, for the special representative of each sensory bar in the space, the designer can determine a specific E-sports element (classified by feature). On the Sensory Slider on the left, the designer can judge the relationship between these specific electronic competition elements. He or she will understand which needs to be highlighted and which needs to be integrated into the background.

According to the existing E-sports space matrix, designers will have a general understanding of what elements need to be added to the space and their respective forms. Next, designers can complete the interior design according to the traditional space aesthetic design (structure, materials, lighting, color, etc.), which will not be introduced here.

3.4 Evaluation

The evaluation part of the project can be scored from three aspects: Meaning, Function, and Atmosphere and Aesthetics. It needs to be explained that in this thesis, the direct correlation between atmosphere and aesthetics is very strong, so it is difficult to separate the two.

The specific scoring mode is shown in Table 3.11. The table is divided into three categories that are already mentioned. The total score (S) is equal to the sum up of each categories score in weight (The equation can be seen at the bottom of the table).

For each category, the author is divided into two sub categories: "original" and "theme". There is no fixed causal relationship between the two subspecies. For example, for the function of the whole project, if the theme function can enhance the original function of the Internet bar, the original function score (S_{OF}) and theme function score (S_{TF}) will be very high. On the

contrary, if the theme function is very attractive, but it will affect the original function, the score of theme function is higher, but the score of original function is lower. Designers or customers can set the importance of a certain part according to the weighting (indicated by "W" in the table).

It is worth mentioning that designers can refer to the local sensory habits from cultural surveys when setting the weighting of theme atmosphere and aesthetics.

<table>
<tr><td colspan="2">Meaning</td><td colspan="2">Function</td><td colspan="2">Atmosphere & Aesthetics</td></tr>
<tr><td colspan="2">$S_M = W_{OM}\times S_{OM}+W_{TM}\times S_{TM}$</td><td colspan="2">$S_F = W_{OF}\times S_{OF}+W_{TF}\times S_{TF}$</td><td colspan="2">$S_A = W_{OA}\times S_{OA}+W_{TA}\times S_{TA}$</td></tr>
<tr><td rowspan="8">Original
Meaning</td><td rowspan="8">S_{OM}</td><td>Original Function</td><td>S_{OF}</td><td>Original / Cultural
(Atmosphere &
Aesthetics)</td><td>S_{OA}</td></tr>
<tr><td>Theme Function</td><td>S_{TF}</td><td>Theme
(Atmosphere &
Aesthetics)</td><td>S_{TA}</td></tr>
<tr><td colspan="2">$S_{TF}=W_{PC}\times S_{PC}+W_{PP}\times S_{PP}$
$+W_{PG}\times S_{PG}+W_{AM}\times S_{AM}$</td><td colspan="2">$S_{TA}=W_V\times S_V+W_S\times S_S+W_O\times S_O$
$+W_T\times S_T+W_K\times S_K+W_P\times S_P$
$+W_H\times S_H+W_B\times S_B$</td></tr>
<tr><td rowspan="2">Player-Computer</td><td rowspan="2">S_{PC}</td><td>Visual</td><td>S_V</td></tr>
<tr><td>Sound</td><td>S_S</td></tr>
<tr><td rowspan="2">Player-Player</td><td rowspan="2">S_{PP}</td><td>Odor</td><td>S_O</td></tr>
<tr><td>Touch</td><td>S_T</td></tr>
<tr><td>Theme</td><td>S_{TM}</td></tr>
</table>

Meaning		Player-Game	S_{PG}	Kinethesia	S_K
				Plasticity	S_P
		Audience-Match	S_{AM}	Humidity	S_H
				Basic-orienting	S_B
$S = W_M \times S_M + W_F \times S_F + W_A \times S_A$					

Table 3.11 Evaluation Form

3.5 Final Delivery

The designer needs to complete the delivery of the final plan. Considering that this design criterion involves the expression of many sensory stimuli, some of which are difficult to express through visual and auditory stimuli, the author suggests that designers should make scale models and related props in addition to 3D modeling, so as to present the best space simulation to customers.

3.6 Construction

The final step is to put the final plan into construction. This paper does not involve the specific construction process, so please refer to the relevant books for specific project construction.

Chapter 4 Design Application

This chapter will explain the specific application of cybercafé space E-sports theming depending on the design guidelines. The specific design process is shown in Figure 3.1. The design application will start from Identify, Concept Generation, Evaluation, Final delivery, to the Construction.

4.1 Identify

Before starting the research, designers need to know the initial conditions of a specific project.

In this chapter, a waste warehouse located in Chaoyang District of Beijing is selected as the basic building for the construction of cybercafé. The warehouse itself has the industrial style of 1950s, and the internal space is kind of large for a normal cybercafé. The client (the owner of the warehouse) is a medium-sized cultural and entertainment company. They hope that the designer can make full use of the space and architectural characteristics of the warehouse and transform it into a unique gaming café. As for the choice of theme, the client stipulates that it must be a mainstream E-sports project with a strong market both in China and around the world. For the future planning of the cybercafé, client hopes that it can get the attention of relevant E-sports organizers and sponsors, and become an E-sports center that can hold small and medium-sized competitions and continue to attract fans' consumption. Therefore, in terms of cost, customers leave a larger space for designers.

4.1.1 Direction of Theming

First of all, according to the customer's intention of "making full use of the spatial characteristics of the old warehouse", the designer identifies that the project has a great chance to be a space oriented theming design. However, the interior space of the old warehouse is very large, leaving the designer a lot of room to play freely. Combined with the client's requirements for the theme selection of cybercafé, the designer judges that this project is a parallel design with space oriented direction taking the main part.

4.1.2 Location Research

After identifying the theming direction of the project, the designer needs to be at the location of the project to carry out the location survey in person. In this paper, due to the limited conditions, the author can only investigate the relevant information on the Internet. It should be noted that the transformation site of the cybercafé mentioned in this thesis is an existing building, and the geographical location is true.

4.1.2.1 Culture

Level 1

First of all, China has a strong cybercafé culture. Since China's first cybercafé was built in Shanghai in 1996, cybercafés have been the main way for Chinese Internet users to access the Internet for a long time (Chu, 2013). By the end of 2010, China's cybercafé users had reached 163 million, and the number of cybercafé nationwide had reached 144000 (renren.com , n.d.). According to the statistics in 2021, there are more than 1300 regular cybercafés in Beijing, including more than 200 in Chaoyang District where the project is located (baidu.com , 2021). Due to the impact of policies and epidemic situation, more than 12000 cybercafés have been

closed in 2020 (baidu.com, 2021). Beijing's small and medium-sized cybercafés have also been seriously impacted. This trend has accelerated the transformation of Beijing's low-end cybercafés to high-end chain cybercafés (baidu.com, 2021). According to the analysis of the existing data, we can draw a conclusion that the competition situation of the cybercafé industry in Beijing is generally showing a downward trend, but the survival situation of small and medium-sized cybercafé bars is worrying, which means the project needs to build itself into a high-end cybercafé, so as to have the opportunity to seize the opportunity after the end of the epidemic.

Second, according to Figure 2.10, in China more than 80% of users go to cybercafés for video games. It can be inferred that the situation in Beijing is similar, and local users also regard games as their main purpose to go to cybercafés.

Third, according to the report of China's game industry in 2020, the number of Chinese E-sports users has reached 484 million, and the domestic game market sales revenue has exceeded 270 billion yuan (Gamelook.com, 2020). In addition, Beijing announced the "E-sports Beijing 2020" plan in 2020, determined to build Beijing into an E-sports Cultural Center in the next 15-20 years (Li, 2020). According to the current data, Beijing has great potential for the development of E-sports industry. However, through relevant policies, it can be predicted that the competition between high-end E-sports cybercafé in Beijing will be more and more intense in the future. This is both an opportunity and a challenge for this project.

Level 2

In this section, owing to the fact that client does not give a definite theme, it is impossible to accurately search the popular elements of a specific theme according to the theme oriented research mode. This section will be carried out with the space oriented theming process.

Firstly, designer needs to analyze the cultural characteristics of the original site of this project. According to the information provided by customers, this building was built in 1958 and is the warehouse of the transportation department of Beijing Commercial Warehousing Company. The large-span inclined roof is supported by wood truss and iron joints, which is a typical warehouse type in the 1950s China, reflecting the aesthetics of structural purification (Gooood.cn, 2018).

Figure 4.1 Facade of the Old Warehouse (Gooood.cn, 2018)

The exterior of the whole building is made of red bricks, and the bottom of the wall is painted with gray wall paint. In the center of the warehouse is a black iron door with two sides. Generally speaking, the whole warehouse is the representative of industrial buildings in China in the 1950s. For the current mainstream users of E-sports in China (18-30 years old), the era represented by this warehouse has gradually gone away. Therefore, this long-standing old

building is only a microcosm of the times for the current and future E-sports users. It does not include the direct life memory of this generation. Yet if someone knows the background of this building, he or she may feel the socialist red memory behind the building and the worker's enthusiasm in that era. After summing up, the cultural characteristics of the building can be summarized as several key words: China, 1950s, industry, socialism, workers.

Second, for the local popular E-sports theme, the author can't find the detailed data to Beijing, so the author decides to use data for Chinese popular E-sports theme instead. (Beijing, as the capital, has a large number of floating population from all over China, which is representative of China's E-sports culture, so the data will not be very different.)

Game	Platform	Publisher	Genre	Heat Index	Streaming Hours/Month	Unique Streamers/ Month	Tips/Month (RMB)
Honor of Kings	Mobile	Tencent	MOBA	81,339,636	469,326	62,294	21,572,256
PlayerUnknown's Battlegrounds	PC	PUBG Corp (Steam)	Battle royale	75,164,435	533,788	19,443	23,800,022
League of Legends	PC	Tencent	MOBA	66,851,777	909,657	42,607	24,488,726
Peacekeeper Elite	Mobile	Tencent	Battle Royale	48,090,299	282,752	16,572	12,315,408
Dungeon Fighter Online	PC	Tencent	RPG	30,694,708	174,134	6,544	8,556,453
Counter-Strike: Global Offensive	PC	Perfect World	FPS/TPS	18,084,888	191,100	8,753	5,818,460
Cross Fire	PC	Tencent	FPS/TPS	16,495,318	135,133	6,748	7,019,040
DOTA 2	PC	Perfect World	MOBA	15,463,030	125,059	5,050	5,533,996
Call of Duty: Warzone	PC	Activision Blizzard	Battle Royale	15,437,544	156,188	6,860	2,246,140
World of Warcraft	PC	NetEase	RPG	13,192,018	490,364	15,108	4,239,341
Escape from Tarkov	PC	Battlestate	FPS/TPS	9,544,247	134,657	3,192	3,400,457
Hearthstone	PC & Mobile	NetEase	Trading Card	7,571,157	57,942	3,044	3,415,888
Legend of Mir2	PC & Mobile	Shengqu	RPG	7,510,403	6,854	630	1,718,986
Teamfight Tactics	PC	Tencent	Auto Chess	7,419,935	81,902	5,162	2,077,976
Overwatch	PC	NetEase	FPS/TPS	7,112,509	73,730	2,903	2,993,807
Warcraft 3	PC	NetEase	RTS	6,616,346	68,483	1,341	3,474,080
QQ Speed Mobile	Mobile	Tencent	Racing	6,558,731	29,062	2,172	2,358,314
Nizhan (Assault Fire)	PC	Tencent	FPS/TPS	6,414,183	50,158	1,036	2,543,907
Moonlight Blade	PC	Tencent	RPG	5,940,156	44,534	1,861	2,004,087
HOK Auto Chess	Mobile	Tencent	Auto Chess	5.446.126	13.894	1.423	923.745

Table 4.1 China's Top Streaming Games and Platform (Niko Partners, 2020)

From Table 4.1, we can find that the top five popular E-sports titles in China are: *PlayerUnknown's Battlegrounds, League of Legends, Dungeon Fighter Online, Counter-Strike: Global Offensive, and Cross Fire*. However, due to the client's requirement that the selected E-sports theme must be popular both in China and internationally, the author excludes *Dungeon Fighter Online* and *Cross Fire*, meanwhile brings *DOTA2* and *Call of Duty: Warzone* into the selection range. This thesis reorders the popular E-sports projects selected into the alternative range, as shown in Table 4.2.

Game	Platform	Publisher	Genre	Heat Index	Streaming Hours/Month	Unique Streamers/ Month	Tips/Month (RMB)
PlayerUnknown's Battlegrounds	PC	PUBG Corp (Steam)	Battle royale	75,164,435	533,788	19,443	23,800,022
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Call of Duty: Warzone	PC	Activision Blizzard	Battle Royale	15,437,544	156,188	6,860	2,246,140

Table 4.2 Top Five Popular PC E-sports Titles in China

Level 3

In this section, due to the regional vastness and complexity of Chinese culture, the author is unable to separate the influence of culture on the senses in a particular city. Therefore, the author chooses the background of the influence of Chinese culture on the senses to summarize.

This part will explain the influence of local culture on sensory habits one by one according to the sensory order mentioned in Sensory Slider.

In Chinese culture, the importance of vision comes first, which is similar to western culture. The ancients said: "hearing is false, seeing is true", which means that the most intuitive way to understand the world is through vision. The difference is that Chinese traditional culture is deeply influenced by Taoism. It pursues nature and harmony visually and does not advocate

excessive artificial visual stimulation (Zhao, 2006). This thesis introduces a scoring system, for which the range is 1-10, with visual experience as the full score of 10, to judge the importance of other sensory experience in the context of Chinese culture.

In terms of hearing, the influence of Chinese culture can be divided into two aspects. The first is the secular culture represented by Confucian culture. The sound in the place has a lot to do with the "Righteousness" advocated by Confucian culture. A place full of noisy hawking is often a market place, while a quiet and solemn place with rhythmic musical instruments is often a political place (Zhao, 2006). In other words, the sound of the place has a very important impact on the image and internal meaning of the place. On the other hand, Taoist culture advocates the natural sense of sound. “The great sound is hard to hear.” It means that the better the sound, the quieter and longer it is. Taoism believes that the natural sound is the best, rather than the deliberate pursuit of artificial sound. Confucianism and Taoism make Chinese people's preference for hearing moderate. Therefore, the author thinks that the importance of hearing can reach 8 points according to vision.

In terms of odor, there was an aesthetic culture of olfaction in ancient China, such as incense. Like hearing, odor can also indicate the attributes of a place. For example, the incense in temples, the smell of ink in academies, and the sandalwood in royal palaces can all indicate the function and social status of the place (Zhang, 2015). But for a place, the olfactory experience is mostly invariable, similar to the existence of background. Therefore, compared with visual and auditory experience, the importance of olfaction is slightly lower. The author gives 5 points.

Haptic in Chinese culture (including touch, kinesthesia and plasticity) is often associated with the essence and inner meaning of things. For touch, for example, the feel of cloth can be divided into good and bad. People with low social status will wear clothes made of linen because

they are rough, while people with high social status always wear clothes made of silk because they are smooth. Both kinesthetic and plasticity involve the judgment of the quality of things. "Moving like a rabbit" is a commendatory term to describe the army's quick action; "Being able to bend and stretch" refers to people's ability to adapt to all kinds of situations, endure when they are frustrated, and display their ambition when they are successful (baidubaike.com, n.d.). Generally speaking, tactile sense plays a high role in Chinese culture. The author gives 7 points.

In Chinese culture, temperature and humidity are the most difficult attributes in nature to change by people since ancient times. Therefore, in the pursuit of temperature comfort, Chinese people often use "escape hot" and "escape cold" to express their will. In the construction of space and place, Chinese people are used to using space structure to avoid the heat and cold. In the absence of special needs, the demand of Chinese culture for temperature and humidity is moderate. The author scored 4 points.

Finally, for the concept of basic orientation, Chinese culture attaches great importance to the harmonious relationship between self and environment, so the author's evaluation of its importance is 8 points.

Level 1	Living Conditions of Local Cybercafé	Usage Habits of Local Cybercafé	Local E-sports User Groups
	The low-end cybercafés are gradually abandoned by the market, and the high-end cybercafés will usher in challenges and opportunities	More than 80% of cybercafé users regard gaming as their main purpose	The total number of E-sports users in China is large and will be concentrated in Beijing and other regions in the future
Level 2	Theme Oriented	Space Oriented	

	Preference E-sports Element	Cultural Feature of Space	Local Popular E-sports Theme
		China, 1950s, industry, socialism, workers	PlayerUnknown's Battlegrounds/ League of Legends / Counter-Strike: Global Offensive/ DOTA2 / Call of Duty: Warzone
Level 3	Local Sensory Habits		
	Visual: 10 Sound: 8 Odor: 5 Haptic: 7 Humidity: 4 Basic orientation: 8		

Table 4.3 Local Culture Survey

4.1.2.2 Surrounding Environment & User

Since the project has already had a reconstruction site, this section will start with the analysis of the surrounding environment directly. (Map information is provided by Baidu Map)

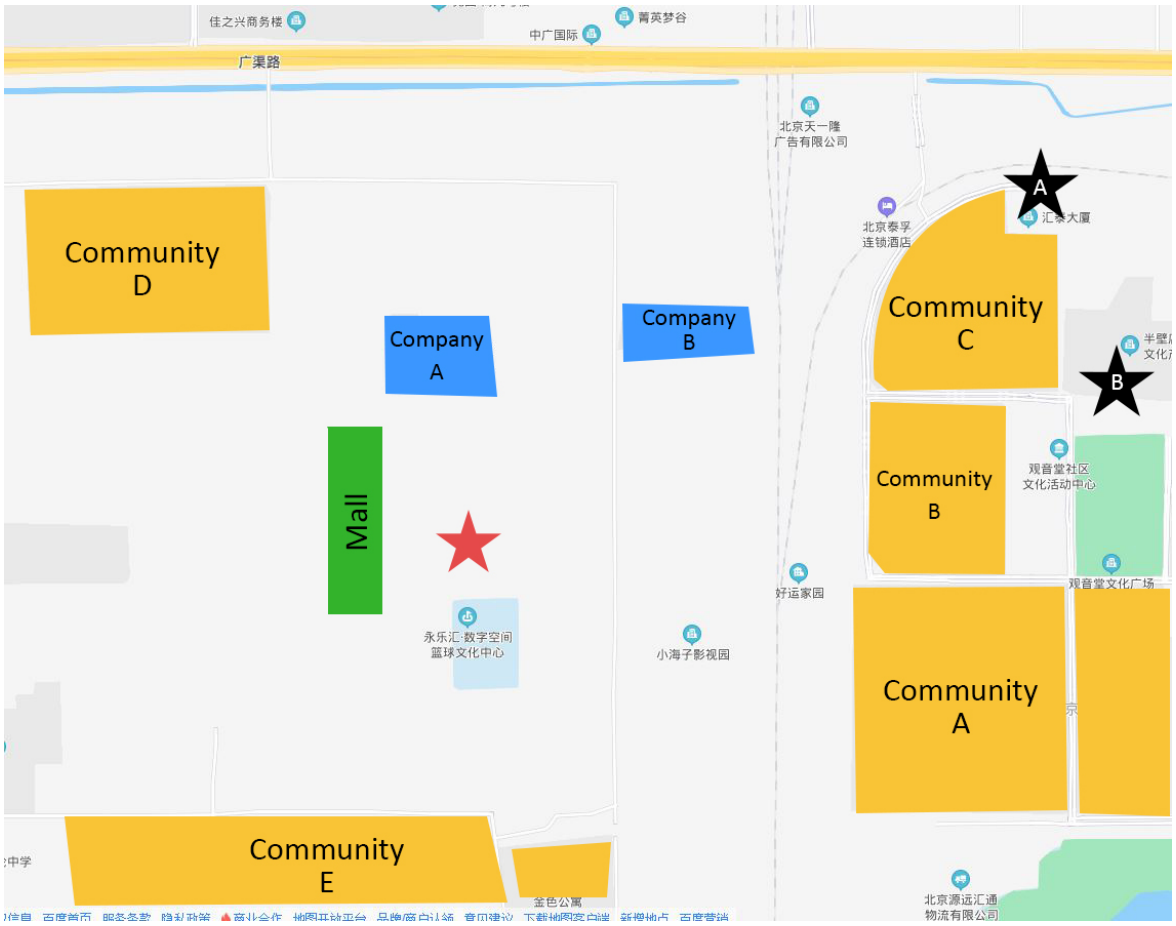


Figure 4.2 Location of Old Warehouse (BaiduMap, n.d.)

As shown in Figure 4.2, the red stars represent the location of the old warehouse, and the two black stars represent competitors' cybercafé nearby. According to Baidu Map, cybercafé A is a low-end cybercafé with a score of 1.5/5. Its interior decoration is poor, and its computer equipment is very common. The average charge is $1-2 an hour. Cybercafé B is an E-sports center that is under construction. There is no charging information for the time being. According to relevant information, cybercafé B can hold small and medium-sized E-sports competitions in the future, but there is no specific theme. The yellow area in the map is the community, the green area represents the large shopping mall, and the blue area represents working places.

Through the analysis of known location information, the potential competitor of this project is cybercafé B. It is also a cybercafé with E-sports as its main selling point, and has the ability to hold small and medium-sized competitions, which may compete with the core business of the project we are doing now. Designers and client need to continue to pay attention to the development of cybercafé B. In addition, because B has no specific theme, on the one hand it means that its business scope is wider, on the other hand it shows that B lacks characteristics. This project can use its unique theme characteristics to compete with cybercafé B.

As for customer flow and per capita consumption level, designer can analyze from the area around the warehouse. First of all, we notice that there is a large supermarket on the west side of the warehouse and two companies on the north side, which indicates that there are supposed to be more young and middle-aged people (who are potential customers) flowing around the location of the warehouse. Second, there are five communities around the warehouse. According to the analysis of the business model of cybercafé in the Chapter 3, we can know that the main customers of cybercafé come from a certain range of permanent residents, and the community is the place to provide these potential customers. Therefore, designers need to get information about the average income level of residents in these communities, so as to measure the pricing of cybercafés.

Due to the lack of specific information sources, the thesis will select the E-sports themes preferred by nearby users according to the data in Table 4.2.

Space Oriented
Nearby Competitor Information

<table>
<tr><td colspan="2">The unfinished E-sports center has a certain scale and can hold small and medium-sized E-sports competitions. Yet, this cybercafé has no theme and lacks uniqueness.</td></tr>
<tr><td>Customer Flow</td><td>Per Capita Consumption Level</td></tr>
<tr><td>300 (estimated)</td><td>$4-8(estimated)</td></tr>
<tr><td colspan="2">Users' Preference of E-sports Theme</td></tr>
<tr><td colspan="2">PlayerUnknown’s Battlegrounds
League of Legends
Counter-Strike: Global Offensive
DOTA2
Call of Duty: Warzone</td></tr>
</table>

Table 4.4 Surrounding Environment & User Survey

4.1.2.3 Space Analysis

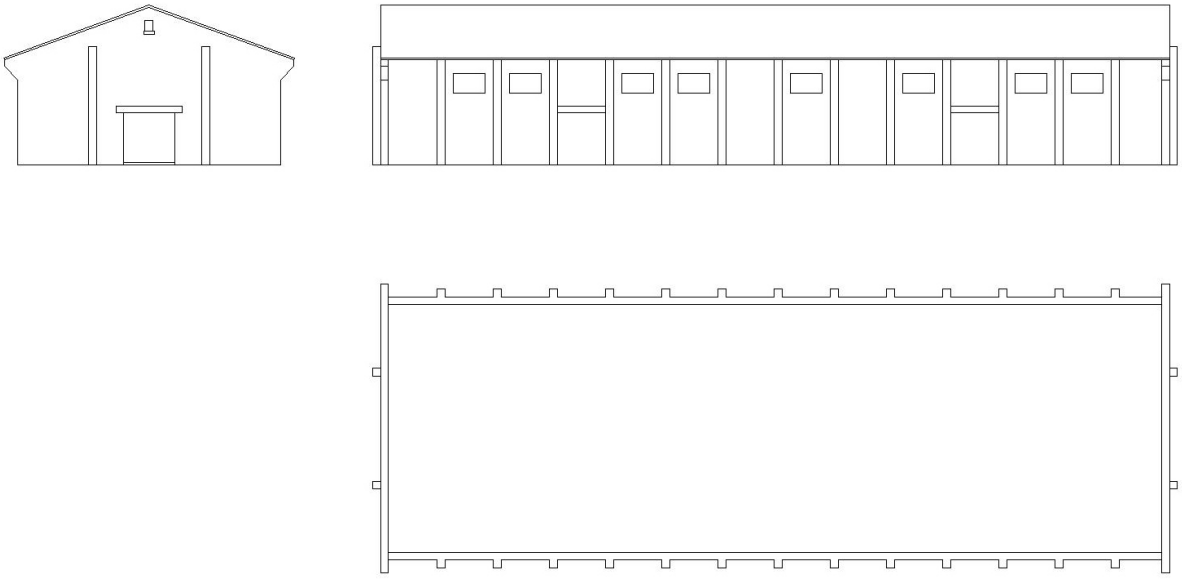


Figure 4.3 Three Views of the Warehouse

As Figure 4.3 shows, the warehouse is 60 meters long, 20 meters wide and 12 meters high (each floor is 4 meters high), covering a total area of 1200 square meters. There is a total of six doors. There are nine windows on both left and right sides of the second floor, but there are no windows on the first floor.

Next, the designer will mainly analyze the spatial characteristics of the warehouse internal space. (This analysis only relies on the existing pictures and the author's common sense. As there is no chance to go to the real scene, the final analysis result may be different from the actual situation.)

Figure 4.4 Interior Space of the Warehouse (Gooood.com, 2017)

Sensory Characteristics

This part will analyze the spatial features according to the Sensory Slider's sensory order.

As shown in Figure 4.4, from the visual aspect, the coherence of the internal space of the old warehouse is strong. In addition to the windows and doors on the white walls around the warehouse (the arrangement of windows and doors is also in strong order), only a few structural beams are used as decoration. They blend harmoniously with the gray cement floor, forming a simple, old and natural space tone. The only structure with great variability is the steel frame structure and wooden roof above the building. From this point of view, although these triangular structures have many layers (from near to far), the overall structure is not complex, but regular

and aesthetic. In addition, the color of steel and wood are very similar; they are brown, even lighter in the sunlight. This makes the roof, walls and floor form a harmonious space. In this space, the figures are reduced, and the people inside will feel the harmony of the background. As for the visual context symbol: icon, the author thinks it is a triangular sloping roof, which is the symbol of industrial buildings in the 1950s.

In terms of sound, due to the huge space inside the warehouse and the surrounding walls, the sound in the space is likely to produce obvious echo. Of course, the premise is that the sound is unique and prominent enough. For an empty old warehouse, its internal sound can be ignored.

As for odor, according to the author's experience, such an old building with a high degree of airtightness and surrounded by bricks, cement, metal and wood will have a faint smell of mildew. People who have smelled this odor will recall the long-standing memory by recognizing it again. It can be said that just looking at the old warehouse, you can smell the smell of the past. The author thinks that this episodic flavor is widespread in space and tends to be ambient.

For “Touch”, the overall tactile perception of space, the author thinks that it tends to be smooth (which is “Context” in Sensory Slider). Sixty years ago, the warehouse's smooth walls and flat ground certainly gave people a comfortable background. But as time goes on, the original flat wall appeared gray marks, the cement floor appeared cracks, and the original obvious paint mark on the ground became dim. The surface gradient with time increases the tactile intensity of the old warehouse, but on the whole, the tactile perception of space is still biased to the context. For the interior of the warehouse, “Attribute” is the texture of the wall and floor.

In kinesthetic aspect, it can be ignored for a regular geometric warehouse.

The plasticity of warehouse space presents a sense of expansion. The four walls are far away from each other and do not give people the feeling of compression; the triangular roof can also be seen as an upward extension. The author thinks that the “Expected” is the spatial shape of warehouse as a whole, and it can also be regarded as the stretching product of the two-dimensional shape of the front of the warehouse.

Temperature and humidity are of little significance to a place where cybercafé will soon be built. Because even if the game wants to express the hot or cold feeling, the inner space of the cybercafé should be dry and comfortable.

In terms of basic orientation, the author thinks it is “Self” (on Sensory Slider). When people are in enough open space, they will feel their own insignificance. The author sets people's activities in the warehouse as walking and aimless walking.

The above is the author's analysis of the spatial characteristics of the original value of the project. Among them, the features of sound, kinesthetic, humidity (and temperature) are not obvious, which is not helpful for finding suitable E-sports projects, so they are ignored in Sensory Slider. Next, this paper will complete the spatial analysis table according to the author's understanding of the five games.

Corresponding Game Features

Figure 4.5 PlayerUnknown's Battlegrounds (Abent, 2021)

The first is *PlayerUnknown's Battlegrounds (PUBG)*, which is a multiplayer online survival game with first / third person shooter as the main genre. The background of the game is based on the real world view, and the gameplay is: a group of players are still on an island, killing each other with hot weapons and melee weapons, competing for resources. Finally only one person can live to win. The visual stimulation of this game is above average. From the perspective of "Figure", because the game can be switched to the third person shooting, players can clearly see the game equipment on the characters, and the visual stimulation intensity often depends on the game equipment. Some players pursue personality and prefer colorful equipment (such as guns in bright color); some players pay more attention to practical sense and prefer camouflage clothes and other equipment with weak visual stimulation. From the "Background",

because the game environment is set on the island, the background is mostly open natural space, or artificial buildings on the island. For odor, the game gives the hint of a battlefield full of natural smell (grass, river, mud) and smoke. Touch aspect, this game's graphics quality is not that high, therefore the tactile stimulation intensity is general. In terms of spatial plasticity, the game does not emphasize this point, but there are scenes that can be destroyed in the game, so the emphasis on plasticity is medium. For basic orienting, players tend to feel "self", because the environment of sandbox map is too large, so players pay more attention to their position in the game.

Figure 4.6 League of Legends (Sebastian, 2020)

League of Legends (LOL) is a MOBA (Multiplayer Online Battle Arena) game. Players will control their characters to fight on the map through the 2.5D perspective. The background of the game is fantasy world, with fantasy creatures and magic. *LOL* has cartoon style and strong

visual stimulation. In terms of odor, the hint given by the game is not real enough, so it can only be represented by the grass, soil and river in the game scene. The author thinks that its olfactory stimulation is low. For touch, players can feel different materials from the game, but because of the screen style, these materials have lost the sense of reality, which is why the author thinks that its tactile stimulation is low. In terms of plasticity, due to the cartoon style, all the objects in the picture look smooth, so the plasticity implied in the game tends to be "Compression". For basic orienting, because of the 2.5D perspective of the game, the player can clearly grasp his or her position, so his or her attention is mainly on the map environment.

Figure 4.7 Counter-Strike: Global Offensive (Kirsch, 2018)

Counter-Strike: Global Offensive (CSGO) is a first person shooter game. The game is played in a 5v5 turn-base. Players need to cooperate with other four teammates to eliminate the enemy and win the game. The visual stimulation of this game belongs to the medium level. Because the picture style is realistic, the space coherence of the scene in the game is strong, and

the only outstanding point is the gunfire produced by oneself or the enemy when shooting. In terms of odor cues, the stimulation intensity was moderate to low. Players can feel the smoke of the battlefield and the flavor of the built environment. For touch, owing to the game graphic having high authenticity, the material of guns and environment can be clearly recognized by the player. The plasticity of the scene in the game is low for the unchangeable scene. For basic orienting, because of the perspective of the game, players need to constantly identify their own position, so the stimulation intensity is high (more “Self” on Sensory Slider).

Figure 4.8 DOTA2 (Kolakowski, 2019)

DOTA2 is a MOBA game. The game is similar to the *LOL* mentioned above. In terms of visual, the graphic style of *DOTA2* is more realistic and detail oriented than that of *LOL*. Like *LOL*, this game also does not emphasize the hint of smell, but players can find more smell clues through more detailed graphic, so the score is slightly higher than *LOL*. Touch also benefits from the details of the game screen, as players can more clearly identify the game environment and the

texture of the characters. In terms of plasticity, because the screen style tends to be realistic, the models (characters, scenes) in the game are angular, and the plasticity is slightly lower than *LOL*. Finally, the basic recognition aspect is the same as *LOL*.

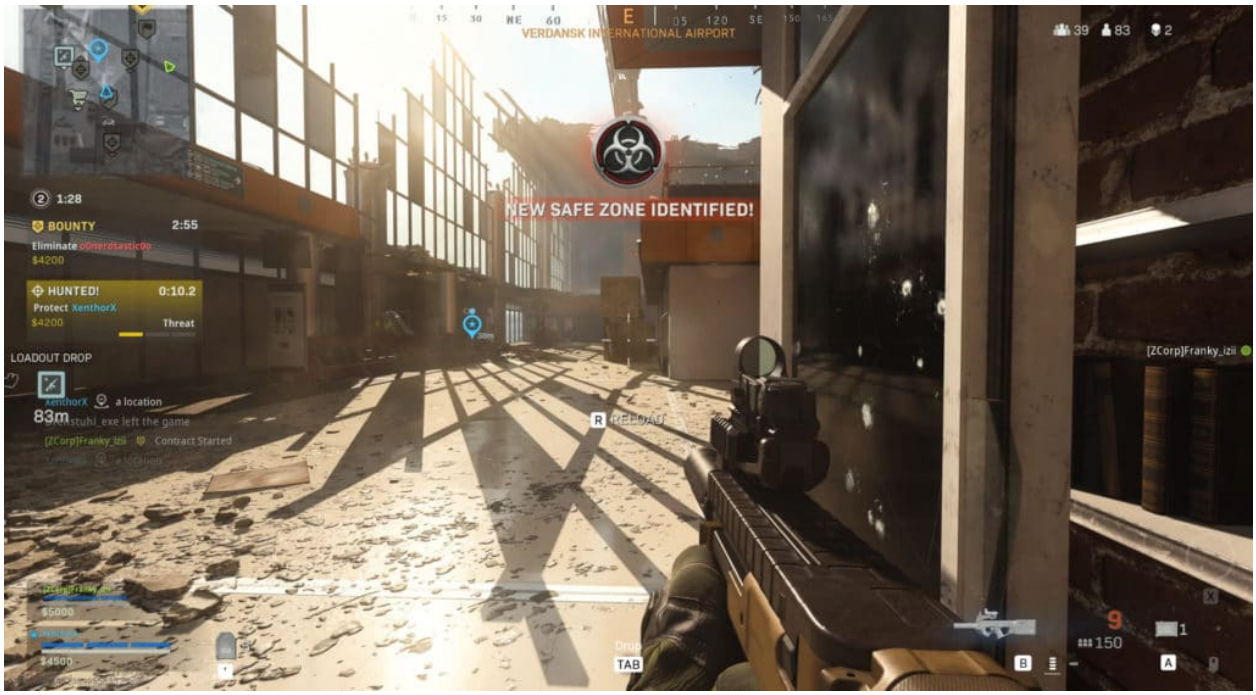
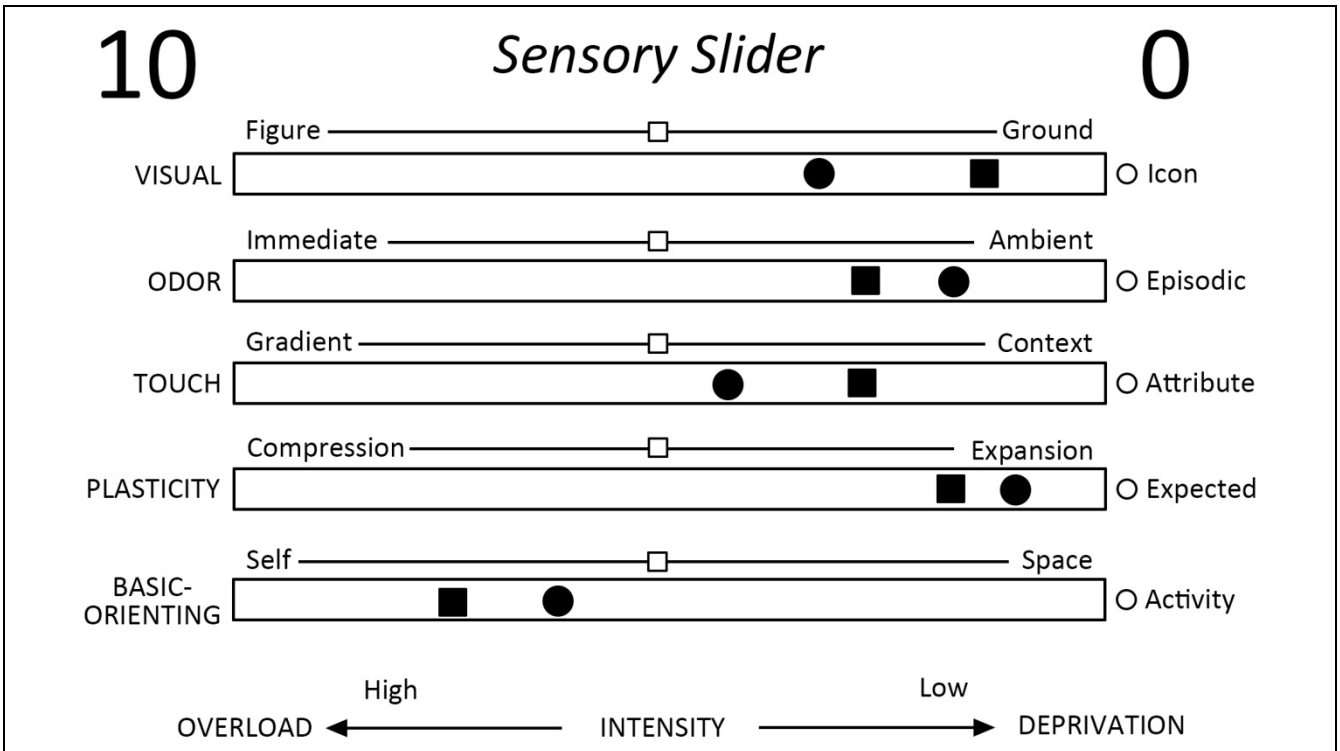


Figure 4.9 Call of Duty: Warzone (Xenthorx, n.d.)

Call of Duty: Warzone is a first person shooter game. Its gameplay is similar to that of *PUBG*, both of which are typical gun battle survival games. Its visual expression is similar to *CSGO*, but more prompt symbols are added in the game, so the complexity of the picture is higher. The olfactory and tactile aspects are basically the same as *CSGO*. Due to the relatively high complexity of the scene, the stimulation degree of plasticity is high. In terms of basic orienting, because the map is more complex, players will spend more energy on self-positioning.



Analysis of Sensory Characteristics	**Intensity of Sensory Stimulation**	**Visual**	**Odor**	**Touch**	**Plasticity**	**Basic-Orienting**
		2	3	3.2	2.5	7.5
	Contextual Symbol	triangular roof	moldy odor	texture of wall & floor	space shape	wandering
Corresponding Game Features	***PlayerUnknown's Battlegrounds***	7.5	5	5.5	5	6.5
		equipment	Smell of nature. Smoke of gunpowder	texture of equipment & environment	changeable scenes	self-orientation
	League of Legends	9	2	2	7	3
		magic	grassland earth rivers	texture of characters & scenes	smooth painting style	search for enemies
	Counter-Strike: Global Offensive	5.5	3	4	2	7.5
		guns, game scenes	gunpowder & scenes	texture of guns & environment	scenes shape	wandering & searching

	DOTA2	9.5	2.5	4	5	3
		magic	grassland earth rivers	texture of characters & scenes	realistic animation style	search for enemies
	Call of Duty: Warzone	7	3	4	4	8
		guns, game scenes, prompt symbol	gunpowder & scenes	texture of guns & environment	scenes shape	wandering & searching

Table 4.5 Space & E-sport Feature Analysis Form

After comparative analysis, the author thinks that the overall sensory stimulation of *League of Legends (LOL)* and *Dota2* is the most different from the sensory stimulation provided by the internal space of the warehouse. Moreover, further analysis shows that the two games are based on fantasy world view, and the game style is also cartoon style, which can't adapt to the spatial characteristics of the warehouse. Therefore, the designer will narrow the choice of Internet bar theme to three realistic style shooting games, which are *PlayerUnknown's Battlegrounds (PUBG)*, *Counter-Strike: Global Offensive (CSGO), Call of Duty: Warzone.*

4.1.2.4 Talk to Client

From the current analysis results, in the local popular E-sports games, there are three game features more in line with the internal space characteristics of the warehouse. From the perspective of game genre, these three games are shooting games, and the game background is based on a relatively realistic world view. However, according to the specific playing methods of the game, it can be subdivided into two different kinds: *PUBG* and *Call of Duty: Warzone* belong to survival shooting games, while *CSGO* belongs to turn-based shooting games.

Designers can suggest clients to choose a certain game genre as the theme of cybercafé, or specific game titles as the theme. But at this stage, the client is still unable to make up their minds. We need to make a business plan and balance the interests before we can make a final decision.

4.2 Concept Generation

In the second design stage, the designer will construct the space of E-sports theme cybercafé from four aspects: Meaning, Function, Atmosphere and Aesthetics.

4.2.1 Meaning

In this step, designers need to first use the information collected in the Identify stage to work out a feasible business plan with client. Then client need to find the best partner according to the suggestions in the business plan. After that, the client will determine the theme (get the authorization) and let the designer begin to conceive the plan of space theming.

4.2.1.1 Business Plan

After the designer's summary of known information, the following business plan is obtained.

Target Market	Customers' Need
Main market: E-sports fans around the warehouse with certain consumption power (being fans of one of those 3 games) Secondary market:	First, high-end hardware equipment. Second, high-end and unique cybercafé environment. Third, have the opportunity to participate in

fans of E-sports in other parts of Beijing, who are not regular customers	E-sports activities.
Problems	**Solutions**
Customers' companies need to establish their own E-sports base, build their own team and bring reputation to the company. At the same time, the E-sports base also needs to have the ability of sustained profitability	The establishment of cybercafé with specific theme can not only hold small / medium-size E-sports competitions, but also carry out normal cybercafé business at regular hours and make sustained profits.
Opportunities	**Challenges**
There is a great chance to attract nearby fans of *PUBG/ CSGO / Call of Duty: warzone.* There is opportunities to attract the cooperation and investment of the developers of the above three games, as well as the investment of E-sports brands There is chance to hold local competitions and may cooperate with high-level leagues in the future	Cybercafé users who are not interested in *PUBG / CSGO / Call of Duty: Warzone* may choose nearby cybercafé B The cost of themed cybercafé is high
Competitors	**Cooperation**
Primary opponent: Cybercafé B Secondary competitors: Cybercafé with the same theme in Beijing	It may cooperate with the developers, franchised dealers and game organizers of those 3 games, but only one game title can be selected.
Business Model	

Cybercafé membership system
Rental of E-sports venues
Selling theme derivatives
Sale of hardware related to E-sports

Table 4.6 Business Plan

4.2.1.2 Determine Theme

By making a preliminary business plan, the customer decides to choose a project in *PUBG* or *CSGO* or *Call of Duty: Warzone* for in-depth cooperation.

After several rounds of business talks, the user finally chose *CSGO*. This game was officially put on sale in Europe and America in 2012. Since its release, this game has been ranked in the top of the world's e-sports game popularity list. Users think that *CSGO* still has great development potential in China, so they choose to cooperate with *CSGO* in depth.

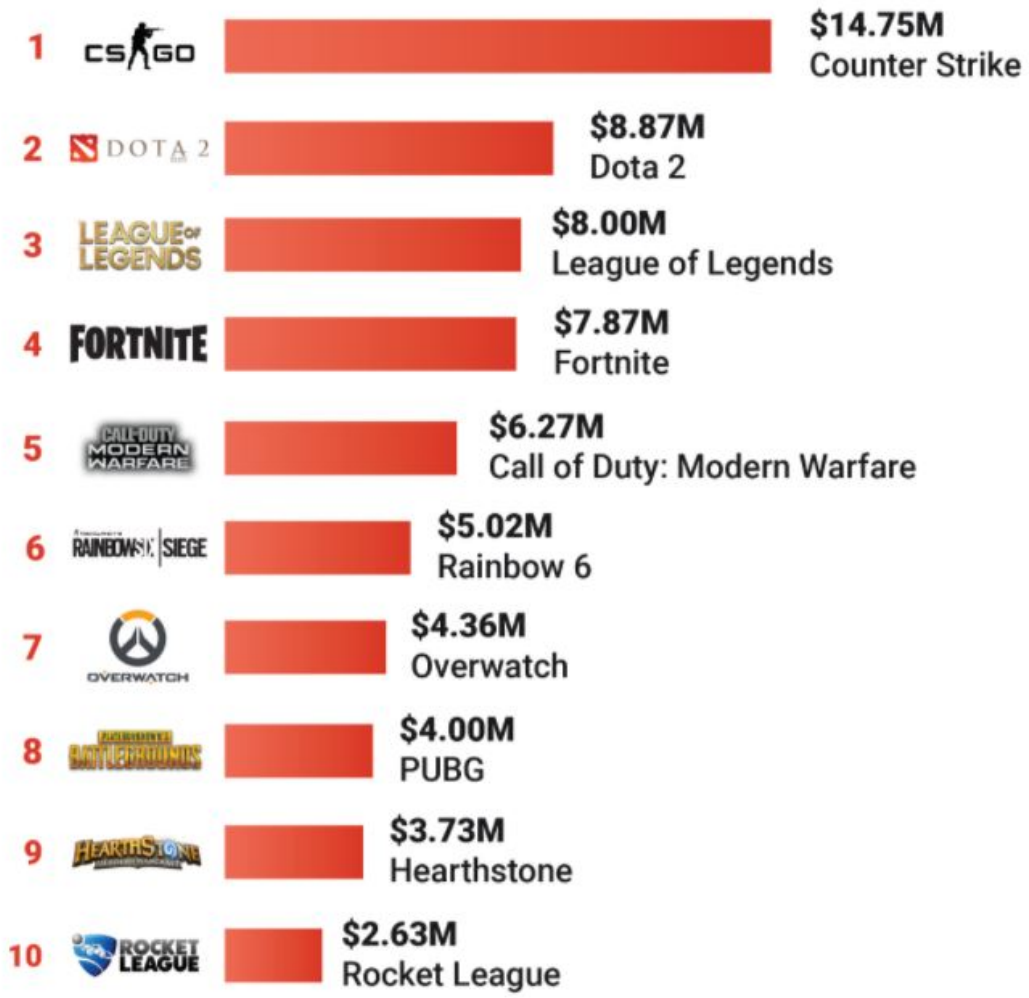


Figure 4.10 Top 10 E-sports Game by Total Prize Pool (Stern, 2021)

Client got the right to use *CSGO*'s game logo and the game image (for space theming), and some agency rights of virtual products in the game. At present, the client has not yet reached any cooperative relationship with the hardware manufacturers of electronic competition.

The above information is related to the following spatial thematic content, so it is explained here. The rest of the business cooperation details of this thesis will not be carried out.

4.2.1.3 Analysis Theme

The background of *CSGO* is based on the real world view. In the game, the counter-strike and terrorists carry out round gun warfare, and the weapons used are existing weapons in reality.

After the customer reached an official cooperation agreement with *CSGO*, the customer decided to design the warehouse into a video game themed cybercafé with deep reduction of game details.

In summary, the "foundation of the world" of the project can be judged as level 1, namely real (depth) in combination with Table 3.6.

4.2.2 Function

For the function design of the theme cybercafé, the designer will first calculate the conventional Internet area (including open area and independent area) that the cybercafé needs to provide in the original function. Then, according to the theme, the corresponding additional functions are developed, and each function is arranged in the main functional area. Finally, according to the characteristics of additional functions, the layout relationship of the three functional areas (front desk, open area, independent area) is planned. If necessary, designers may add new functional areas.

4.2.2.1 Original Function

For a cybercafé, its original function, or basic function, is to provide enough computers for customers to use. Therefore, first of all, designers need to estimate the number of computers needed by cybercafé.

Before calculating the number of computers in Internet cafes, we first explain a concept: Attendance Rate. Here we use A_R to represent the attendance.

A_R = customer flow (C_F) / number of PC (N_P)

Attendance rate can represent the popularity of a cybercafé. In general, the attendance rate of high-end cybercafé in big cities can reach 0.7 - 0.8 (baidu.com, 2021). As an optimistic estimate, the attendance rate of this cybercafé is 0.75. According to the customer flow in the previous survey that is 300, designers can calculate the number of PCs required for cybercafé:

NP = CF / AR = 300 / 0.75 = 400

That is to say, the cybercafé needs about 400 computers to meet the needs of customers.

In addition, according to the relevant regulations of Beijing on cybercafé, in order to prevent the crowding of cybercafé and leaving fire hazards, the area of each computer in the cybercafé shall not be less than 3 square meters (baidu.com). The designer can calculate that the cybercafé needs to provide 1200 (3 * 400) square meters of use area for the computer in total.

As mentioned in **4.1.2.3**, the total floor area of the warehouse is 1200 square meters. Because cybercafé also need to provide other use area (such as front desk, aisle), the area of the first floor can't meet the normal Internet area of cybercafé. Therefore, the designer needs to transform the warehouse into a two-floor building.

(The calculation method mentioned in this part is only used for the data assumption of this case, and it is not widely representative, so it will not appear in the design method in Chapter 3.)

4.2.2.2 Addition Function

This part will design the additional functions of cybercafé according to the relevant features of CSGO.

4.2.2.2.1 Player-Computer

According to the consumption level and entertainment needs of customers, the designers divide the computer performance of cybercafé into three levels: primary, intermediate and high-end. Each level of computer is equipped with different hardware, which is reflected in: mouse, mouse pad, keyboard, headset, seat, and table. In **2.2.2.1.1**, this paper mentioned that for computer games, player-computer interaction is mainly reflected in vision, hearing and touch. According to these three sensory systems, designers set up different sensory experience features for different levels of computers (as well as their supporting hardware facilities). In addition, designers will arrange the space environment according to the computer level. The higher the computer level, the better the environment. In this way, customers can more clearly realize the advantages brought by the improvement of the level, so as to attract consumers to high consumption areas.

In the area division, human-machine function belongs to open area and independent area.

4.2.2.2.2 Player-Player

First, *CSGO* is a 5v5 round shooting game. In this fierce game, the communication and tacit understanding between teammates is very important. In professional competitions, the layout of the field is usually that five people in each team sit in a horizontal row, and the interval between each team is not too far. Designer supposes that the E-sport cybercafé should refer to

the seat layout of the competition, with 5 seats as a group. In open area or in independent area, the seating arrangement should be arranged as many as possible by 5.

Secondly, the designer thinks that a proper relaxation area should be added (or divided) in the open area. *CSGO* is a very energy consuming electronic games, and the outcome of the game often has a certain degree of impact on the psychological state of players. Players will feel tired after a long game, and even feel down because of the loss of the game. The cybercafé needs to prepare for this situation. Designers think that the relaxation area should be set up with a sofa, green plants and other relaxing items, while leaving some space for players to walk freely. In addition, the location of the relaxation area should be close to the center of the cybercafé, so that players in each area will not be too far away from the rest area. It should be noted that the relaxation area is not included in the cybercafé, although it may be located in an open area.

Third, the designer hopes to set up an honor wall in the relax area, on which the badge of the team or guild resident in the cybercafé will be placed (whether by physical means or digital means). This can increase the sense of belonging and achievement of frequent visitors.

4.2.2.2.3 Player-Game

In 3.3.2.2.3, this thesis mentioned that player-game interaction in cybercafé can provide sensory experiences that cannot be experienced in games. But that's not to say that the minutiae of the game, or the sensory experience that is never hinted at, are worth discovering. The designer should first focus on the most unique and memorable elements of the game, and then try to discover their appeal from the perspective of a novel sensory experience.

According to the designer's current understanding of the game, the most unique elements of *CSGO* are: first person shooter, weapon, game map (scene), sound, camp (counter strike VS

terrorist), balance (game rules), and professional team. If someone wants to add the interactive function of player game in the Internet bar space, then these elements are the first choice.

After considering, the designer supposed that the game scene elements should be added to the entrance (which is belonging to the front desk area). In view of the importance of vision, designers believe that customers' interest in cybercafé will start from the visual elements of the entrance of cybercafé, so the visual interaction effect at the entrance must be very significant. But at the same time, this visual effect must conform to the world basis: Real (depth), so the CSGO scene with high authenticity and characteristics is the most suitable element.

From the entrance to the front desk, the designer plans to join the game sound interaction. As customers wear earphones most of the time in the Internet bar, it is difficult to notice the interaction of sound, so the designer decided to put the player-audio (game) interaction function at door position.

In the front desk area, designers plan to add *CSGO* equipment display functions (vision, touch), and the selling functions of products around the game, such as the mouse (visual, tactile) named by professional team, or drinks (visual, taste) jointly named with the game (for example: *Coco Cola – CSGO*).

In addition, for the software (membership system) in the front desk area, designer thought that they can join the interaction of game rules, for example, borrowing the ranks and upgrading mechanisms in *CSGO* to attract customers to become members.

In open and independent areas, designers plan to add on game scene elements. This design will meet the two unique elements of "first person shooter" and "map" mentioned earlier. Because the perspective of customers is basically different from that of CSGO, if the customer sees familiar scenes in the game, he or she will easily place himself or herself into the game

atmosphere. This interaction is mainly through visual senses, but unlike in the game, customers can better feel the touch, kinethesia and plasticity of space in real space.

In open and independent areas, designers think they can join the visual interaction of "game camp" (counter strike VS terrorist).

In addition, according to the official requirements of *CSGO*, the cybercafé should also add *CSGO* logo in a conspicuous position in the front desk area.

4.2.2.2.4 Audience-Match

As the client clearly stated that "This cybercafé need to have the ability to hold small and medium-sized E-sports competitions", the designer planned to separate a "professional competition area" in the open area. The cybercafé needs to create the feeling as close as possible to professional E-sports competitions. The high-ended computers, tables, chairs and related hardware in this area should be distinct from other areas of the cybercafé. In addition, the pro competition area will need a prominent enough electronic screen, with a corresponding sound system, to show the game to the audience in the cybercafé.

4.2.2.3 Space Layout

After the designer studied the original function and explored the additional function, he decided to display all the functions on the architectural drawing in the way of spatial planning, so as to facilitate the planning of the location relationship of each functional area, as well as the square measure and shape of each area.

As shown in Figure 4.11, it shows the five functional areas that are mentioned in previous parts. As mentioned before, there are two principles for the area layout of this project: first, the

total square measure of open area and independent area should not be less than 1200 square meters; second, the front desk area should be close to the door. Other aspects need designers to refer to the function of each area, as well as the relationship between areas.

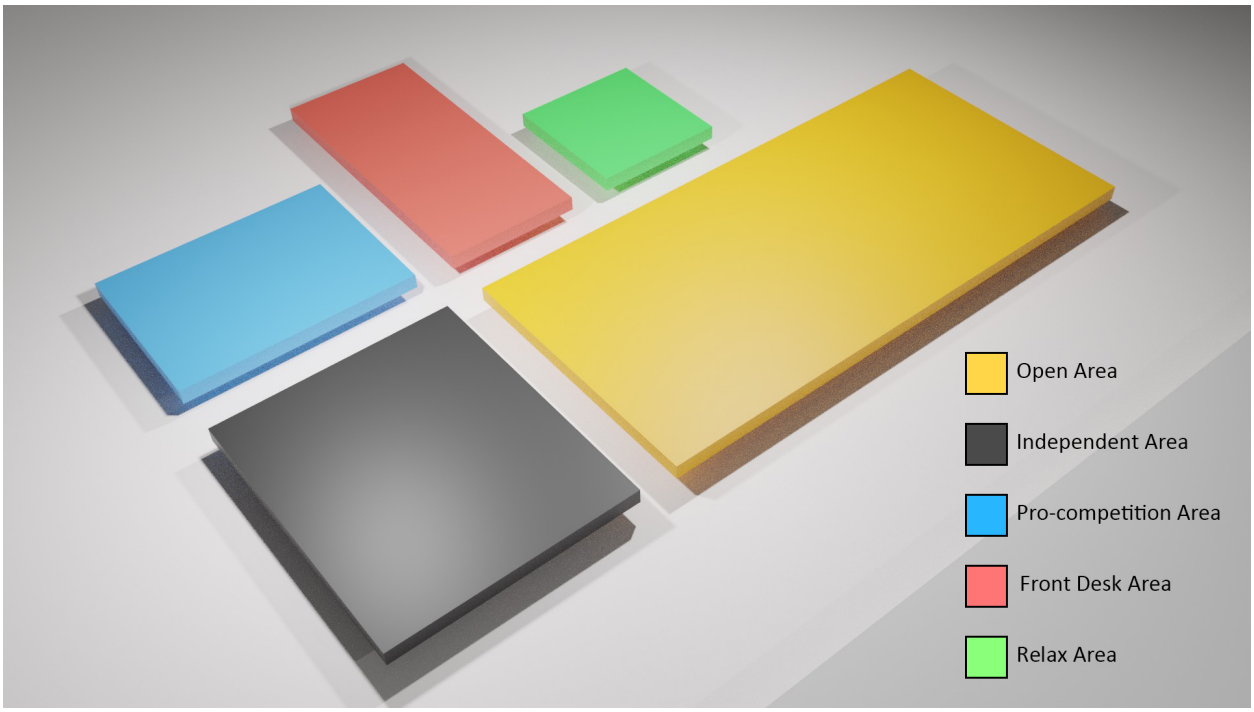


Figure 4.11 Five Areas of Disorder

As shown in Figure 4.12, this is the area map after the designer layout.

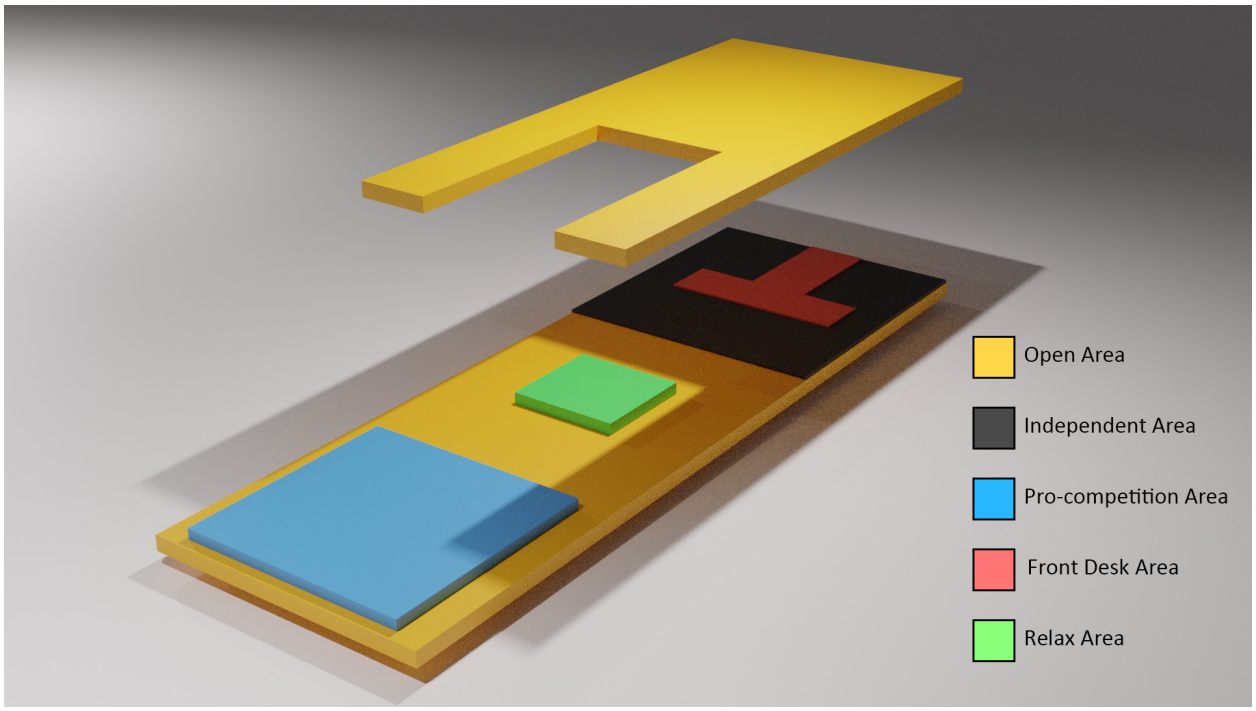


Figure 4.12 Five Areas in Order

First of all, in order to ensure enough Internet space, the designer added a second floor building to serve as an open area. At the same time, in order to ensure a wide field of vision of the professional competition area, the designer designed the second floor as a U-shape. The relaxation area is placed in the center of the whole Internet bar to facilitate access to all areas. The independent area is placed farthest away from the professional competition area to avoid being disturbed by the crowd.

4.2.3 Atmosphere

At this stage, designers will design the spatial atmosphere according to the different areas obtained in the previous stage.

4.2.3.1 Original Atmosphere

For a *CSGO* cybercafé, the original atmosphere is more like a reminder, a restriction, in order not to let the professional competition excessively affect other users of cybercafé. Since the designer has divided the competition area and the Internet area as much as possible in the previous section, the designer only needs to pay attention to the lighting and volume settings of other areas in this section.

4.2.3.2 Theme Atmosphere

In **3.3.3**, this paper points out that themed space atmosphere design refers to adding theme elements related to users' spiritual needs on the basis of a certain functional area. In fact, in **4.2.2.2**, the "additional functions" have pointed out a vague or precise direction for these spiritual theme elements. What designers need to do next is to further classify these *CSGO* elements and divide them into proportion in the area, and then think about which sensory form can express these elements properly.

Because the design methods of space atmosphere in all five areas are similar, this part will introduce a specific area as an example. The front desk area contains a wide range of additional functions and is representative, so the atmosphere design of the front desk area is chosen as a case study. The results of the atmosphere design for the remaining four areas will be shown in the final results.

4.2.3.2.1 Review the World Basis

Before looking for inspiration from *CSGO*, designer first reviewed the "Basis of a world" defined in **4.2.1.3**, that is: Real (depth). This means that designers in the next step need to focus on the real-world-elements of *CSGO*, and more into the details of the design.

4.2.3.2.2 Front Desk Area

First of all, in the front desk area of the cybercafé, the following additional functions are mentioned in **4.2.2.2**: game scene elements (entrance), game sound interaction, *CSGO* equipment display, *CSGO* derivative product sales, game logo display, and membership system related to the rules of the game.

After the classification of game features, the designer made the following note:

Content: game scene (narrative), game sound interaction (narrative), *CSGO* equipment display (narrative & business), *CSGO* derivative product sales (business), game logo (business),

Rules: membership system (reward / punishment)

Therefore, the designer gives each characteristic and its features the following proportions:

Characteristics	Specific Weight		Feature	Specific Weight	
Contents	$W_C = 0.9$		Narrative	$C_1 = 0.7$	C1
			Business	$C_2 = 0.3$	C2
Rules	$W_R = 0.1$		Manipulation & Control	$R_1 = 0$	
			Reward & Punishment	$R_2 = 1$	R2
			Social	$R_3 = 0$	

Table 4.7 *CSGO* Characteristic Proportion (color mode)

Then, the designer places the three E-sports features in the table into the Sense Slider. (The designer has referred to the influence of Chinese culture on the sensory habits of local users in this section)

As shown in Figure 4.13, the light gray square is the original sensory intensity of the warehouse, and the black one is the new sensory stimulation intensity designed by the designer for the front desk area. Through comparison, it can be seen that the foreground area after thematic transformation (expected) has strengthened the visual, auditory, tactile, plasticity and basic guidance over than the original space. C_1 (narrative feature) has the greatest influence range, which includes game scene shaping (affecting vision, tactile, plasticity, basic guidance), *CSGO* equipment display (vision, tactile), and game audio effect interaction (hearing). C_2 (business feature) coincides with C1 equipment display to a certain extent. It also includes the peripheral product display (visual, tactile) and game logo (vision) of *CSGO*, which mainly attracts customers' consumption through vision and touch. R_2 (reward & punishment feature) is

only related to visual stimulation, because it is the information that the customer sees on the display screen when logging in as a member.

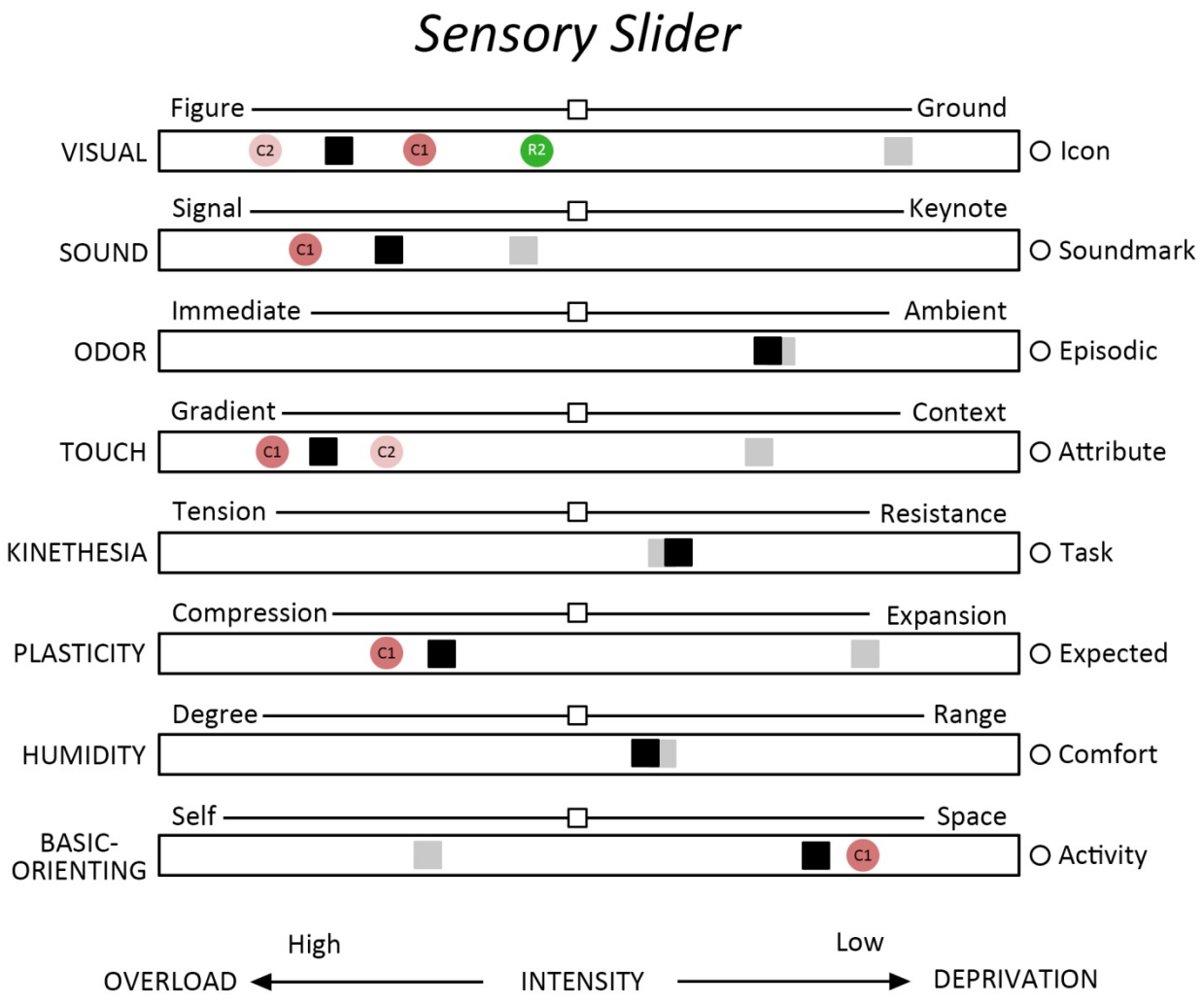
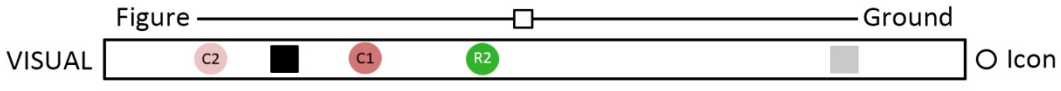
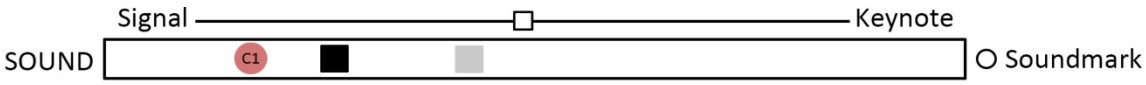


Figure 4.13 Sensory Slider (color mode)

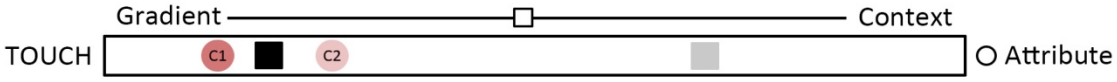
By further analyzing, the designer can make a *CSGO* Space Matrix of the front desk area. In the matrix, each of these senses may have more than one type of sensory representation, and each type has more options.



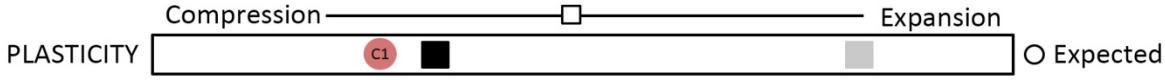
Feature	Icon
C1 Narrative	**Game Scene: game map** (Inferno, Cache, Mirage, Nuke, Dust2…) **Equipment Display** (AK47, M4A1, Aug, FAMAS, AWP, P90…)
C2 Business	**Equipment Display** (Guns, knives, gloves, stickers…) **Derivatives** (according to the franchisee) **Logo** (according to the CSGO publisher)
R2 Reward & Punishment	**Reward** (CSGO rank, military rank, experience value, game gold…)



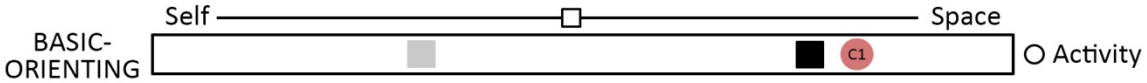
Feature	Sound-mark
C1 Narrative	(Game-voice, gunshot, background music, action sound…)



Feature	Attribute
C1 Narrative	**Game Scene: texture** (Stone, wooden box, oil tank, sand, brick wall)
C2 Business	**Equipment Display** (Guns, knives, gloves, stickers…)



Feature	Expected
C1 Narrative	**Game Scene: terrain & scene** (Passage, slope, valley, narrow road, bridge, gate)



Feature	Activity
C1 Narrative	**Game Scene: tactical location** (**Inferno**: T base, T Ramp, Logs, Sand-Bag, First BOX…) (**Cache**: Long A, B Halls, Truck, Tree…) …

Figure 4.14 *CSGO* Space Matrix

Now that the designer has picked some typical *CSGO* elements for the front desk area of the cybercafé, but due to the wide selection range, the designer can't judge which specific element will be used as the final scheme. Therefore, designers need to shrink the range in the Aesthetics stage.

4.2.4 Aesthetics

In the aesthetic stage, the designer will further classify the elements in the *CSGO* Space Matrix, and then find the most suitable one from the similar elements and bring it back to the Matrix.

4.2.4.1 Local Aesthetics

As the world basis of Real (depth) is determined in the Meaning stage of the project, and the theme building of this style is easy to accept in the local aesthetic concept, that will not have a great impact on the appearance of the nearby space. So designers don't have to worry about this.

4.2.4.2 Theme Aesthetics

In this section, the designer will analyze all the selected *CSGO* elements in the atmosphere stage, including: game scene, game sound effect, *CSGO* equipment, and reward mechanism (member). (Since the game logo and game derivatives are not determined by the designer, they will not be explained in this section.)

Game Scene

Game scene belongs to the world feature in narrative feature.

In *CSGO*, game scene mainly refers to the game map. *CSGO* is a turn based first person shooter game. In each competition, players choose a map and then continue to carry out the battle. In other words, all the activities of players in each game are in a fixed scene.

Figure 4.15 The Best Maps to Play CSGO (Bozhenko, 2021)

Every map of CSGO refers to the buildings and scenes in the real world, so players will have a strong sense of substitution in the game and leave with a deep graphic memory. In addition, because the player's behavior in the game is tactical shooting, most players will associate a CSGO map with relevant tactics. In the game mode of 5v5, the most basic condition of executing tactics is to communicate with teammates. In order to facilitate communication, fans of CSGO give names to every specific location of every map. After more than 20 years of inheritance of CS (Counter-Strike) Series games (1999-2021), this research spirit of game map has become a kind of game culture among CSGO players.

Figure 4.16 Mirage Callouts (Bozhenko, 2021)

Therefore, when the designer puts the *CSGO* map scene in the real theme space, the players will not only have a strong visual stimulus response, but also produce a familiar sense of orientation, as if they are in a tactical position in the game. In addition, the reality of the theme space can also bring players enough tactile stimulation and space plasticity stimulation, which is absolutely loved by *CSGO* fans.

In this project, the designer chose dust2, which is the most famous *CS* Series map. It has been two decades since dust2 was born. Dust2 has enough status in fan culture and is a classic symbol of *CS* Series.

Figure 4.17 Dust 2

Sound Effect

The common sound effects of *CSGO* include: Game voice, gunshot, background music, and action sound. Among them, gunshots and action sounds are often used for player interaction, both of which belong to the activity features of narrative features.

Gunshot refers to the sound of guns in *CSGO*. Players can judge the type of guns used by the enemy and the location of the enemy through gunshot. Action sound mainly refers to the sounds made by players in the process of moving, such as running sound and jumping sound. Players can judge the direction of the enemy's movement through action sounds (for example, if the enemy runs to a distance, the footstep will be smaller and smaller).

The designer believes that the front desk area is a place to meet the players for the first time, which is very suitable for the game sound effect of the activity features. Considering that the gunshot may be too loud (which can frighten customers), the designer decides to add action sound's interactive function to the entrance of the front desk area. The specific method is to install tactile sensing device under the floor at the entrance. Whenever the user's footsteps are detected, the footsteps in *CSGO* will be triggered synchronously, which will make the players have the illusion that they are entering the game.

CSGO Equipment

In *CSGO*, common equipment refers to all kinds of guns and knives. They have dual attributes, which are not only the activity features of narrative features (a necessary item for game activities), but also the franchisee features of commercial features, because the game skin of *CSGO* guns and knives can be sold as commodities, and some of them are expensive.

Figure 4.18 The full set of weapon skins from the CS20 Collection (Cleary, 2019)

The main way for players to get these goods in the game is through "unbox". It works like gambling. Players have a chance to get the weapon box for free after each game, but they need to pay for the key to open the box. There are different weapons in each weapon box and players will get one of them. But the more beautiful the weapon skin, the lower the probability of

appearance. Therefore, in *CSGO*'s second-hand weapon skin market, precious weapon skin can always be bought at a good price.

In addition, weapons also have a narrative meaning in *CSGO*: representing the camp. The two camps in the game, counter-strike and terrorists, have their own unique weapons. The most classic are AK-47 (for terrorists) and M4A1 (for counter-strike). At the same time, these two weapons are also the most popular weapons for *CSGO* players. Displaying these two weapons (as models) in the themed cybercafé will surely get more revenue.

In order to give consideration to the narrative and business features of the game equipment, the designer will choose a series of weapons including AK-47 and M4A1 in the project.

Reward System

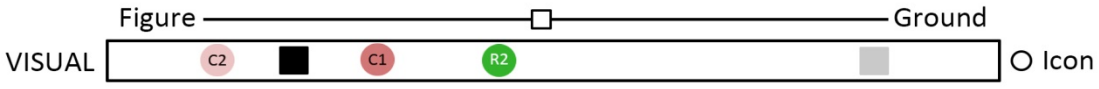
In *CSGO*, players get rewards mainly from the pleasure of defeating the enemy in the game and the honor of ranking outside the game. The former belongs to the general reward feature, while the latter belongs to the meta-game reward feature.

Figure 4.19 *CSGO* Ranks (pinterest.com, n.d.)

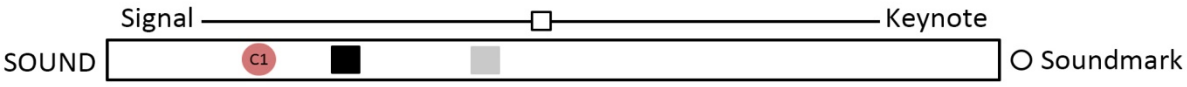
In **4.2.2.2.3**, this article mentioned that themed Internet cafes can use the reward mechanism in the game to attract players to become members of the cybercafé. The designer thinks that CSGO's own ranking system is very suitable. When players see that their game strength is recognized in other places, they will get great psychological satisfaction.

4.2.4.3 Return to *CSGO* Space Matrix

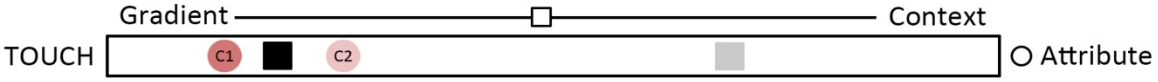
After the designer completes the analysis of the aesthetic stage, the final selected *CSGO* elements are substituted into the *CSGO* space matrix obtained in the atmosphere stage, and a specific version of *CSGO* space matrix will be obtained. Now, the designer has mastered all the *CSGO* elements that need to be designed in the front desk area of the theme Internet bar, as well as the stimulation intensity of various senses, and can complete the interior design in the traditional way (structure, material, lighting, color, etc.).



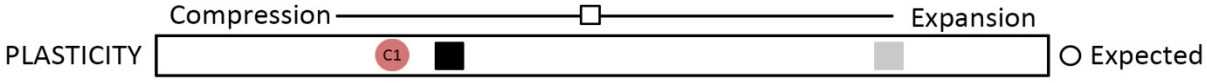
Feature	Icon
C1 Narrative	**Game Scene: game map** Dust2 **Equipment Display** AK47, M4A1
C2 Business	**Equipment Display** AK47, M4A1(with weapon skin) **Derivatives** (according to the franchisee) **Logo** (according to the CSGO publisher)
R2 Reward & Punishment	**Reward** CSGO rank



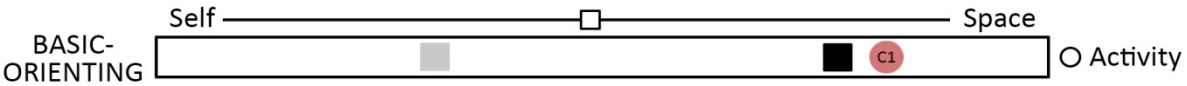
Feature	Sound-mark
C1 Narrative	action sound: step sound



Feature	Attribute
C1 Narrative	**Game Scene: texture** Dust2 collection
C2 Business	**Equipment Display** AK47, M4A1(with weapon skin)



Feature	Expected
C1 Narrative	**Game Scene: terrain & scene** Dust2 collection



Feature	Activity
C1 Narrative	**Game Scene: tactical location** Dust2 collection

Figure 4.20 CSGO Space Matrix (specific version)

4.3 Evaluation

In the scoring stage of this project, the customer gives the following scoring criteria:

$S = 0,1S_M+0.4S_F+0.5S_A$

$S_M = 0.2S_{OM}+0.8S_{TM}$

$S_F = 0.3S_{OF}+0.7S_{TF}$

$S_{TF}=0.2S_{PC}+0.2S_{PP}+0.3S_{PG}+0.3S_{AM}$

$S_A = 0.1S_{OA}+0.9S_{TA}$

$S_{TA}=0.18S_V+0.14S_S+0.09S_O+0.125S_T+0.125S_K+0.125S_P+0.07S_H+0.14S_B$

(The proportion of S_{TA} refers to the influence of local culture on the senses)

The final score of the project in the design phase is shown in Table 4.8.

<table>
<tr><td colspan="2">Meaning</td><td colspan="2">Function</td><td colspan="2">Atmosphere & Aesthetics</td></tr>
<tr><td colspan="2">$S_M = 7.8$</td><td colspan="2">$S_F = 7.47$</td><td colspan="2">$S_A = 7.2375$</td></tr>
<tr><td rowspan="10">Original Meaning</td><td rowspan="10">$S_{OM}=7$</td><td>Original Function</td><td>$S_{OF}=6$</td><td>Original / Cultural (Atmosphere & Aesthetics)</td><td>$S_{OA}=6$</td></tr>
<tr><td>Theme Function</td><td>$S_{TF}=8.1$</td><td>Theme (Atmosphere & Aesthetics)</td><td>$S_{TA}=7.375$</td></tr>
<tr><td colspan="2">$S_{TF}=0.2S_{PC}+0.2S_{PP}+0.3S_{PG}+0.3S_{AM}$</td><td colspan="2">$S_{TA}=0.18S_V+0.14S_S+0.09S_O+0.125S_T+0.125S_K+0.125S_P+0.07S_H+0.14S_B$</td></tr>
<tr><td rowspan="2">Player-Computer</td><td rowspan="2">$S_{PC}=7$</td><td>Visual</td><td>$S_V=9$</td></tr>
<tr><td>Sound</td><td>$S_S=8$</td></tr>
<tr><td rowspan="2">Player-Player</td><td rowspan="2">$S_{PP}=8$</td><td>Odor</td><td>$S_O=6$</td></tr>
<tr><td>Touch</td><td>$S_T=8$</td></tr>
<tr><td rowspan="2">Player-Game</td><td rowspan="2">$S_{PG}=9$</td><td>Kinethesia</td><td>$S_K=6$</td></tr>
<tr><td>Plasticity</td><td>$S_P=7$</td></tr>
<tr><td rowspan="2">Audience-Match</td><td rowspan="2">$S_{AM}=8$</td><td>Humidity</td><td>$S_H=5$</td></tr>
<tr><td>Basic-orienting</td><td>$S_B=8$</td></tr>
<tr><td>Theme Meaning</td><td>$S_{TM}=8$</td><td colspan="4"></td></tr>
<tr><td colspan="6">S = 7.38675</td></tr>
</table>

Table 4.8 Evaluation

4.4 Final Delivery

Figure 4.21 Building Structure of the Cybercafé

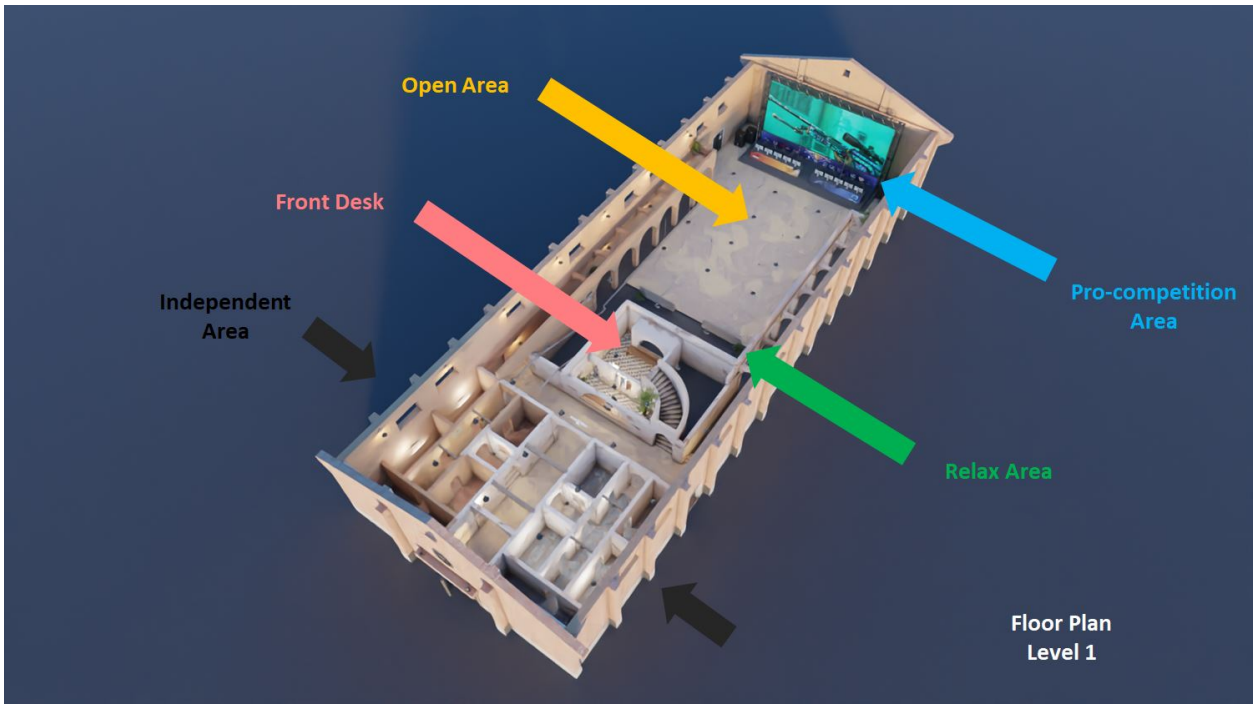


Figure 4.22 Floor Plan Level 1

Figure 4.23 Floor Plan Level 2

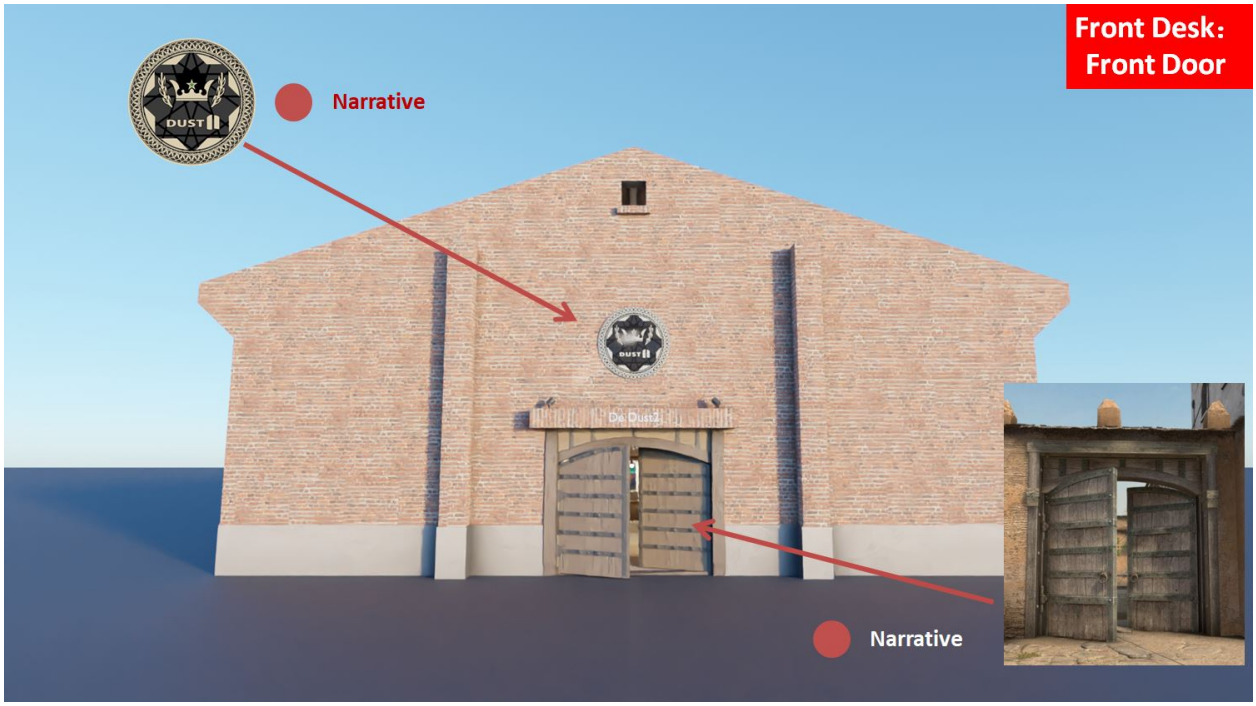


Figure 4.24 Front Door

The front of the building retains the original image of the old warehouse, but adds two narrative features of *CSGO*. First of all, the designer added a logo in the center of the building,

which is the representative logo of the dust2 map in the game. Old fans can identify the relevance between the building and *CSGO* through the logo. In addition, the main door of the warehouse was replaced by the wooden door in the dust2 map by the designer, which is a very classic *CSGO* element. Almost every *CSGO* players have an impression of this icon.

Figure 4.25 Front Desk Lobby

When entering the building, customers will first notice the CSGO logo in the center of the vision, which is a typical commercial feature, indicating the special relationship between the space and the game. As the customer moves forward, he or she will notice that the doors on both sides of the lobby are very similar to those in the game. This is a typical Middle East style door (dust2 map is set to Middle East style).

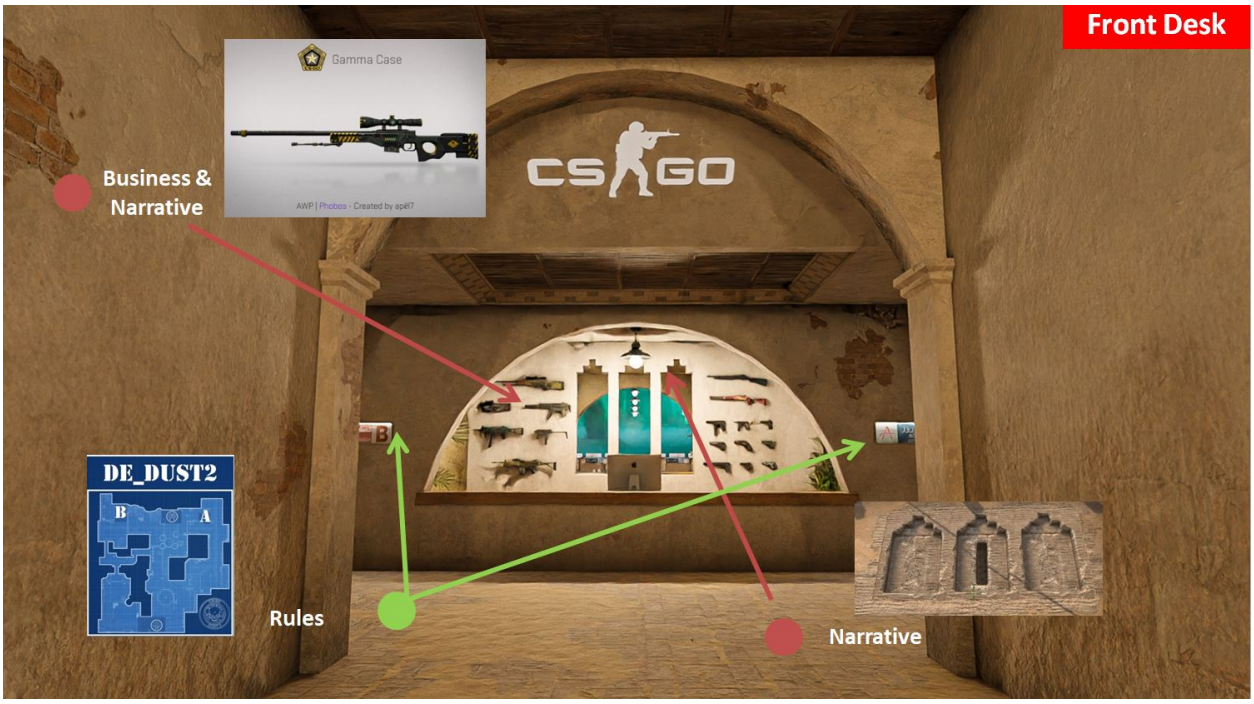


Figure 4.26 Front Desk

When the customer moves on, he or she will be attracted by the front desk. The gun models in the game are hanging on the wall of the front desk, and their surface painting is also completely designed according to the gun skin in *CSGO*. This is both a narrative feature and a commercial feature (the gun skin in the game can be traded).

In the middle of the gun display wall, there are three unique shaped windows (also designed according to the style of the game), through which customers can see part of the space blocked by the front desk area, which will arouse their desire to explore.

On both sides of the arched window at the front desk, there is a signboard, which represents site A and site B in the dust2. This is an exhibition of the characteristics of the rules of the game. In *CSGO*, every competitive map has two sites for terrorists and counter strike to attack and defend, which is unique to *CS* Series games. The Internet bar uses site A and site B to divide the space, which is the display of the rules characteristics of the game, so it can be more deeply associated with *CSGO*.

Figure 4.27 Vending Machine

Figure 4.28 Merchandises in the Vending Machine

On the left side of the front desk, there is a vending machine selling *CSGO* derivatives. This is something similar to a doll grabbing machine. The toy inside is the game skin card in *CSGO*. Customers can exchange the corresponding gun skin in video games with this card. This is a typical business feature.

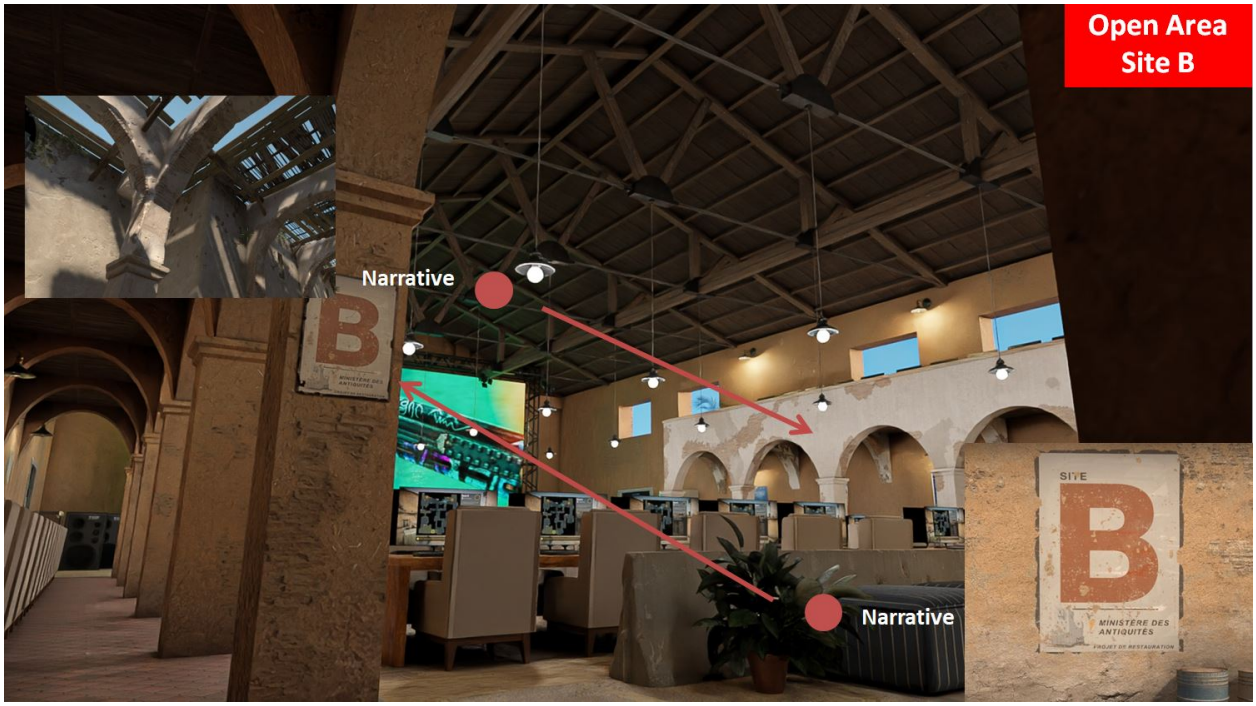


Figure 4.29 site B of Open Area

In site B, customers can see a large number of architectural features and signs restored according to dust2, such as the classic Middle Eastern arch design, and site B logo.

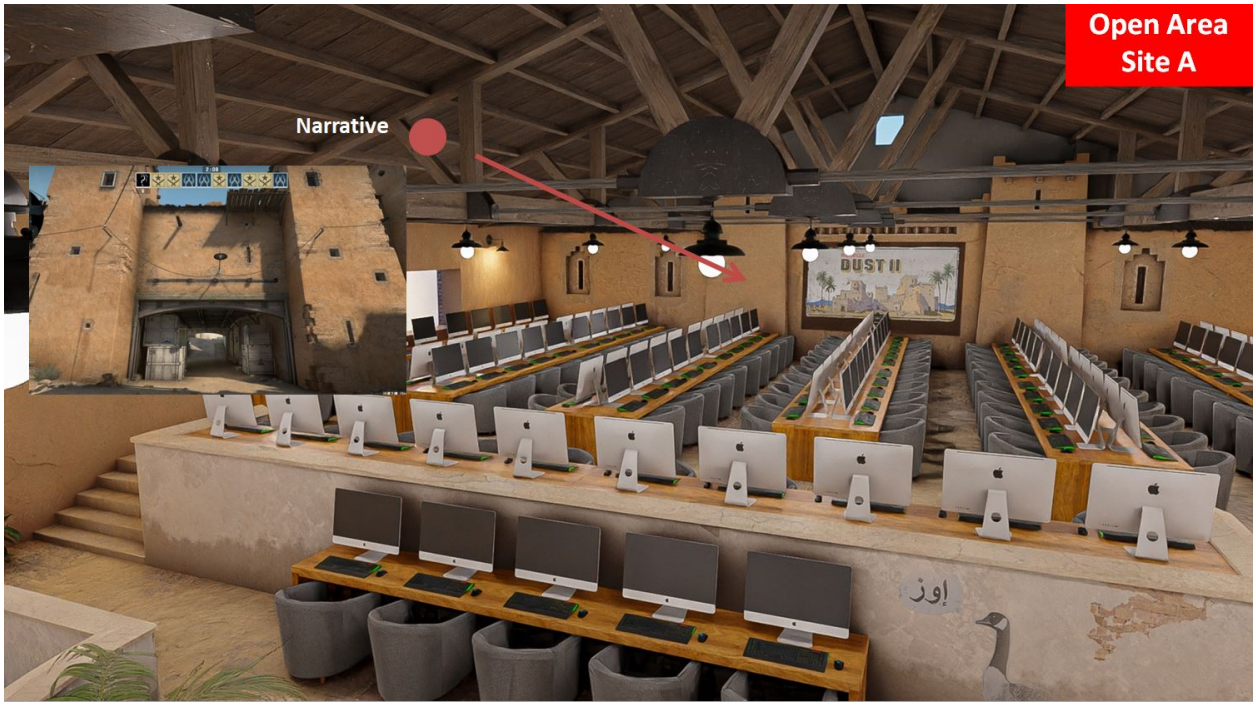


Figure 4.30 site A of Open Area

At site A (the second floor of the Internet bar), customers can also find the spatial features of dust2. The background wall of site A is designed according to the scene in dust2, which is a typical narrative feature of this video game.

Figure 4.31 Relaxation Area

The relaxation area is designed according to a classic scene of the dust2 map: A long.

Players familiar with dust2 can feel as if they are in the game in this area.

Figure 4.32 Honor Wall

In a corner of the relaxation area, the designer has created an honor wall, which is designed according to the *CSGO* Ranking system, representing the gaming level of a team. This design is a demonstration of the rules characteristics of the game.

Figure 4.33 Pro-competition Area

The professional competition area is specially set up for the local *CSGO* tournament, so all elements here have the commercial elements of E-sports.

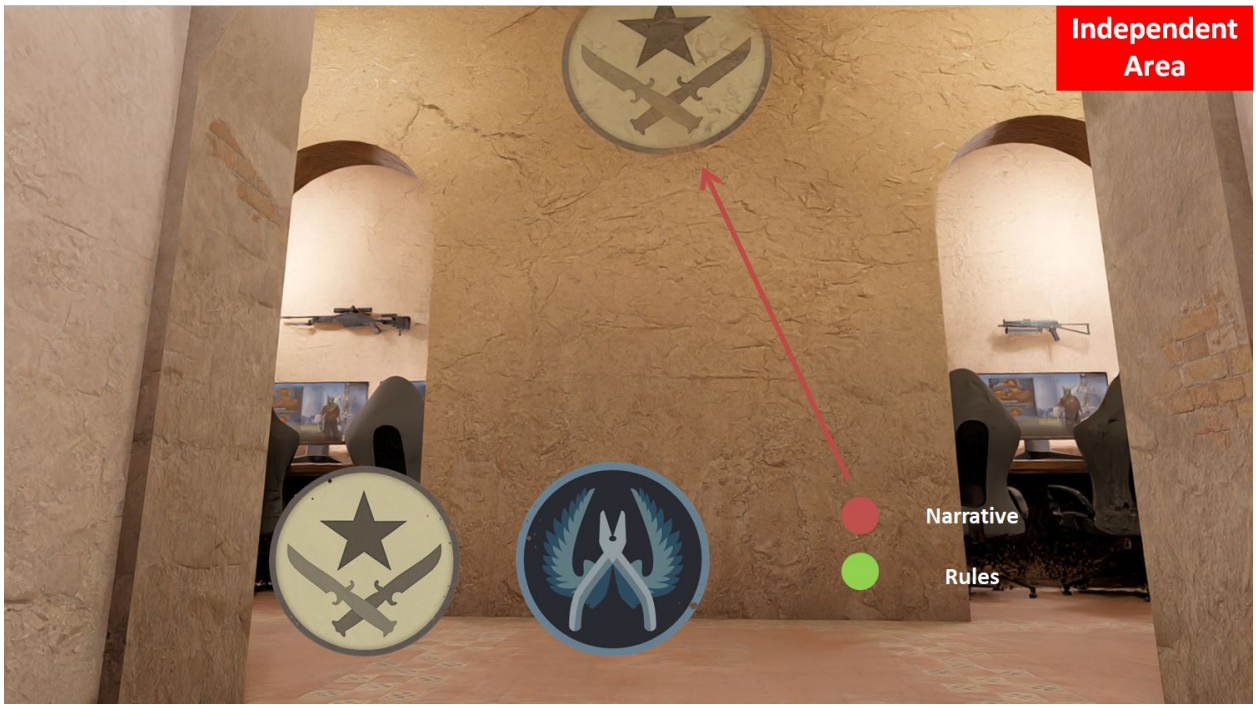


Figure 4.34 Independent Area

Figure 4.35 Weapons of Independent Area

The independent area is divided into two areas by the corridor leading to the front desk. According to the spatial structure characteristics, the designer endows the left and right two independent areas with two camp characteristics in *CSGO*.

CSGO is divided into two opposing camps: terrorists and anti-terrorism elites, which have unique logo and weapons respectively. In the game, one camp can't buy the special guns of another camp. For example, terrorists can't buy M4, while anti-terrorism elites can't buy AK-47. Designers integrate this feature into the space theme design of Internet cafes, so that players can feel it at the same time.

Figure 4.36 Single Room of Independent Area

4.5 Construction

The client put the final plan into construction

CONCLUSION

This study provides a design tool, which takes Internet cafes and games as the breakthrough point, and introduces a themed space design method based on sensory design. The final result of this paper is a relatively clear space matrix, which can be used by designers to select theme elements more effectively and make clear what kind of sensory stimulation the theme elements express (and how much stimulation intensity).

The author thinks that the design tool of this paper is suitable for divergent thinking in the early stage of theme space, and it provides a general framework for designers. Designers need to find the follow-up detail design method before they invest in the real themed Internet bar design project.

In addition, as the Ninth Art which is still developing and improving, the artistic language of video games may appear more unified and perfect version in the future, and thus the design method in this study could be further explored.

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