

# BEING A KITE

**An interactive narrative exhibition  
in the Weifang Kite Museum.**



Yuan Wang  
2023

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A thesis presented in partial fulfilment of the requirements for a Master in Design  
at Massey University, Wellington, New Zealand

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# CONTENT

6	<b>Acknowledgements</b>
7	<b>Abstract</b>
8	<b>Chapter 1 : Introduction</b>
	1.1 Context
	1.2 Research Aim
	1.3 Research Questions
	1.4 Methodology
	1.5 Overview
20	<b>Chapter 2 : Literature Rreview</b>
	2.1 Cultural Heritage
	2.2 Museum Design
	2.3 Exhibition Design
28	<b>Chapter 3 : Precedent Review</b>
	3.1 Cultural Heritage
	3.2 Museum Design
	3.3 Exhibition Design
46	<b>Chapter 4 :Design Process</b>
	4.1 Narrative
	4.2 Site Analysis
	4.3 Exhibition Strategy
	4.3.1 Masterplan
	4.3.2 Initial Idea
	4.4 Design Works
	4.4.1 Development
	4.4.2 Interactive Design
	4.4.3 Materials
88	<b>Chapter 5 : Outcomes</b>
	5.1 Technical Drawings
	5.2 Modelling
	5.3 Perspectives
	5.4 Details
102	<b>Conclusion</b>
105	<b>Works Cited</b>
107	<b>Bibliography</b>
112	<b>List of Figures</b>
115	<b>Appendix</b>

# ACKNOWLEDGEMENTS

Thanks to all the Massey University College of Creative Arts teachers and staff who have helped me, especially my supervisors Jacqueline Naismith, Stuart Foster, coordinator Deb Cumming, and learning advisor Kendra Marston. You have given me a lot of help.

Thanks to my family, my mother Qingming Wang, grandmother Lanxiang Sun and grandfather Yongchun Wang. You have given me moral and financial support to gain the opportunity to study overseas.

Thanks to my partner Xiaodong Chu. You always make me happy and relaxed when I feel anxious and nervous.

Thanks to all my friends, both in China and New Zealand.

# ABSTRACT

The kite is the primary cultural heritage artefact of Weifang City in China, representing key points in history and historical change. The Weifang Kite Museum is responsible for developing and continuing traditional culture, displaying the kite as cultural heritage and various related collections in a traditional exhibition framework. However, as young visitors have declined recently, its curatorial approach and philosophy have faced significant challenges.

This research aims to generate more interest and enthusiasm among young visitors for Weifang Kite Museum's traditional exhibition, aiming to transform the existing single exhibition strategy into a holistic narrative interactive experience exhibition. Through this strategy, the background narrative and significance of the kite are explored, encouraging young people to better understand traditional cultural heritage and understand the purpose of sustainable development.

This project bases its innovation exhibition strategy of the Weifang Kite Museum on Philip Hughes' exhibition design framework. It combines the cultural background and dynamic trajectory of kites, supporting a new narrative space to enhance the interactive and emotional experience of the younger visitor. The project presents a new exhibition masterplan that connects a storytelling route from the entrance to the exit while highlighting the experience's sensory elements.

This project offers an immersive narrative experience different from the previous exhibition strategy, as it seeks new inspiration and reflection on the exhibition framework of traditional cultural heritage in practice. As a sustainable development plan, it aims to encourage young groups to enter Weifang Kite Museum, become a carrier of traditional cultural transmission, and enhance the sense of national identity. This project offers design insights for the preservation of traditional cultural heritage beyond the Weifang Kite Museum strategy.

***Keywords: traditional Chinese kites, cultural heritage, narrative space, interactive experience, exhibition design.***



# CHAPTER 1

## INTRODUCTION



*(Figure 1) 2023 International kite festival in Weifang*



# 1.1 CONTEXT

The kite is a fascinating cultural heritage artefact that has been passed down in China from ancient times. It is a product of a human civilization that combines decoration and playfulness, but is also auspicious in that it contains meaning and expectation for the future.

Chinese kites are divided into four schools according to historical development and styles: Weifang, Beijing, Tianjin, and Nantong (Wu 148). Among them, the Weifang kite development is the most prosperous, its fame has gone international, and it has become a symbolic representative of Weifang City. The dragon-headed centipede kite is its most crucial core work, embedded with narrative. Behind it, there is a fairy tale, and it carries the good wishes of the Weifang people to protect the ecological environment.

To promote the development and inheritance of kite culture, the Weifang government has formulated a series of policies. Since 1984, the International Kite Festival has been held every spring (see Figure 1), attracting more than 1,000,000 kite lovers and tourists from more than 60 countries and regions (Weifang et al. Festival - When, Where and Travel Tips 2023). The Weifang government additionally invested in constructing China's first large-scale kite museum (see Figure 2) to systematically preserve and display kite collections, with a construction area of 8,100 square metres. It has seven exhibition halls and a vast multi-functional exhibition hall for tourists and residents to visit and understand kite culture.



*(Figure 1) 2023 International kite festival in Weifang*



*(Figure 2) Weifang Kite Museum, front entrance*

Cultural heritage is essential to human civilization, fostering spiritual health and wellbeing. Therefore, its historical background, meaning, protection and development are worth attention and consideration (Portalés et al. 2). There are several approaches to protecting cultural heritage, and an exhibition in a museum is one of the more efficient methods. Therefore, the kite exhibition in Weifang Kite Museum plays a pivotal role in the promotion and innovative development of kites in contemporary society, which justifies the consideration of more inclusive and dynamic exhibition strategies.

My previous field investigation indicates that existing exhibitions in the museum tend to be static, adopting the traditional glass cabinets as the display method, presenting the most traditional style of kites directly in front of visitors, and introducing their background through text statements (see Figures 3 and 4). This kind of curatorial strategy is quite common in contemporary museums. Visitors can quickly overview the exhibition content, which is convenient to understand for the public, and they can freely choose the parts of the exhibition they are most interested in. It is relatively easy for museums to display and maintain fragile artefacts. However, the limitations are also apparent. The tour route is singular and fixed, the narrative of each cultural relic is unconnected, and the visitors lack a sense of experience, especially in the younger groups. In my investigation process, few young people can immerse themselves in the kite museum and are not interested in re-entering it. According to Tait et al.(6), the participation rate of young people in arts and culture decreased between 2009 and 2019. To entice young people, the background narrative of traditional cultural heritage must resonate with them. This has become an obstacle in maintaining the spread and development of cultural heritage.



*(Figure 3) Typical exhibition display in the Weifang Kite Museum A.*



*(Figure 4) Typical exhibition display in the Weifang Kite Museum B.*

Among the 17 Sustainable Development Goals of the United Nations, Goal 11 of Sustainable Development for Cities and Groups proposes strengthening the protection of the world's cultural and natural heritage (Goal 11 | Department of Economic and Social Affairs). In order to preserve culture, museums like to attract and promote the interests of young people. Compared with more mature age groups, youth have different requirements for museums; the richness of narrative, and the overall narrative layout and atmosphere are more likely to attract young people and stimulate their enthusiasm and perception (Manna and Palumbo 516) The strength of the Weifang Kite Museum is that it has enough space to promote cultural heritage communication and support cultural activities. However, its limitation is that it is in need of a more efficient exhibition strategy to improve the museum's attractiveness to young people. The contemporary Weifang Kite Museum could change its curatorial strategy to enable and facilitate a "visitors-oriented" approach (Kamariotou et al.). This would involve bringing an embodied immersive interactive experience for visitors, aimed at achieving sustainable development museum transformation by undertaking a digital exhibition strategy(Manna and Palumbo 516).

This project rethinks and redesigns the existing exhibition strategy of the Weifang Kite Museum. By referring to Philip Hughes's exhibition design framework, the exegesis will analyse the challenges of the current exhibition practice method and the aspects to be avoided through analysing specific precedents and inspired case studies (6). Through model testing within the process, the design will make full use of the museum's spatial characteristics and include interactive narrative activities. Through integrating technologies and applying the 'Knowing Through Making' process (Mäkelä 157) these strategies in implementation aim to create an exhibition design to arouse young people's thinking on cultural heritage, addressing the challenges to be faced. This project aims to help facilitate the Weifang Kite Museum in upholding the sustainable cultural development and preservation to a new generation of visitors.

## 1.2 RESEARCH AIM

Young people, whom the United Nations defines as between the ages of 15 and 24 (Nations), have become the primary cultural communicators of the information age and must be empowered to become the decision-makers of the future. This is important to consider when developing solutions for sustainable development, empowered to be the decision-makers of the future and inevitably face the challenges of the present (Röll and Meyer 2).

The natural effects of climate change, such as droughts, floods and extreme weather, are among the most concerning topics in the world today and an essential part of the 17 development Goals of the United Nations. In exploring the historical background of kites, many symbolic stories are closely related to the environment and nature, and the significance of kites from ancient times to today is that they wish for favourable future lives and resources. Cultivating young people's critical thinking and self-awareness is crucial to achieve the goal of sustainable development (Röll and Meyer 14). As a means to attract youth, narrative exhibitions should promote a better understanding of the history and significance of kites as a cultural heritage and symbols of sustainability. They should also trigger young visitors to critically think about their future life during the experience.

Therefore, the main aim of this project is to rethink the exhibition strategies of the traditional Weifang Kite Museum, encourage the youth to understand the past and think about an environmentally and culturally sustainable future. Through an immersive interactive experience, young people can feel the infinite possibilities through spatial art in the storytelling exhibition.

# 1.3 RESEARCH QUESTIONS

Background investigation clarified four problems of the Weifang Kite Museum in the spatial design field. This exegesis will engage with these four questions in the process of design practice.

1. How can the heritage of kite flying and kite making be communicated to a new generation through an immersive digital experience?
2. How can a digital interactive design offer the visitor experiences of kite flying?
3. How can spatial design communicate all the sensory elements of the experience?
4. How can traditional exhibitions be transformed into dynamic narrative exhibitions to attract the participation of young people in order to achieve sustainable cultural development?

## 1.4 METHODOLOGY

In the design process, this project follows the design theory of “Knowing through Making” and takes the exhibition design handbook of Philip Hughes as the foundation framework. This evaluates whether the design concept conforms to the elements of the narrative and interactive exhibition with the interpretation process of artefacts as an essential part of the design process. The final design solution is demonstrated through the practice of model-making.

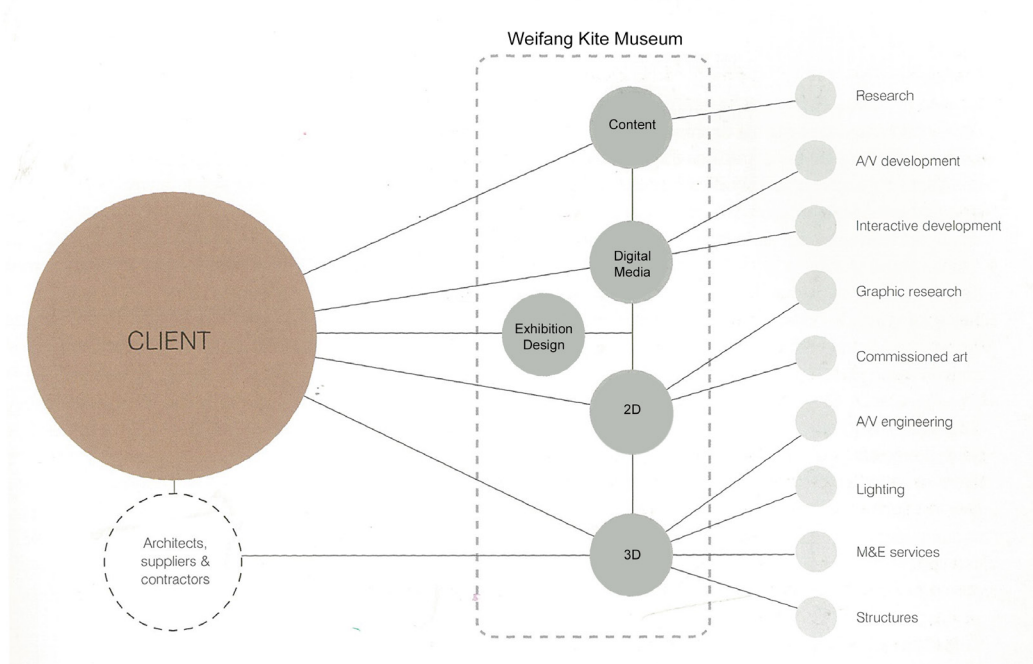
As an artefact handed down from ancient times to the present, kites collect and preserve a large amount of historical significance and information, with a specific narrative behind them. This part of the research comprises the theoretical basis of the practice and can also be considered part of the design practice. According to Maarit Mäkeläin in the article ‘Knowing Through Making: The Role of the Artefact in Practice-led Research’, art can be understood as a way of exploring the process, and artefacts are the preliminary results of the artistic process and the carriers of knowledge (Mäkelä 157). In practice-led design research, artefacts can facilitate the means to understand and perceive the process of practice and may help form an essential argument for design theory. However, in the existing Weifang Kite exhibition, it does not seem to convey relevant information in relation to the narrative, so the designer’s interpretation becomes critical. In the existing museum, artefacts are interpreted solely by the exhibition labels on the wall, there is the potential here to explore the use of more dynamic and interactive ways of interpreting and delivering both the description and the embedded narrative of the artefacts. This idea forms an important part of the research and an essential part of the proposed redesign of the exhibition. The significance of practice-led research lies in combining design practice and research to create new inspirations (Mäkelä 157), which means that exploring the production process of artefacts is how designers obtain theoretical results. In other words, the origin of kites and the method of making kites can be used as a starting point for studying kites. The findings can be presented as concepts to stimulate the thinking of the target group to achieve the ultimate purpose of the exhibition and obtain the answers to the research questions in this process.

After determining the research method of the object, the project still needs a reliable design framework to test whether it meets the requirements during the design process. Philip Hughes’ exhibition design framework (see Figure 5) explains the importance of the exhibition and provides many dynamic design cases as a guide (Hughes 6), allowing designers to reflect on their position at any time to achieve the best results. The framework guides the display design

from 14 aspects, detailing the designer’s “Dos” and “Don’ts” in the design process and helping users get inspiration and inspiration in clarifying their thoughts and practice. The design key point of this kite exhibition aims to be narrative and interactive, so some chapters are only used as additional references.

Firstly, the brief introduces the effective information types required for the project’s development and analyses the results of exhibition delivery in terms of the market, exhibits, audience groups and display strategies. Secondly, it points out the limitations and opportunities of the exhibition site and the analysis of the target population. Thirdly, it is a vital part of the design process that the outline of the exhibition strategy is the core part of the redesign for the Weifang Kite Museum, which has a single exhibition strategy. The next part is 3D technology and graphic design, which are critical tools in the exhibition that are necessary to be applied in the design process. After the big frame is completed, the lighting, materials and interactive parts are considered, and the corresponding guiding principles are followed to achieve the purpose and effect of the exhibition. The final consideration is the form of drawing and delivery and summarises the overall design process (Hughes 22).

The design framework will be introduced and analysed in detail in each corresponding chapter of the design process. It will strictly follow ethical standards and design principles, evaluate with critical thinking, and combine the practice-led design theory. In the process of making the 3D model, the research questions will be considered, and the answers will be answered in the form of final delivery.



(Figure 5) Adapted from Philip Hughes’ exhibition design framework strategy.

## 1.5 OVERVIEW

This exegesis may inspire designers to rethink possibilities in spatial design. For the beautiful cultural heritage of kites, it is an opportunity for me as a designer to promote it to society and young people. For the Weifang Kite Museum, it is a new chance for transformation in sustainable development. It is a formidable challenge to the traditional kite exhibition strategy.

Spatial design is an exciting subject that allows people to think about how to make the most creative and effective use of space. The design work is theoretically informed by spatial design principles and is committed to bringing fresh spatial experiences to youth. This project designs an embodied experience and interactive activities to guide participants to think about the narrative behind artefacts and future trends. This exegesis gradually seeks to explore new spatial design opportunities, uses critical thinking to look at the relationships between past and future, and is committed to bringing a multi-sensory experience to people through spatial design.

Over time, Weifang Kite Museum's function and purpose has gradually changed, but it must continue to protect and develop kite culture. Kites not only remind us of the joy of childhood but are also a part of traditional Chinese culture, and therefore urgently need to resonate among young visitors.

This redesign involving an embodied immersive narrative and interactive exhibition is not limited to kite culture, however, and is a practical reference for other museums in transition. By focusing on a single object in the story and its narrative, it simultaneously presents the symbolic characteristics of the object and triggers the audience's thinking. It effectively enhances people's sense of experience by transferring the fixed exhibition objects to the audience and giving participants more opportunities to connect with them. It also highlights the essence of the problem I studied in this project: the interaction between spatial design, cultural heritage and participants' sense of experience. It pushes young people to change from passive to active thinkers and prepares them to become future decision-makers.



## **CHAPTER 2**

# **LITERATURE REVIEW**



There is significant research on the design of interactive narrative exhibitions for cultural heritage that provides a theoretical basis for these design initiatives and case study examples. The relevant literature on cultural heritage, museum and exhibition design will be summarised and critically analysed. The potential and limitations of its application will be discussed in combination with this design project.

## 2.1 CULTURAL HERITAGE

In recent years, digital cultural heritage has been widely used in museums as a technical method of exhibition. Research indicates that digital cultural heritage can play an influential role in the protection of cultural heritage and give visitors more opportunities to interact with each other. Therefore, it is worth discussing how the nature of cultural heritage can be better disseminated and exhibited through digitalisation.

Marco Mason and Giasemi Vavoula state that digital cultural heritage design is generated by integrating digital and physical features to provide an interactive experience and service needs for visitors (407). They propose a conceptual framework for analysing the design practice of digital cultural heritage, which regards design as a collaborative activity composed of multiple departments and aspects. The impact from three perspectives can be analysed: activity, knowledge, intermediary object and tools (Mason and Vavoula 409). The digital embodied experience of cultural heritage will become the basis for further development of digital technology and immersive space, putting museums and curators at the forefront of articulating what defines cultural heritage and driving its far-reaching impact (Schreibman et al. 37). The purpose of using technology is to support the material experience, helping visitors understand themes and concepts and to make the artefact an exciting subject that can advance the development of the museum (Maye et al. 9).

Three elements are usually needed to drive the digitisation of cultural heritage. The first is that cultural heritage should be widely disseminated to the public, the second is the management and protection of cultural heritage, and the last is the need to produce a new methodology for heritage promotion (Ch'ng 105). The Chinese government has a clear direction plan for cultural and technological innovation, aiming to comprehensively promote the integration of technology and culture and use technological innovation to strengthen cultural construction (Ch'ng 107). Applying established digital technologies to cultural heritage is a difficult practical process, but its positive impact is now widely understood. According to the survey in "Digital heritage profile in China's Museums", the existing museums and galleries in China use interactive 2D, 3D and multi-touch multimedia systems, while VR\AR is used relatively less (Ch'ng 110). With the public's acceptance of technological methods, teaching and education will be positively impacted, which is of special significance to young people (Ch'ng 113).

Mason and Vavoula's theoretical framework aims to transform the focus from the collected objects to the experience of visitors, that is, to shift from the design content to the design process and to convey knowledge through the interaction of activities in line with the practice-led design concept. It incorporates the influence of designers and non-designers, provides opportunities for the participation of people from different disciplines and roles, facilitates their active participation, and enriches the understanding of cultural heritage. This framework also has certain limitations. Team members need to rely on the participation of different professionals to promote the design development, and they need to seek answers from visitor experiences which increases the difficulty of the design process and the pressure on the organisational members.

According to these principles, in this project kites are displayed in digital form as cultural heritage, which aligns with the interactive experience needs of visitors. The target group of this design project is a younger demographic; for them, adding an interactive experience to the exhibition is an effective means to enhance their interest in cultural heritage. Combining ornamental and entertainment elements together can enhance the sense of experience and participation. Therefore, digitalisation is considered a future developmental trend for the Weifang Kite Museum and the cultural heritage of kites.

## 2.2 MUSEUM DESIGN

Compared with the long-standing museum culture in Western countries, the rise and development of Chinese museums occurred relatively late, and they are faced with constant challenges in seeking identity and social positioning. In the era of economic and cultural development, it is more necessary for Chinese cultural heritage museums to clarify their responsibilities and goals, establish a framework that meets the general requirements and promotes future development, and extensively explore the possibilities and social significance brought about by museums.

Museums in the 21st century collaborate to be multidisciplinary, multifaceted, challenging, creative, and complex (Hale et al. 1). They are public spaces for the construction of historical, social, cultural and scientific systems for social cohesion and for building civic awareness and for critical reflection on identity cognition (Robert-Hauglustaine 11). How museums can reform into new forms which are focused on the appearance of artefacts without losing their original characteristics has become a problem that needs to be considered. People are beginning to focus on the construction of spiritual civilisations and want to gain more sensory experiences in museum exhibitions and with their artefacts, however many museums in China are still in the stage of transition (Robert-Hauglustaine 12).

In order to meet future demands, it is possible to develop new tools and methodologies (Robert-Hauglustaine 12). The construction of an ethical principle in Chinese museum management needs to pay attention to the relationship between different communities and cultural groups and consider the specific circumstances of political factors, legislation and administrative environment. Because of China's large population base, there are fifty-six ethnic groups and various faith groups (Laishun 174). In China's regulation of the social service nature of museums, it is clear that local governments will include museums in the school curriculum and help students conduct social practice activities, which also coincides with socialist characteristics (Laishun 177). With the rapid growth of Chinese museums in a short period of time, the management ethical principles of museums will face challenges. For example, the internal functions need to be diversified, the external needs to serve society as the priority, and gradually adapt to people's requirements with the development of society. These setbacks and problems from both internal and external aspects are inevitable in the development process of museums (Laishun 180).

The combination of exhibition design and visitor education promotes the successful operation of modern museums. This approach can bring exciting experiences to the participants and open up the potential for overall development. Display technology and interactive systems should guide participants through a smooth visitation process (Chen 216). The exhibits in contemporary museums are not only of preservation or informational value but also, as part of a narrative which aims to facilitate a wide range of interpretations, generating emotional empathy among visitors (Robson 243). This provides the audience with a greater chance to acquire and disseminate knowledge related to cultural heritage. Museums play a crucial role in the face of the public and should focus on public service. 3D digital technology can significantly help the public to gain inspiration, learning and interest from collections (Robson 246). Museums can provide various presentation methods, combining the narrative with the features in the space, resonating with people's imagination, and stimulating the potential of perception (Hale et al. 3). The combination of display and technology has become so deeply embedded in societal expectation that the technological experience has become a part of life. Today's museums should emphasise experiential learning, shifting the focus from the artefacts to the subject meaning, not only in terms of the framework construction of the museum but also in terms of participants' reactions. The museum's artefacts can positively interfere with the creativity of thought, and stimulate the imagination. It can offer a range of possibilities and help redefine space (Ride 267). When museums are combined with artefacts and new media technologies, a triangular relationship will be generated in museums.

Kites and the Weifang Kite Museum are interdependent. The museum is the space to explain the meaning of the kite itself, and the kite is the carrier to express the authority of the museum. Digital technology is an excellent tool to stimulate more possibilities for kites and help museums redefine the relationship between exhibitions and kites. Young people crave experience from museums, and society needs museums to be educational, consequently museums themselves need to be transformed to achieve sustainable development. Weifang Kite Museum has vast space and support from the government and has the potential conditions for innovation. The kite museum has the capacity to focus on the meaning and spiritual value behind the kite from the kite itself and meet the challenges in the future by supporting the narrative exhibition framework through scientific and technological means.

## 2.3 EXHIBITION DESIGN

Exhibition formats require different strategies according to their artistic properties. In recent years, narrative exhibitions have gained public attention and interactive systems have become more widely accepted. The primary purpose of exhibitions has shifted from the object to the background information of the artefacts, and the structural framework has also changed (Mason and Vavoula 408).

The narrative can be understood as a temporal sequence of images or events that provide reference background or context to building design relationships, and organise information to guide masterplans to facilitate experiences and design involvement (Zellner 203). A narrative is a crucial tool for cognition and communication, and the three-dimensional space can provide a storytelling process that cannot be expressed in words. Faced with the arrangement of artefacts within the spatial framework, visitors have an instinctive narrative experience (Hale 199).

In the design process, the narrative helps the designer find inspiration and devise the order of the organisational system. The designer must also consider that the visitor's sense of experience depends on the form and type of narrative adopted (Zellner 204). Once the existence of a narrative is confirmed, the possibility of design may be greatly limited by the commitment to uphold the integrity of the narrative process. The literal narrative in space design is usually transformed into a reading mode. However, with interactive storytelling participants intuitively access, it will generate various experiential reading methods and promote participants' repeated engagement in the space (Zellner 206). In this design mode, the narrative appears more ambiguous; its potential broadens the visitors' imagination and curiosity during the exhibition process. As such, visitors are eager to become familiar with the environment, understand its meaning, and participate in the process more actively (Zellner 207).

Unlike narrative methods such as books or films, the exhibition combines space and timeline, allowing participants to move freely according to a specific starting and ending point or through a way they prefer, such as a maze. The narrative exhibition is not only about displaying artefacts but also about the potential connections between each part. Visitors can follow different clues to get multiple modes of open experience (Kossmann et al. 47). Although a linear tour route is an effective master plan, the narrative exhibition also allows visitors to choose and freely combine threads provided by the exhibition to form new master plans (Kossmann et al. 49).

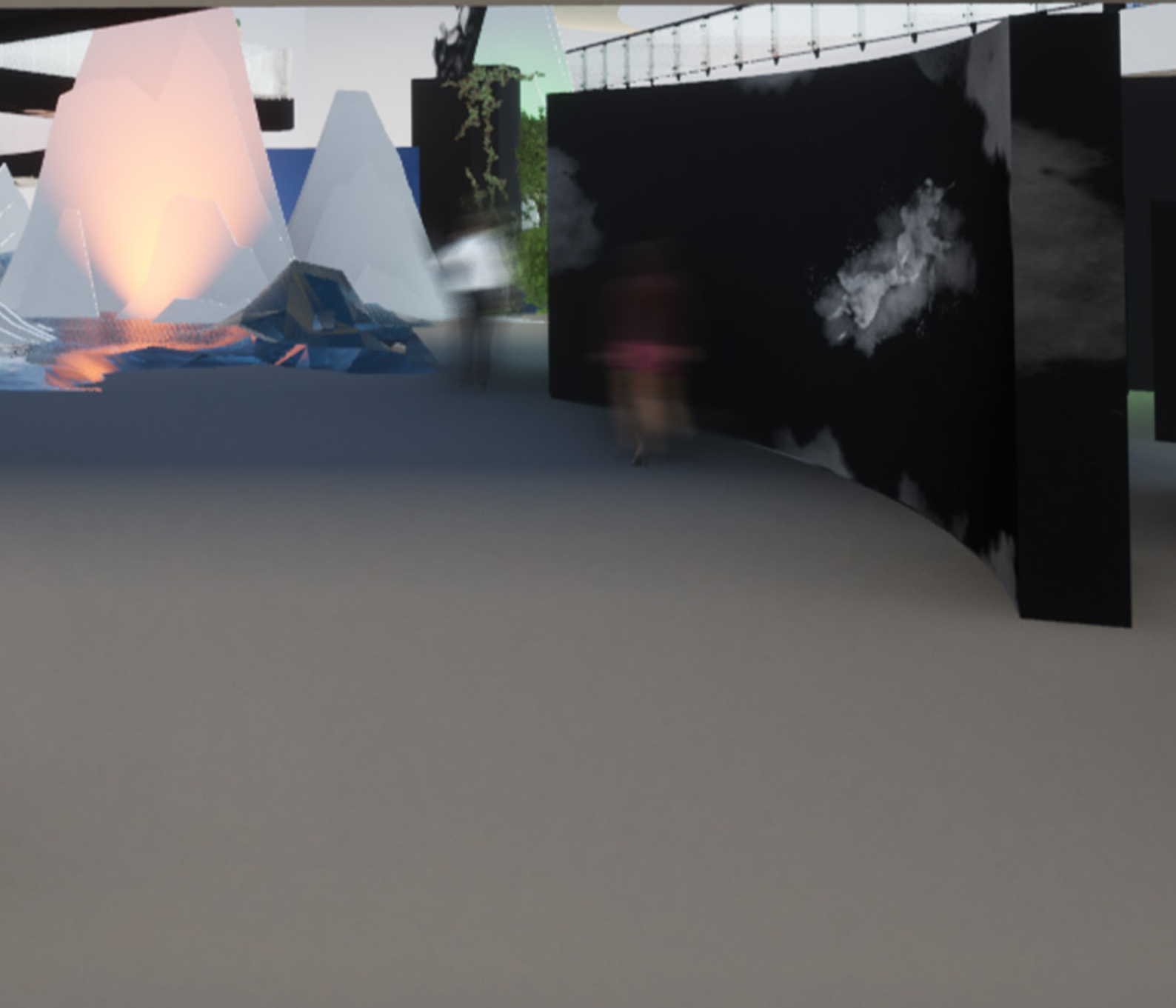
An exciting exhibition is a space that has an awareness of the infinite possibilities and considers multiple protagonists' perspectives, allowing visitors to experience the complexity of events from multiple dimensions. In order to avoid getting lost in the process of experiencing the narrative, the exhibition should provide clues of different structural levels and present the main points and details in it, giving visitors an immersive experience of different times, different places and different emotions (Kossmann et al. 66). The more unified the narrative structure is, the smaller the space for individual images will be. On the contrary, the more abstract the clues are, the more broadly the scope of the narrative can be explained and the richer the imagination of visitors. Metaphor is an effective means to make concrete objects more attractive and to create a more imaginative space. Its fuzziness can support participants in combining and arranging different elements to generate new insights (Kossmann et al. 112).

The interactive art exhibition focuses on the importance of the relationship between the audience and the work itself. The aim is to transform the group from passive receivers to active participants, and this transformation applies to the kite exhibition. The kite exhibition at Weifang Kite Museum needs more interactivity, which makes it difficult for young people to get the experience they expect. Static kite displays give a clear message and result, but limits visitors' imagination and the kites' potential. Therefore, the interactive kite exhibition can stimulate the interest of the young group and meet their needs. Kites are rich in colourful stories and allegories, which give the narrative exhibition sufficient manoeuvrability. The narrative exhibition is like a pearl necklace; each part is like a beautiful pearl, which has its lustre but is connected to become an effective artefact. The masterplan in the exhibition is like a string, connecting the factors, and the making method is also composed of the visitors' ideas, opening up the imagination of the participants. The kite's conceptual messages can form the pearls, and the tour route has potential to thread them into a sustainable, interactive narrative exhibition.



## **CHAPTER 3**

# **PRECEDENTS REVIEW**



This chapter introduces international design precedents in cultural heritage, museum design and exhibition design, which provide valuable and relevant references for the project's design. The exegesis will analyse these cases and summarise their characteristics and advantages. The exhibition design project of the Weifang Kite Museum will be discussed to clarify the influences in the design process.

## 3.1 CULTURAL HERITAGE

The Museum of Shadow Puppetry in Kaohsiung, Taiwan, digitised shadow puppetry from 2010 to 2014 to give the public a better experience and encourage them to better understand and protect the art form (Chen 210). Shadow puppetry is an intangible cultural heritage with a long history in China. It presents history and folk tales through flat and clear shadows on a surface and is usually performed as a drama during festivals. With the development of TV, radio and film, the performance of shadow puppetry gradually declined. To protect and develop shadow puppetry, the Kaohsiung government established the Shadow Puppetry Museum in 1994 and opened it to the public (Chen 211).

The exploration of the digital practice of shadow puppetry is divided into three steps: digitisation of shadow puppetry cultural archives, digital development of shadow puppetry, and promotion. In the first stage, the main task is to restore the shadow puppetry image data, edit and manage these digital data archives, and promote them on the network platform (Chen 212). In the second stage, digital shadow puppetry performance enables visitors to have an interactive experience with the aid of gesture interaction technology, while a digital scene is established to be presented on the LCD screen (see Figure 6). People can touch the screen and experience the dramatic effects of shadow puppetry with music or other cues (Chen 213). The third stage involves attracting people to participate in the exhibition through educational initiatives, for example cooperating with different countries and institutions, carrying out exhibition seminars and digital theatre design courses, and obtaining cultural and academic exchanges (Chen 216).

Digital shadow puppetry brings new potential for developing cultural heritage by combining immersive interactive exhibitions with educational promotion, thereby enhancing the visitor experience. In digitising shadow puppetry, the Kaohsiung Shadow Puppetry Museum case study demonstrates that sustainable management strategies are key to maximise the potential of digital technology. Therefore, there is a need to consider spatial exhibition elements in strengthening the focus on the user experience as well as the content and aesthetic appeal of digital archives, and educational training courses for the new generation (Chen 217). Due to the complexity of the interaction model, the lack of guidance or long queues may affect participants' enthusiasm, so the fluidity and ease of the interface with the digital experience is important (Chen 216-17).



*(Figure 6) Visitor had an interactive experience in digital shadow puppetry performance (Chen, Tin-Kai. 'Preserving Chinese Shadow Puppetry Culture through Digitisation.' The Routledge International Handbook of New Digital Practices in Galleries, Libraries, Archives, Museums and Heritage Sites, Routledge, 2019.).*



*(Figure 7) Visitors experiencing the World Heritage cave temples of Dunhuang's Mogao Grottoes exhibition (Chen, Tin-Kai. 'Preserving Chinese Shadow Puppetry Culture through Digitisation.' The Routledge International Handbook of New Digital Practices in Galleries, Libraries, Archives, Museums and Heritage Sites, Routledge, 2019.).*

The 2016 exhibition of Buddhist art on China's Silk Road at the Getty Center in the United States presents the World Heritage cave temples of Dunhuang's Mogao Grottoes through gallery exhibitions and digital technology. This exhibition simulates a part of the Mogao Grottoes using three-dimensional spherical stereoscopic technology to bring visitors a digital and immersive tour experience. The exhibition is divided into three parts. In the first part, more than 40 cultural relics borrowed from museums around the world showcase the ideas, beliefs, culture, art and aesthetics of the Silk Road. The second part is a full-size hand-painted replica of the three Mogao Grottoes temples, which visitors can visit in front of the fence. The third part is a guided experience provided by an audio commentary(Levin et al. 283–84).

To bring visitors an immersive experience, the Getty design team utilises digital technological innovations, combined with 3D glasses and a curved spherical screen, to design an immersive virtual experience (Levin et al. 286). After comprehensively considering the history, aesthetics, size and protection of Mogao Grottoes and other factors, Cave 45 was selected as the object of reproduction and many high-resolution images were taken for the material. The Getty team used 3D modelling software from these images to replicate the cave's interior environment and map images and textures onto the model to simulate an actual cave. The curved screen is 1:1 scale to the size of the cave, and the 3D spherical projection surrounds the viewer, providing a holographic experience(Levin et al. 287–88)(see Figure 7). The environment of 3D projection requires dim lighting, while the environment of other areas is brighter. To provide an excellent visual effect for visitors, the space set up a waiting area before they entered the exhibition hall to help them adapt to the light change as soon as possible(Levin et al. 286).

To create an immersive experience, using a large screen effectively brings the historic environment to the museum with high-definition images. Digital technology successfully provides visitors with the opportunity to experience the Mogao Grottoes temples thousands of miles away and to gain a deeper understanding of the history and art of the Mogao Grottoes and China's Silk Road through the reproduction of artworks and cultural relics (Levin et al. 294).

## 3.2 MUSEUM DESIGN

The Te Papa Museum of New Zealand is located in the capital city, Wellington, with many lively and exciting exhibitions. It provided many ideas worth considering as a reference in the early stage of this project design.

Gallipoli: The Scale of Our War is an exhibition of war records from April 2015 to April 2025. Te Papa Museum has collaborated with Weta Workshop and tells the narrative of the First World War through the eyes of eight different New Zealanders. With a recommended tour time of one hour, it is a modern historical exhibition that combines digital technologies such as projection equipment and three-dimensional terrain models, large-scale sculptures, as well as a range of models (see Figure 8) to allow for an immersive experience ('Gallipoli').

As a narrative exhibition, it uses a timeline as the strategy, with a leading tour route through each scene and visitors following the signs on the floor (see Figure 9). At the entrance of the exhibition, guided by large scaled models and a panoramic video, the overall lighting environment is dim, giving visitors a feeling of solemnity (Figure 10). There is an introduction before entering the critical point(see Figure 11), but the reserved position is slightly narrow; if some visitors read slowly, it may cause congestion in the channel and affect the visitor experience of the visitors behind. The exhibition hall has pictures, words and objects on display; the timeline on the floor provides a guide to their historical relevance, but the viewer can stop at the time node of interest to explore further (see Figure 12). The narrative follows the timeline, conveying different emotional perspectives, from the beginning of the war to the fierce battlefield to the grief of relatives. The over-scaled size of the human models gives each pivotal scene a visual impact and gives visitors an immersive experience. There is a simulated trench scene using lights, projections and the environment, and 1:1 videos are projected on the wall to make people feel like they are in the middle of a war, facing the sacrifice of their comrades and approaching the enemy (see Figure 13). In showing the damage caused by the war to the families, the sound effect of crying, the projection effect that looks like tears constantly falling, and the warm light surrounding the woman is reminiscent of the warmth of home combined to deliver an emotional effect (see Figure 14). Towards the end of the exhibition, an interactive experience area is designed where visitors can create their favourite badge through a touch-screen device and fold red poppies to commemorate those who died in the war(see Figure 15).

This narrative exhibition creates a sombre mood and an immersive experience. The atmosphere of this exhibition is serious, and the narrative exhibition strategy successfully conveys the sadness and pain of war to the people of today. It is full of educational significance, warning people to cherish peace.



*(Figure 8) The large-scale sculpture model in the Gallipoli: The Scale of Our War exhibition.*



*(Figure 9) The signs of the exhibit route on the floor.*



*(Figure 10) A panoramic video at the entrance of the exhibition.*



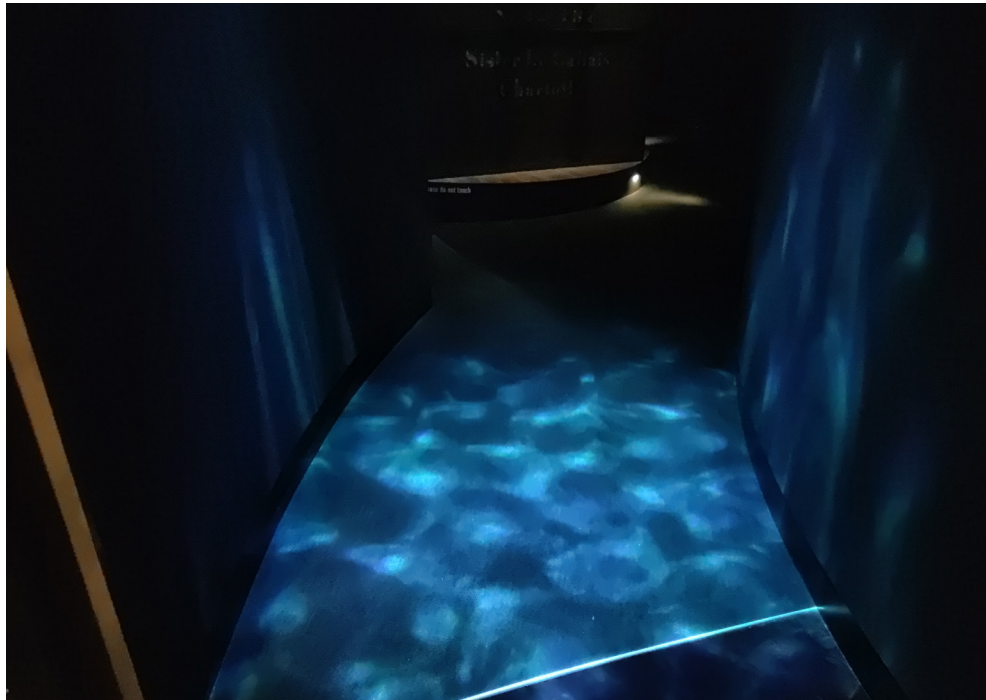
*(Figure 11) An introduction on the entrance wall.*



*(Figure 12) The exhibition hall in the Gallipoli: The Scale of Our War exhibition.*



*(Figure 13) 1:1 scaled videos are projected on the wall.*



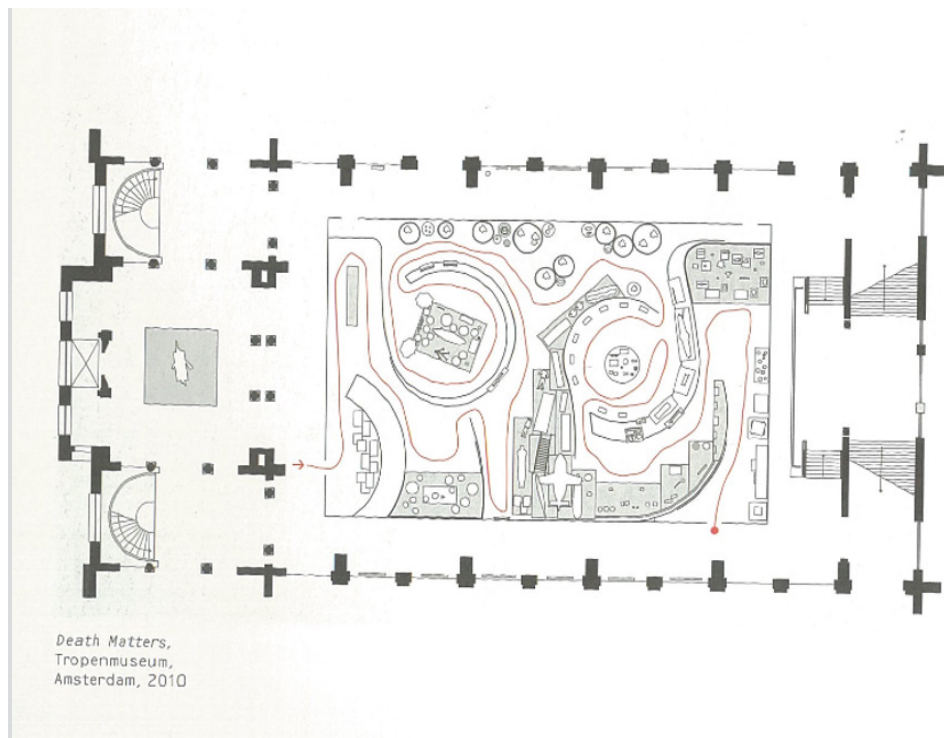
*(Figure 14) The projection light effect on the floor.*



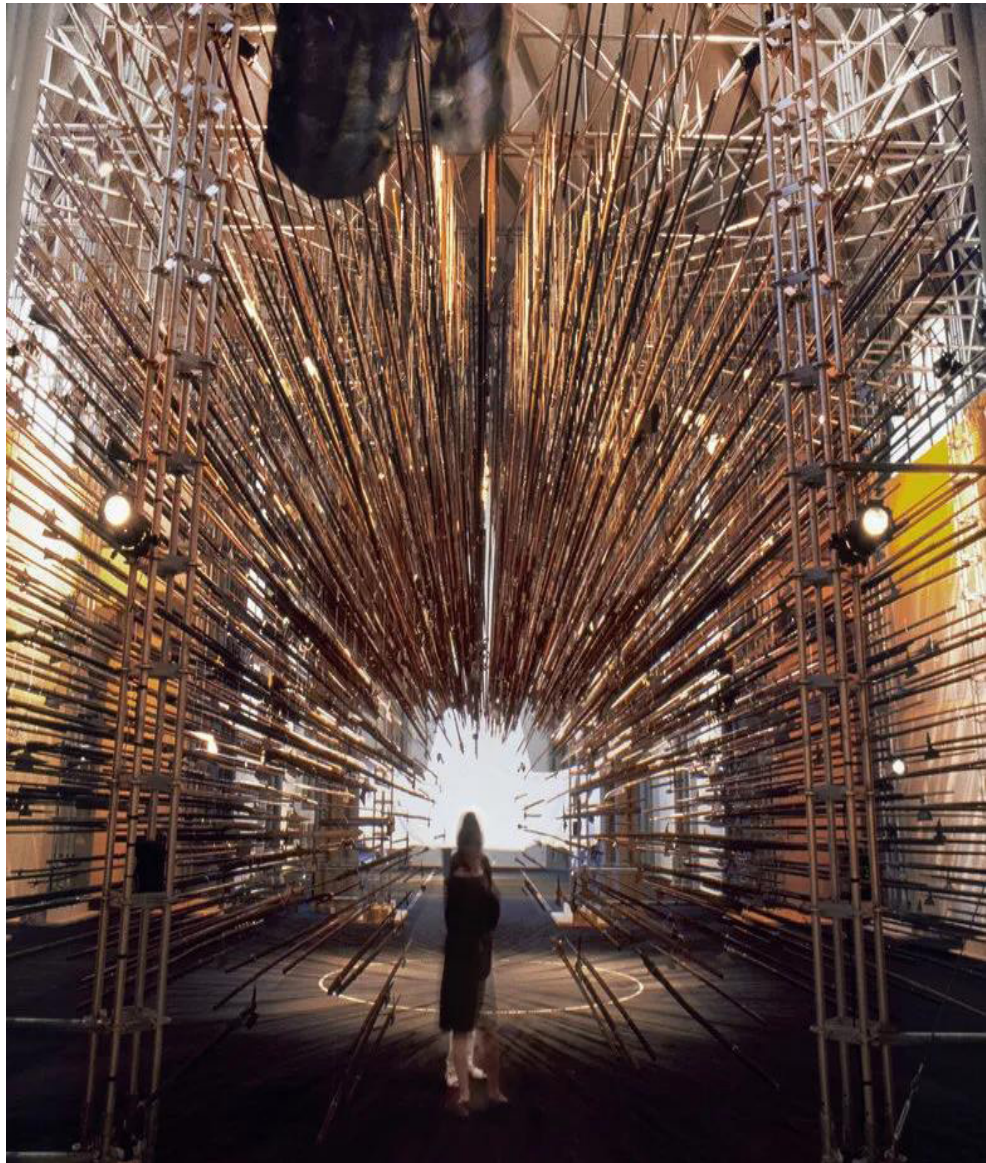
*(Figure 15) An interactive experience area to commemorate those who died in the war.*

The Death Matters exhibition in 2010 at the Amsterdam Trojama Museum has a unique design of the tour route, which is like going through a maze (see Figure 16). Through the exhibition area, visitors experience the different stages of people's feelings while losing a loved one, from facing death, separating, grieving, commemorating and trying to connect again and explore people's attitudes towards death through this series of experiences. It provides visitors with a different experience through changes in lighting, installation, visual effects and other elements inside each scene. This route arouses the visitors' curiosity and leads them into different scenes (Kossmann et al. 50).

In 2003, Holzer and Kobler designed a visual installation of weapons casting shadows at the Landesmuseum in Zurich. These seemingly powerful weapons, from different perspectives, point at other people, aggressors and victims (see Figure 17). Perspective is a significant part of a narrative exhibition. Visitors can understand scenes and stories from different perspectives, so different perspectives within the same scene embody the diversity of stories (Kossmann



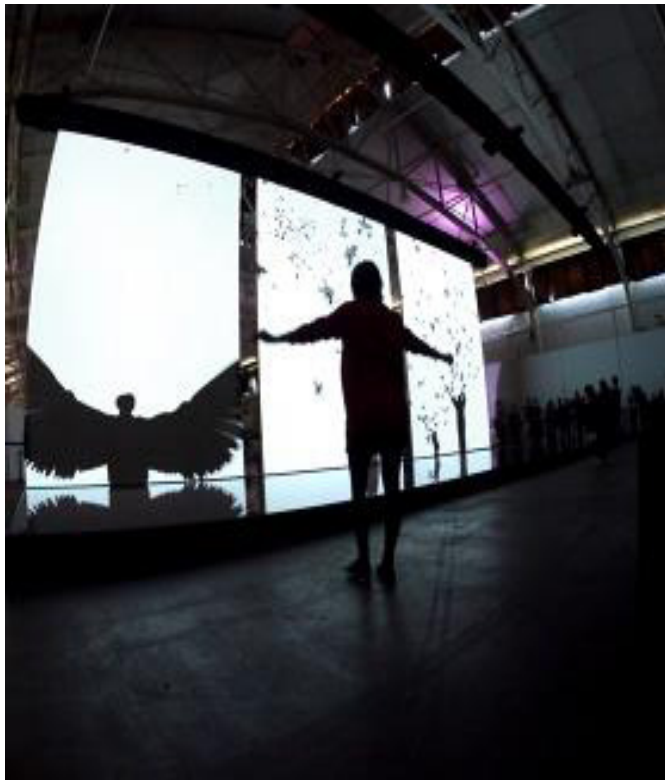
*(Figure 16) The tour route plan of the Death Matters exhibition in 2010 at the Amsterdam Trojama Museum.*



*(Figure 17) A visual installation of weapons casting shadows at the Landesmuseum in Zurich.*

### 3.3 EXHIBITION DESIGN

The Treachery of Sanctuary installation, designed by Chris Milk in 2012, toured the world, with participants using interactive installations and digital capture to project their arms onto different bird wing shapes, conveying artistic concepts from birth to death to transformation (The Treachery of Sanctuary - CHRIS MILK). This interactive installation allows the participants to keep trying different postures to garner interactive experiences(see Figures 18 and 19). The conceptualised images guide people's interest and thinking through the animation changes, forming a fascinating interaction design. Despite the absence of written descriptions, changing images can still inspire people to explore the installation's information. Additionally, they obtain clues from the interactive device's feedback and connect them to form a new story. The design of the Weifang Kite Museum's interactive narrative exhibition refers to this interactive device. The transformation of non-figurative images causes the visitor to think and wonder about the narrative clues and encourages them to continue in the exhibition.



*(Figure 18) Participants engage in the interactive installation A.*



*(Figure 19) Participants engage in the interactive installation B.*

MET Studio is a globally culturally innovative art studio that includes a collaborative project between The Hong Kong Wetland Park and Sea Voyages, which presents spatial and visually immersive experiences. The Hong Kong Wetland Park aims to raise awareness of local wetlands and encourage responsibility for their conservation, showcasing local species and habitats and their interdependent relationship with humans. The scene uses spatial stratification, creating an immersive and mysterious science fiction space through large-area projection and model devices(see Figure 20) by filtering colour lights('Hong Kong International Wetland Park'). Dark and cold light colours are chosen, like blue and purple, so that the two levels of space are connected as a whole. The model in the venue presents the ocean and technology elements, creating an immersive experience environment. Considering that Weifang Kite Museum also has similar spatial characteristics, the use of scene lights and models should be fully considered when designing the immersive scene environment. This is conducive to building the scene atmosphere and providing visitors with a more associative experience.



*(Figure 20) The large-area projection and model devices in the Hong Kong Wetland Park..*



*(Figure 21) The panoramic screen and deck scenes in the Sea Voyages.*

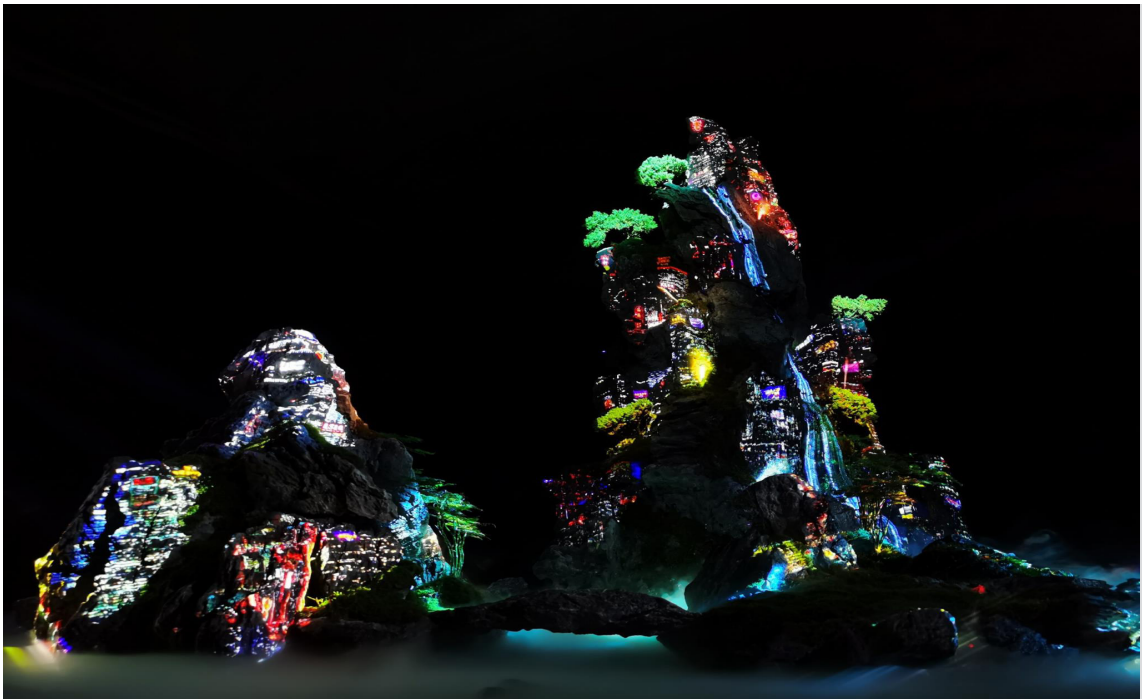
“Sea Voyages” is a project of the Amsterdam Maritime Museum by MET Studio in collaboration with Hypsos and Tinker Imagineers, targeting a young audience. Designed to resonate emotionally with participants through interactive installations and audiovisual experiences, the panoramic screen and deck scenes (see Figure 21) give visitors an immersive experience at sea while guiding them to understand the narrative behind the artefact(“Sea Voyages”). Technology support is increasingly used in the design of immersive experience spaces, of which the Sea Voyage exhibition is an example. The narrative begins with visitors experiencing the lives of seafarers and brings them into the context through a sense of embodied experience to promote the progress of the exhibition. The curved panoramic screen provides a sense of an enveloping environment , the wooden floor simulates the scene of the deck, and the sound effects of the waves enhance the ship’s atmosphere adrift at sea on a stormy night. Therefore, visual and auditory elements are essential in creating an immersive narrative space, and the use of materials can also resonate with visitors.

## 3.3 EXHIBITION DESIGN

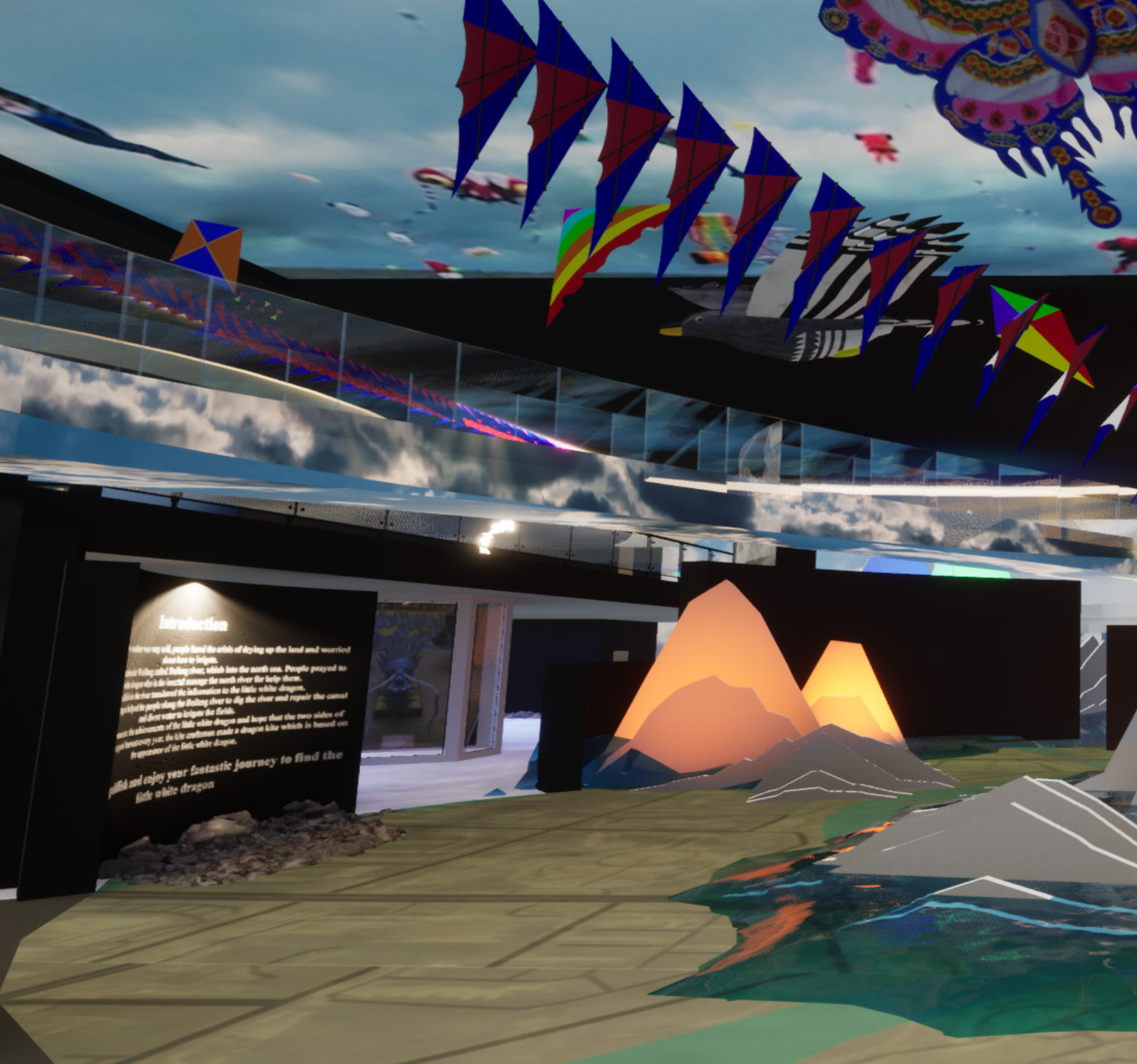
LightHouse Lab is a new media art studio founded in Shanghai in 2015, which designs immersive experience spaces through digital technology. The Digital Ecological Jungle (see Figure 22) restores the natural jungle atmosphere and combines the ecological jungle space with panoramic screen projection to create a vibrant digital nature experience (Light House). The Digital Landscape designed in 2020 (see Figure 23) presents a bizarre, colourful, and flourishing cyberpunk world on the surface of the three-dimensional landscape model through digital technology: the changing light, shadow and colourful colours immerse visitors (Light House). Projection of animated images on the screen or model to present a three-dimensional 3D visual effect is regularly used in digital exhibitions, and the size of the screen and model is the key to immersive effect. This technology has specific requirements for the display environment, and it is necessary to minimise the brightness of the surrounding lights and fine-adjust the projection angle to achieve the best projection effect. LightHouse Lab has been successful in using scene construction and projection technology to create artistic and visual design exhibitions with futuristic themes, which inspires the innovation of the Weifang Kite Museum design.



*(Figure22) A vibrant digital nature experience in the Digital Ecological Jungle.*



*(Figure 21) The Digital Landscape designed in 2020.*

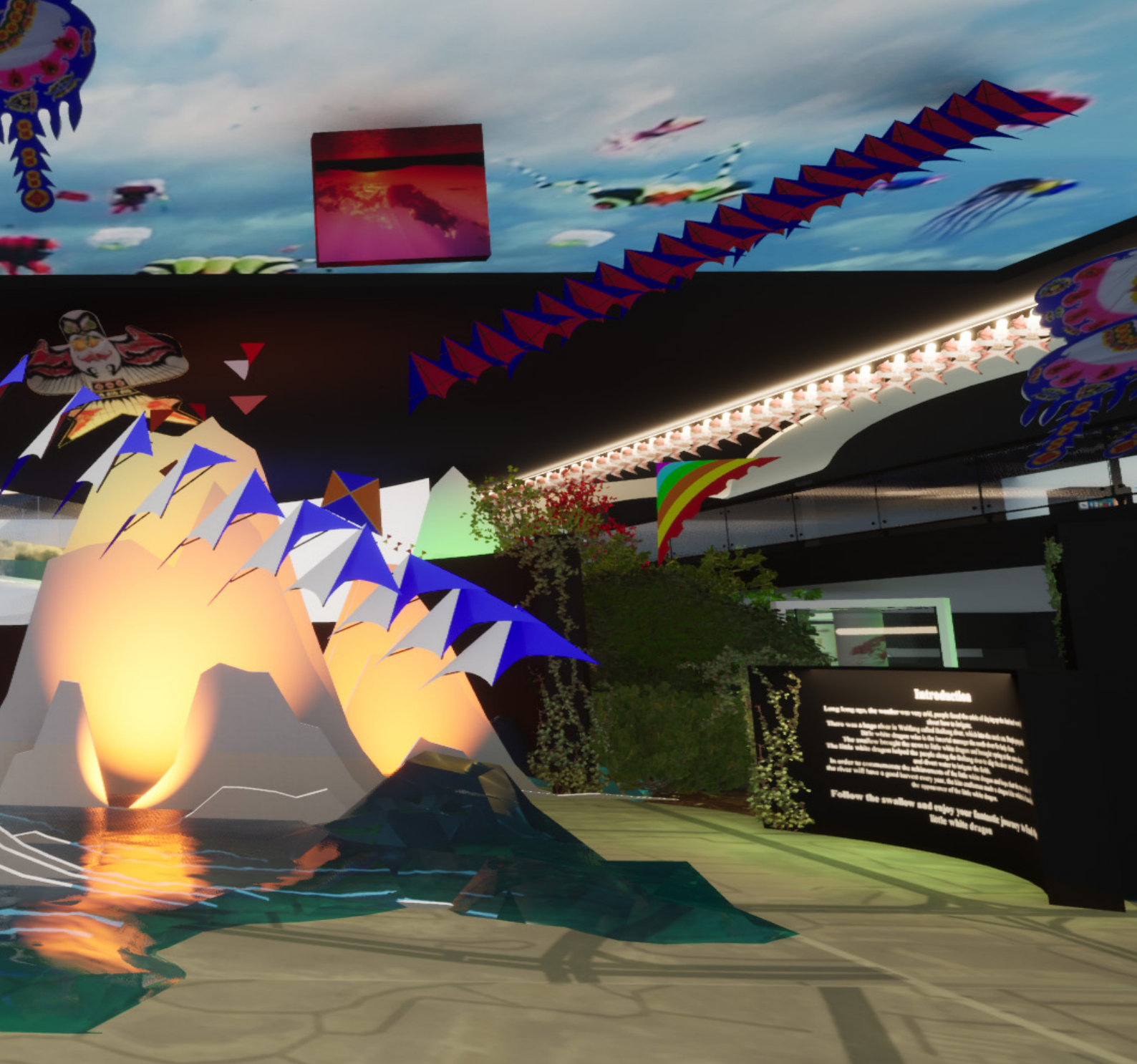


**Introduction**

For many years, people faced the risks of drying up the land and worried about how to irrigate. The Yellow River, which flows into the north sea. People prayed to the dragon who is the local manager for north river for help. When the dragon transferred the information to the little white dragon, he helped the people along the Yellow River to dig the river and repair the canal and then water to irrigate the fields. In the 13th century, the white dragon and the yellow dragon had a fight. At the end of the fight, the white dragon won. In the 14th century, the white dragon made a dragon kite which is based on the appearance of the little white dragon.

and enjoy your fantastic journey to find the little white dragon

## CHAPTER 4 DESIGN PROCESS



## 4.1 NARRATIVE

According to historical records, Lu Ban, a carpenter in the Spring and Autumn and Warring States Period (770-221 BCE), made the first wooden kite. After the invention of papermaking, the kite-making material in the Han Dynasty (202BC-220AD) evolved into paper, called ZhiYuan, which means paper bird in Chinese (Wu 147); At the beginning of the Five Dynasties (907-979), Li Ye transformed the kite, installed a bamboo flute, and made a musical sound when the wind blew, thus determining the 'Kite' as a proper noun. Commercial kites appeared around the Song Dynasty (960-1297) and in the Ming and Qing Dynasties (1368-1912), and gradually developed into four schools: Weifang kites, Beijing kites, Tianjin kites, and Nantong kites (Zhang and Yu 51). The shape and decoration of kites are closely related to the local ethnic culture of different genres, and their production methods, materials, background stories and meanings are also very different. Each genre's representative works reflect each region's aesthetic taste (Wu 148).

Kites can be roughly divided into six types according to their shapes and making methods: hard-winged kites, soft-winged kites, plank-shaped kites, bunch-shaped kites, tube-shaped kites and free-shaped kites. In Weifang school they are mainly bunch and tube-shaped kites with exquisite shapes (see Figure 24), bright colours and intense visual effects. They are decorated with local traditional New Year Paintings, legends, and fairy tales, among which dragon kites are the most typical representative works (Wu 149). Beijing school are mainly hard-winged with rigid shapes (see Figure 25), elegant colours and flexible flying posture, thoroughly combining literature and art with profound historical and cultural heritage, and swallow kites are their most important representative works (Wu 148). Tianjin school, represented by soft-winged kites (see Figure 26), are colourful, full of folk flavour, easy to carry, and feature goldfish, flower, and bird shapes (Wu 150). Nantong kites are mainly plank-shaped kites with light structure and exquisite production, combined with the harrier bell when flying, a beautiful sound is produced; hence the name plank harrier kites (Wu 151). Free-shape kites are the innovative kites favoured by people in recent years, with strange shapes and are full of fun.



*(Figure 24) Dragon kite.*



*(Figure 25) Swallow kite.*



*(Figure 26) Fish kite.*

Weifang describes itself as the kite capital of the world. The museum focuses on local characteristics, supplemented by other types of kites. In this design proposal of a narrative exhibition, the main visitor storyline refers to the background story of the dragon kite, which is distinct to the Weifang city area, and the two branch paths interweaving between the main narrative line refer to the narrative and meaning of the swallow kite of Beijing and the fish kite of Tianjin.

The dragon represents auspiciousness, authority and wealth in Chinese culture. Ancient emperors used the dragon as their totem; even today, it is still regarded as an honourable symbol. It is said that the little white dragon of the North Sea helped the people along the Bailang River dig the river, repair the canal, and divert water to irrigate the fields. In order to commemorate the achievements of the little white dragon and hope that the two sides of the river will have a good harvest every year, the kite craftsman made a dragon-headed centipede kite according to the appearance made by the little white dragon, and people flew it on the bank of the Bailang River every year to pray for blessings.

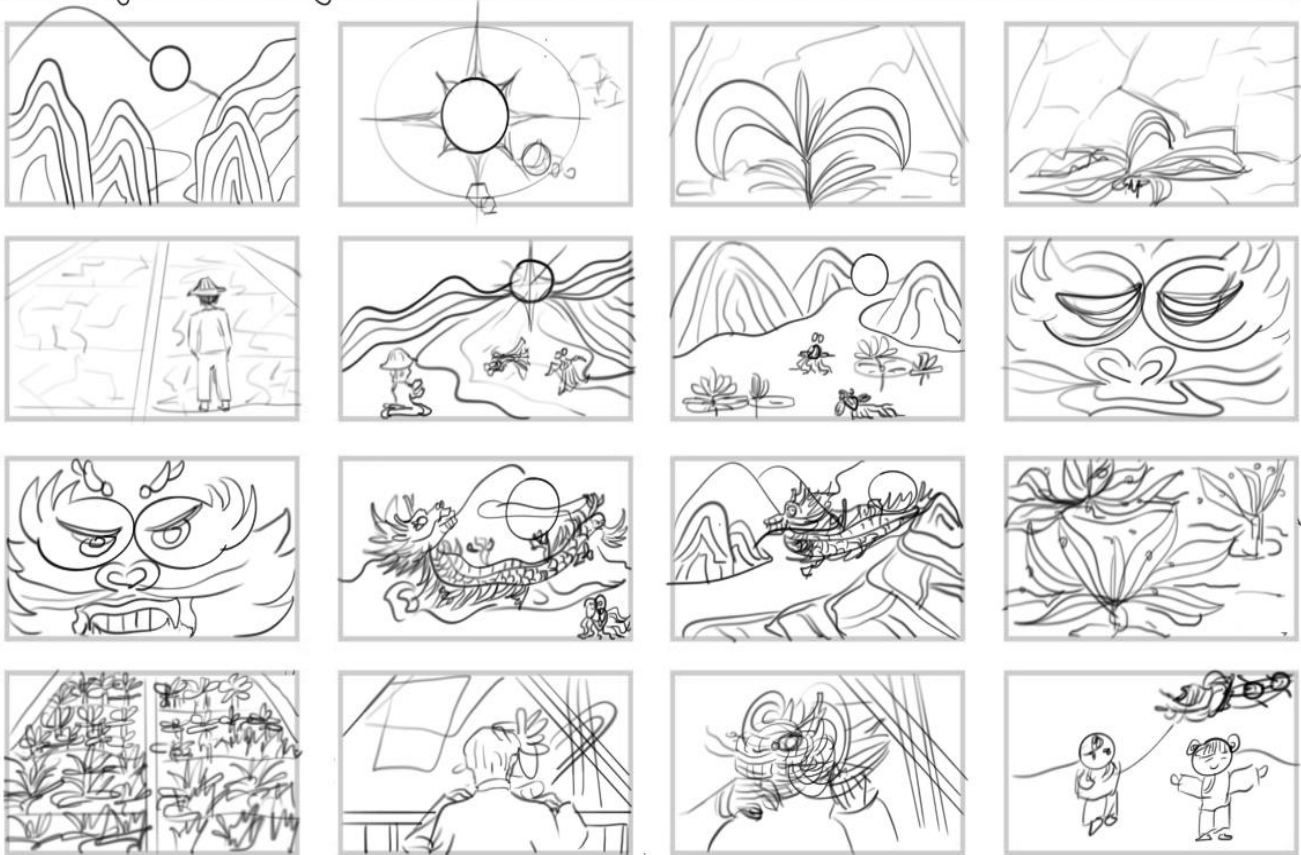
The pronunciation of “fish” and “jade” is similar in Chinese, spoken as ‘yu’, so goldfish means gold and jade in the same instance, and the folks people also use the likeness of the “fish” to express “an increase in prosperity”, “abundance every year”, to indicate a prosperous life (Chinese Kites, Emblems of the Auspicious). According to legend, every year in the spring, many fish will go up stream, forming a group in front of the dragon gantry. The fish will become the dragon once they jump over the dragon gantry, but above the waterfall, due to the rapid flow of water, fewer fish can jump over. Therefore, the ancient people used this story as a metaphor to brace for hard work, forge ahead, dare to think and dare to dream.

Swallows have the ability to fly and are good at long-distance migration. It is a lucky bird but also a migratory bird. Every spring, they fly back north, symbolising the return of spring. The swallow symbolises the Chinese people’s beautiful love because they always appear as a pair of swallows, but it also can represent a husband and wife’s love. The ancients people believed that under whosever eave the swallow nested will have a happy event; it is an auspicious bird.

This storyboard (see Figure 27 and 28) is drawn for the narrative exhibition with the dragon kite as the main path, and the elements of the fish kite are presented as a small link in the middle. The subsequent scene construction will also take this as a reference.

Title: dragon kite storyboard.

Page:



(Figure 27) The little white dragon kite storyboard sketch.



Long long ago, the weather was very arid, people faced the crisis of drying up the land and worried about how to irrigate.



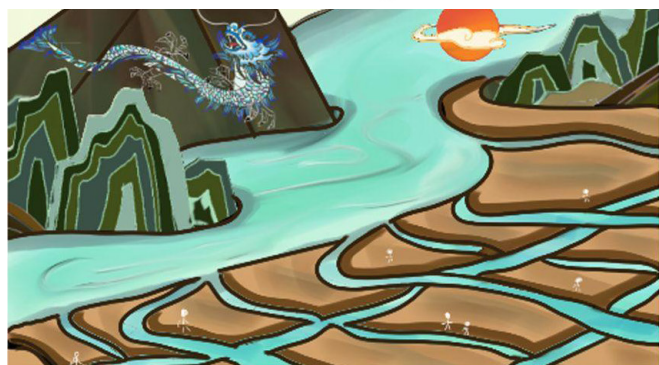
There was a huge river in Weifang called bailang river, which into the north sea. People prayed to immortal for help them



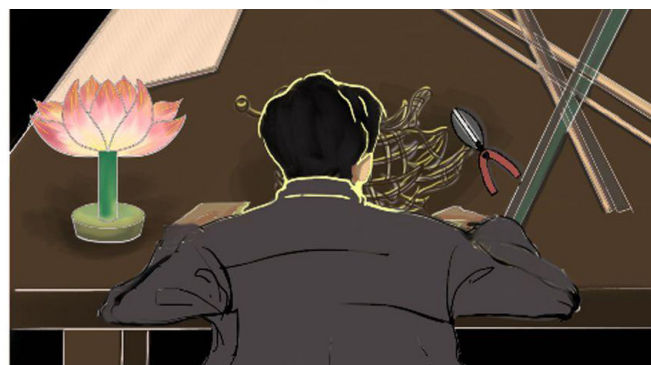
The goldfish in the river transferred the news to the little white dragon.



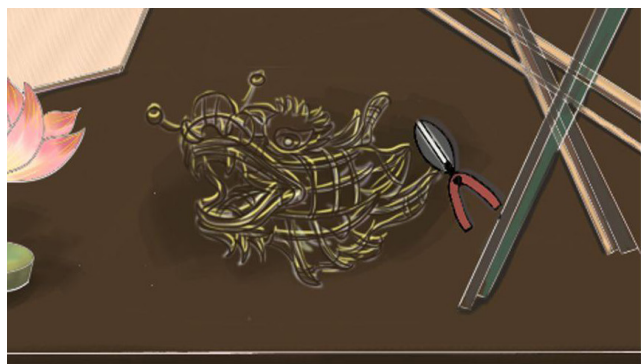
The little white dragon lived in the north sea and managed that field.



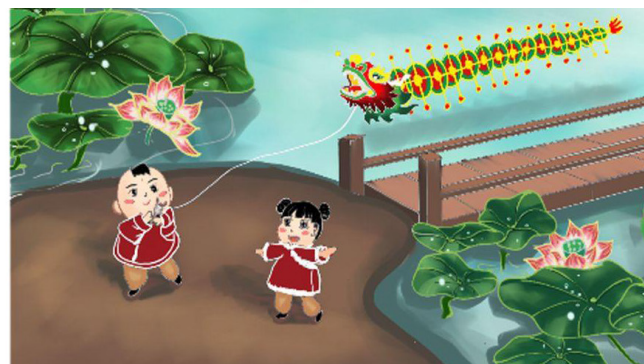
The little white dragon helped the people along the Bailang River to dig the river and repair the canal and divert water to irrigate the fields,



In order to commemorate the achievements of the little white dragon and hope that the two sides of the river will have a good harvest every year, the kite craftsman made a dragon-headed centipede kite.



The shape of the kite is based on the appearance of the little white dragon.

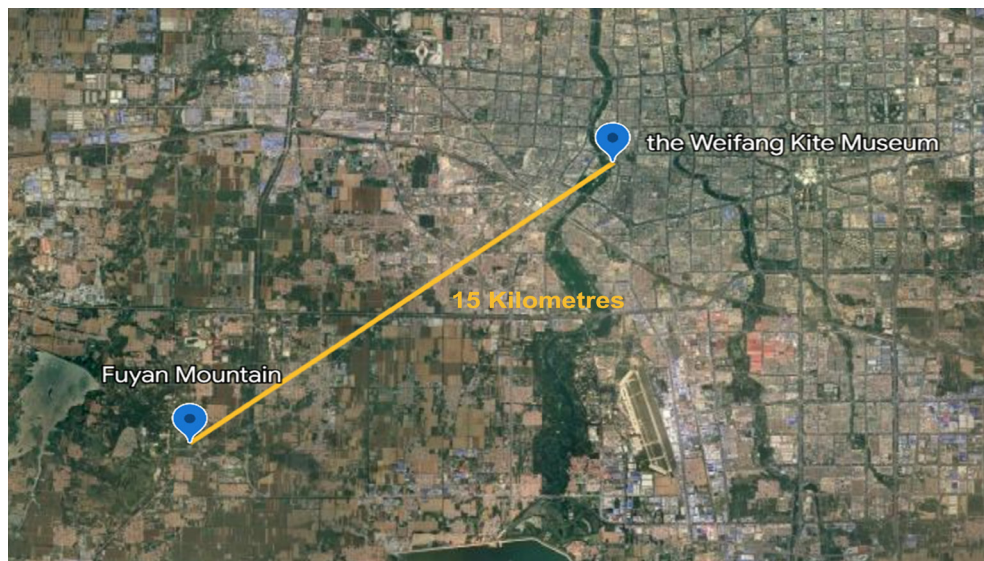


People and children flew it on the bank of the Bailang

(Figure 28) The little white dragon kite storyboard sketch in colour

## 4.2 SITE ANALYSIS

Weifang Kite Museum, located in the centre of Weifang City, Shandong Province, China, covers an area of 8,100 square metres. It is China's first large-scale kite museum and the landmark building of Weifang, the capital of kites, which thousands of domestic and foreign tourists visit yearly (Zhang 117). The kite festival site is located at the foot of Fuyan Mountain in the southern suburb of Weifang City, about 15 kilometres from the Kite Museum (see Figure 29), with beautiful scenery and broad vision. Compared with the flying site, the geographical location of the Weifang Kite Museum has a large flow of people and convenient transportation, which is a significant advantage for tourism development.



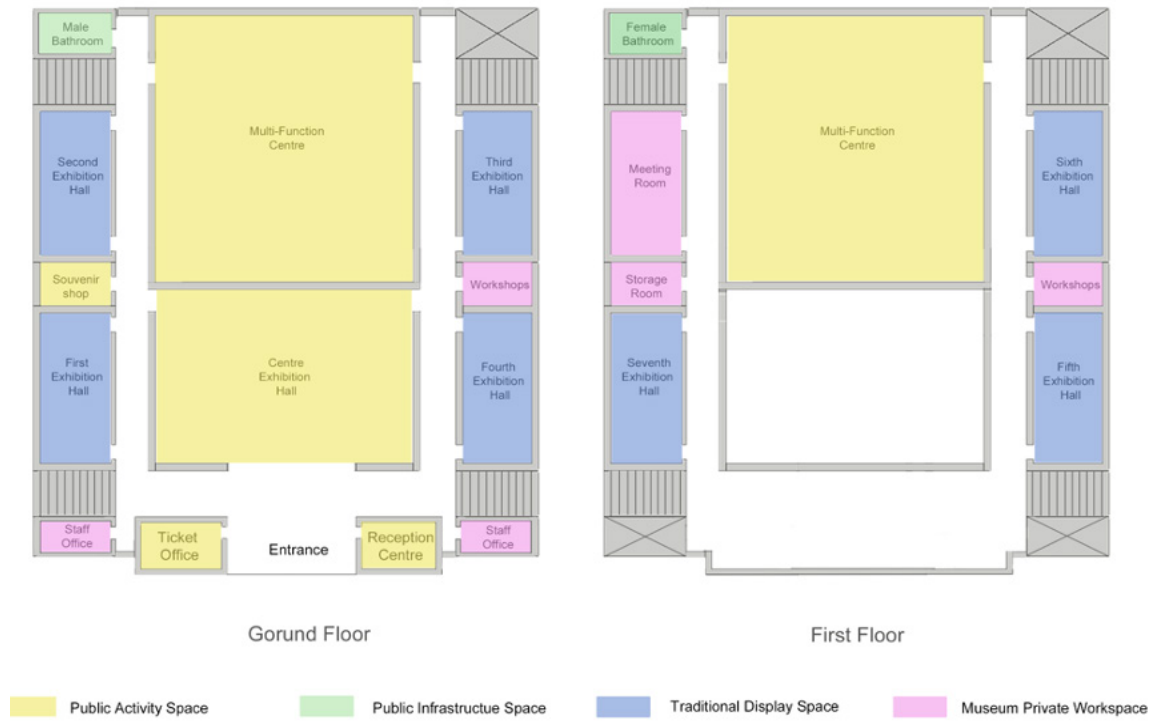
*(Figure 29) The distance between the Weifang Kite Museum and Fuyan Mountain.*

Inspired by the architectural style of Dragon Kites, the Weifang Kite Museum has eight exhibition halls, including a sizable multi-functional media hall (Weifang et al. Museum, China Weifang Tourist Attractions - Easy Tour China). The overall layout is square and traditional, as shown in Figure 30. There is a reception centre and ticket registration office at the door of the ground floor, and the central exhibition hall at the entrance is equipped with a high display space and a glass skylight, where some characteristic kite models are hung (see Figure 31), which are generally used as a gathering and resting place for visitors. On either side of the exhibition hall in the centre are four exhibition halls that showcase the history and collection of kites, a souvenir shop, and kite-making studios. The multi-purpose media hall is behind the central exhibition hall, which features panoramic screens and multimedia equipment for school or group learning and activities. Through the stairs to the ground floor, there are also three exhibition halls and a meeting room for learning (see Figure 32).

The strengths of the Weifang Kite Museum are its wide building area, a high display space inside, and sufficient exhibition conditions. Secondly, the space is divided for different functions of display, media and leisure. Third, it has solid building materials and plenty of light from glass skylights. Finally, it has rich kite-decorative elements and collections. These advantageous elements provide the conditions for the design of interactive narrative exhibitions.

In the field investigation and analysis process, Weifang Kite Museum also revealed some weaknesses based on age and technological factors. First, it needs more interactive space. Instead of taking visitors' experiences as the primary purpose, the museum aims to transmit information passively and takes artworks as the main service object. Secondly, the division of exhibition space is monotonous, the opportunity to explore is lacking, and the established space needs to be fully utilised. Third, the infrastructure needs to be improved. Although the multimedia exhibition hall is provided, the equipment consists of only a few projectors and multimedia players, and the utilisation rate is low. Finally, the displays in the exhibition space lack a narrative connection and are not attractive to young visitors.

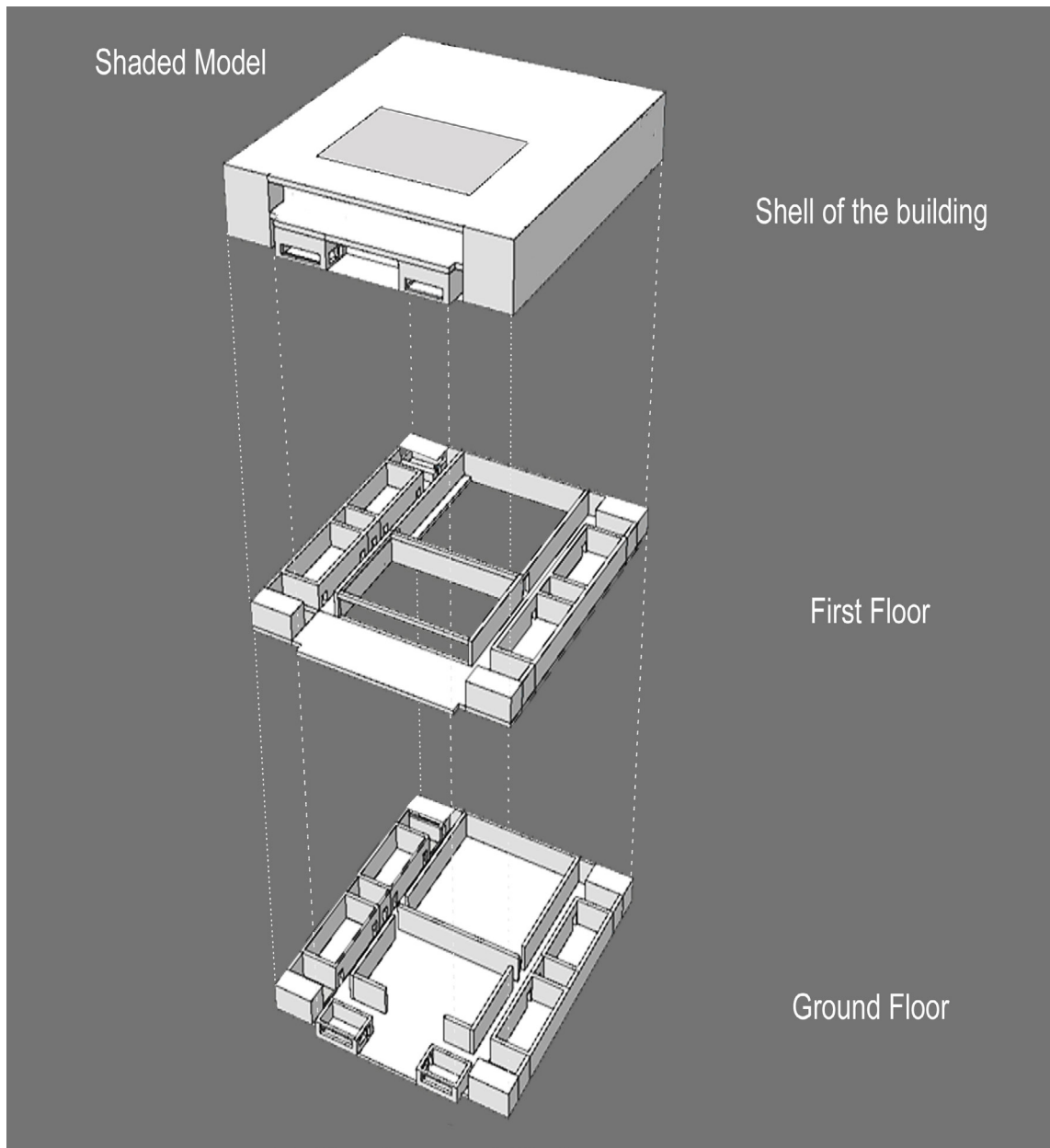
Spatial function analysis of existing spatial layout the Weifang Kite Museum



(Figure 30) Spatial function analysis of existing spatial layout the Weifang Kite Museum.



(Figure 31) The Weifang Kite Museum interior view.



*(Figure 32) Construction model of the Weifang Kite Museum.*

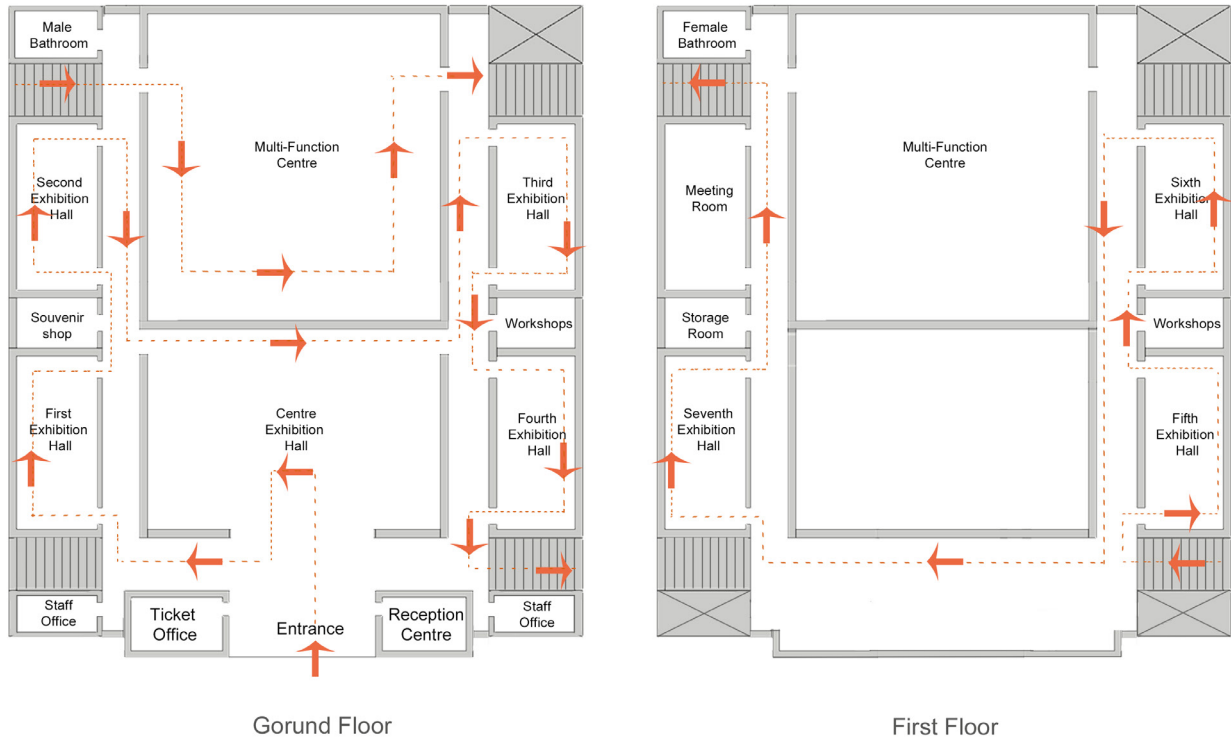
## 4.3 EXHIBITION STRATEGY

### 4.3.1 MASTERPLAN

It is easy to see from the division of plane areas that the existing exhibition strategy of the Weifang Kite Museum could be more varied. As the design basis of a narrative exhibition, it needs to re-design a new exhibition strategy from a new perspective. An exhibition strategy is a plan for the detailed display of artefacts in a given space, which needs to include the content of the exhibition, the classification of the exhibits and the means to attract visitors, taking into account the characteristics of the site, its particular requirements and the purpose of sustainable development (Hughes 76). Careful thought is needed in dividing areas, as the exhibition objects are usually visited in categories of time or nature, and often more than seven separate areas can cause confusion for most visitors (Hughes 78).

There are many ways to explore a museum, including a fixed tour route, an unfettered free tour, or a combination of both. In Philip Hughes' "Exhibition Design" framework, seven different display route schemes are mentioned; they are "The single path, The multiple paths, the radial pattern, 'Star' exhibits, Area of affinity, The fan pattern, Map orientation" (Hughes 77–79). Designers can use the route of the exhibition strategy in more than one way, and it needs to be reasonably selected and combined according to the content and space of the exhibition. "The single path" ensures a unified path that prevents visitors from missing any part of the exhibition and establishes the same knowledge system by providing the same experience (Hughes 79). (see Figure 33) It is the exhibition method adopted by Weifang Kite Museum, which facilitates visitors' management and information transfer. The simple and straightforward tour route allows visitors to understand and complete an efficient tour experience quickly. However, this tourism strategy requires managers to control the length of stay to avoid causing congestion (Hughes 79).

Existing Weifang Kite Museum Masterplan



(Figure 33) The Weifang Kite Museum original masterplan.

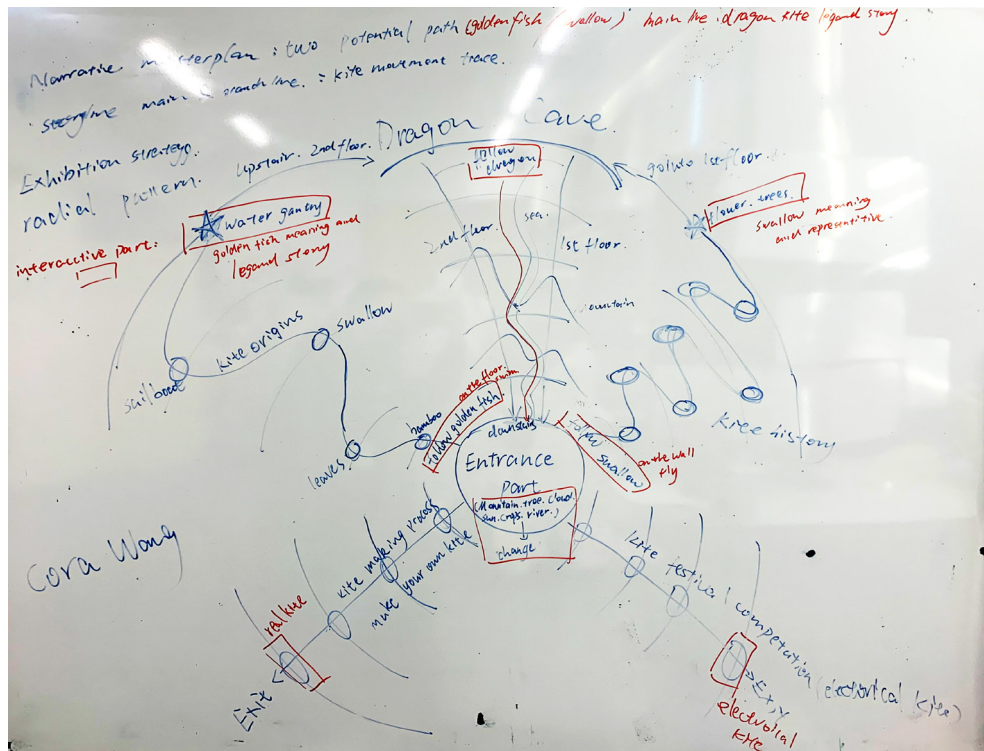
“The multiple paths” provides a variety of choices to avoid the congested experience caused by crowd gathering, and visitors can change the route according to their interests or circumstances, with a high degree of freedom. This tour route requires designers to provide clear guidance and road signs to reduce visitors’ waste of time and energy (Hughes 78). “The radial pattern” is a less familiar concept that shows artefacts in concentric circles in the inner circle and radially shows the iteration of time and the development of objects (Hughes 78). “Star exhibits” are displayed around the main exhibits, like stars around the moon. When people focus on the central exhibits, they may find interest in the surrounding exhibits and obtain unexpected results (Hughes 79). “Area of affinity” usually means that objects that are difficult to classify are placed in a similar area, separated by walls or partitions, while leaving a particular gap to help visitors establish the connection and contrast of these artworks (Hughes 79). “The fan pattern” is a relatively intuitive exhibition method, and visitors can make choices quickly in a short time through a broad perspective, effectively saving time (Hughes 79). “Map orientation” is more applied to the interactive exhibition. Visitors can obtain adequate information to choose the route by centring on the interactive area and can return to the centre at any time to repeat the above behaviour (Hughes 79).

The innovation exhibition strategy of the Weifang Kite Museum is to shift the focus from the object itself to the visitor’s experience, thus affecting the visitor’s view of the object itself. Therefore, in designing and selecting exhibition strategies, it is necessary to consider the background narrative of the kite and the nature of the exhibition, construct a suitable plot, and fully explain and guide. Since the exhibition’s goal is a sustainable, interactive narrative exhibition, it is necessary to avoid overly complex design strategies to avoid affecting the visitors’ judgement and thinking, resulting in a deviation in the understanding of kites (Hughes 80).

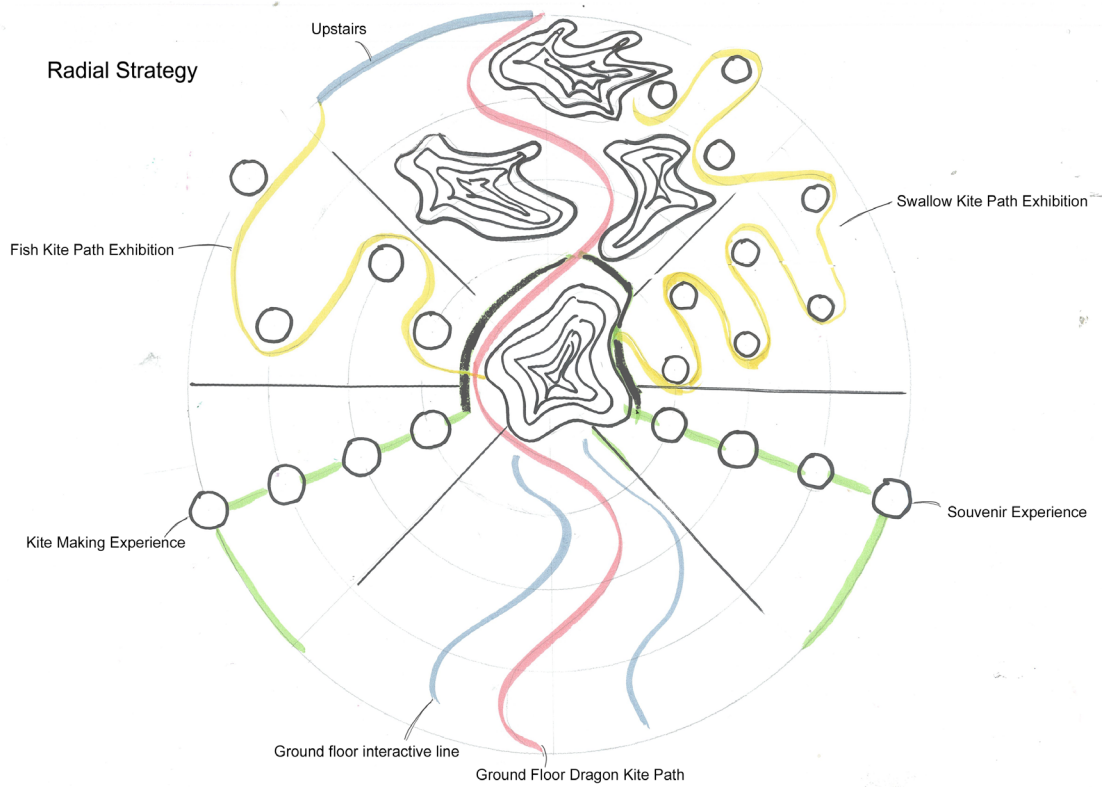
In the initial design of the tour strategy, “the radial pattern” was adopted as the basic strategy, considering the diversity and layer of narrative routes (see Figure 34). It takes the narrative scene space A along the coast of the Weifang Bailang River as the centre. It develops the narrative in a radial direction around it through two different thread routes: branch A: goldfish kite path and branch B: swallow kite path; following the movement traces of these two types of kites teaches about the types and history of kites and allows visitors to choose and explore. Branch A extends to the ground floor and connects with the North Sea area where the little white dragon lives in narrative scene B and goes behind the central scene through the narrative link of the fish leaping over the dragon gantry. Branch B winds its way into narrative scene space B and uses the flight path of A dragon kite as a guide to move forward and return to the central scene A. Visitors can experience the changes in the

atmosphere of the scene from different levels, simulating the main story that the ancient people seek the small white dragon to help them restore the experience of the ecological environment. After that, visitors could choose two different entertainment and rest areas from the central scene, enter the experience of kite making or souvenir buying, or re-enter the tour route to enjoy the wonderful place of another route.

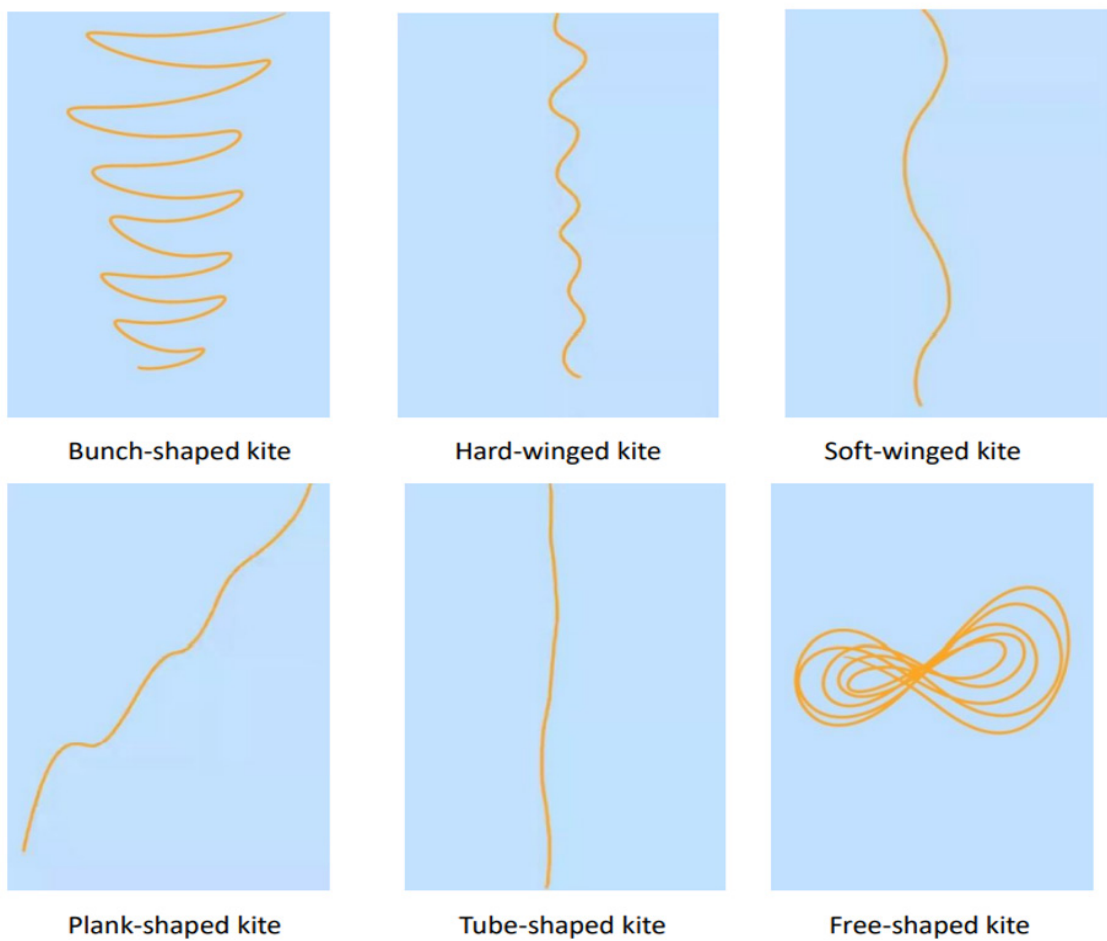
Due to the complex nature of the narrative exhibition and the overall scene being too large, it is necessary to be specific to each part when constructing the exhibition strategy. In the further elaboration of the exhibition strategy (see Figure 35), “the radial pattern” is still used as the basis for the exhibition, and the exhibition content spreads to each level, combining with “The multiple paths.” Giving different choices through the spacing of walls or multimedia screens of different heights divides each exhibition area to create an “area of affinity”. The exhibition route of each area here refers to the movement trace of each kite branch (see Figure 36), and the data come from the flying experiment before the project preparation. The blue line of the Masterplan is the scene of interactive experience. Setting up an interactive experience at the entrance can quickly capture the curiosity of visitors and guide them into the narrative exhibition, while Branch A is in the process of connecting scene B, which also makes a transition through interactive experience and increases interest. Figure 37 is the visitor guideline storyboard.



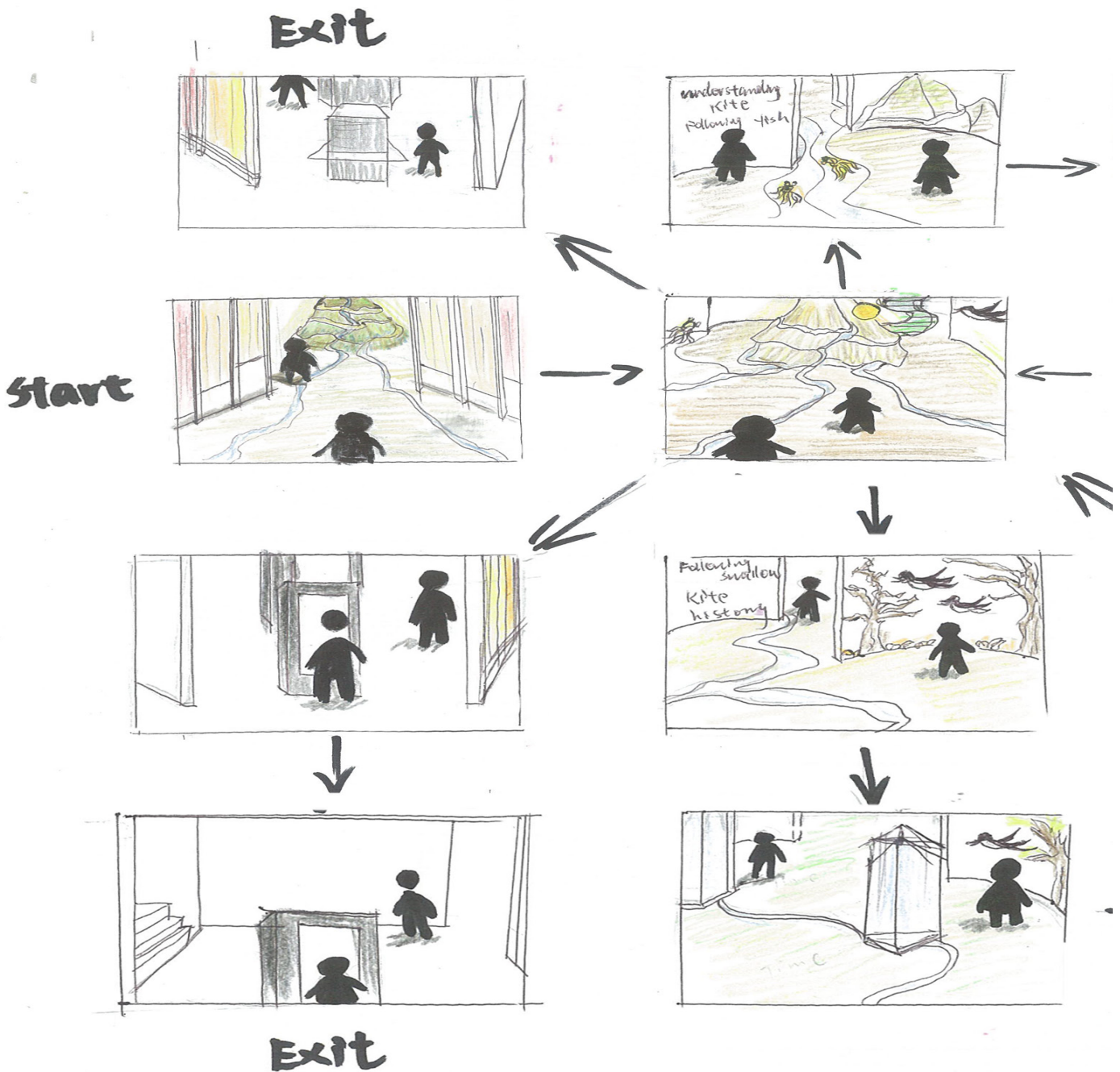
(Figure 34) The draft of the development tour strategy.



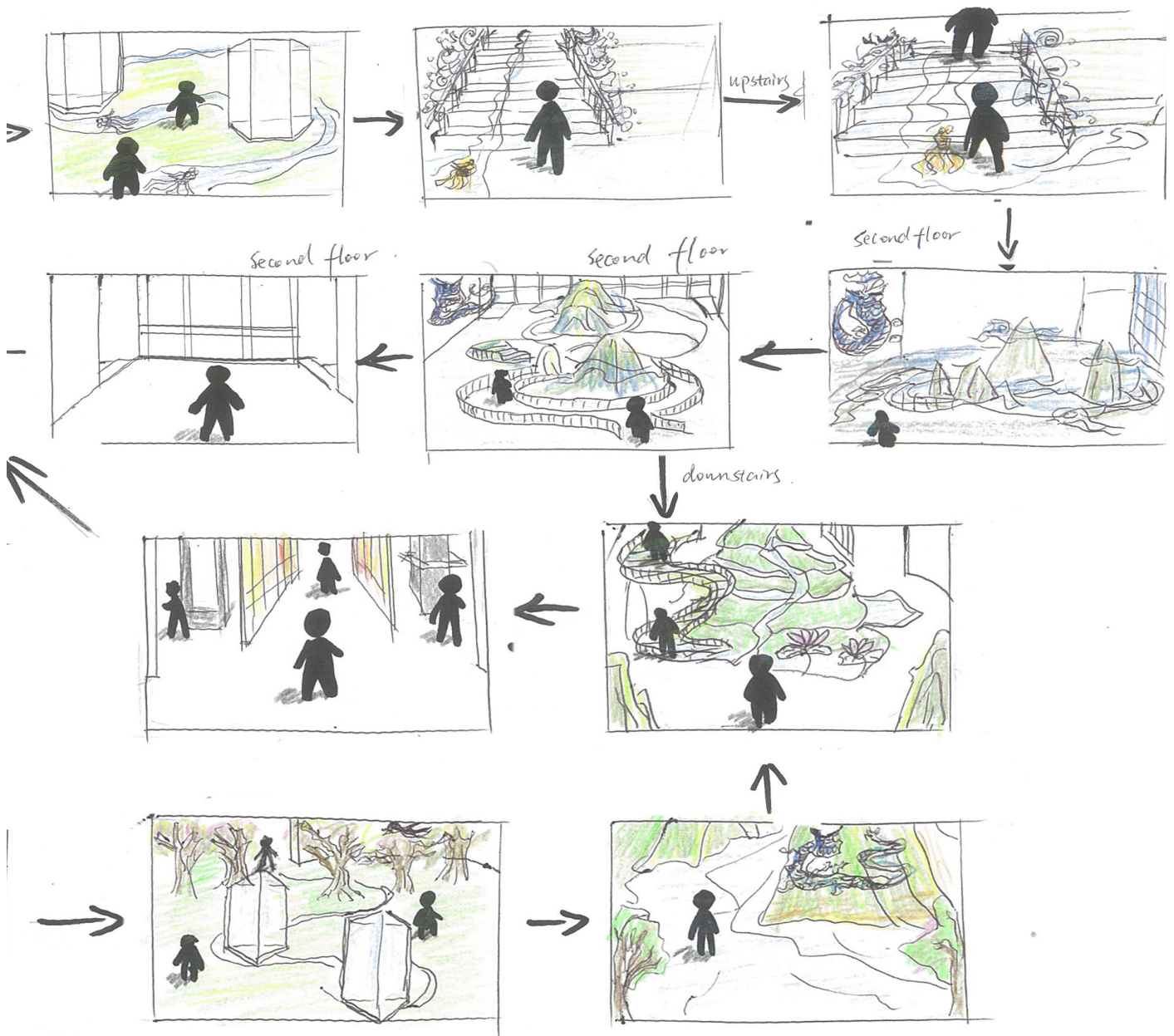
(Figure 35) The tour strategy analysis.



(Figure 36) The movement behaviour of each kind of kite.



The theme of this project is an interactive narrative exhibition. The narrative exhibition is like a pearl necklace. Each part is like a pearl, emitting its light, and this narrative tour route is the string that connects each pearl. Therefore, creating an innovative exhibition strategy and constructing the critical interactive part. The narrative scene is the primary design part. The subsequent design development will also focus on these parts to finally deliver an interactive narrative experience route.



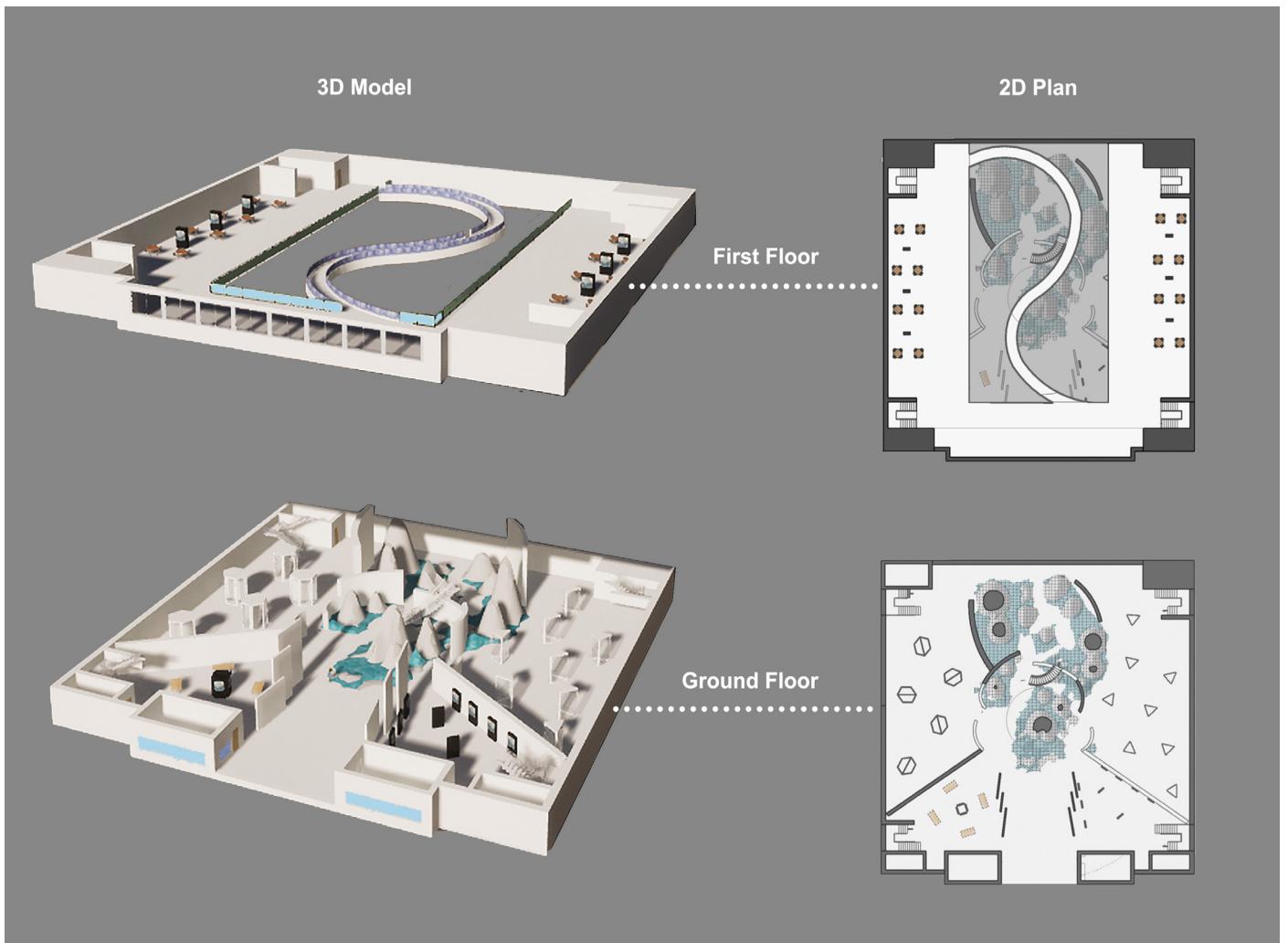
(Figure 37) The visitor guideline storyboard.

### 4.3.2 INITIAL IDEA

The entire space was redesigned initially. Walls of different heights were divided according to the display strategy. While dividing different functional areas, some gaps were left to establish certain connections between the exhibition areas (see Figure 38).

The entrance area comprises of low to high walls (see Figure 39), which not only form a projection screen to play animations of kites to attract visitors but also separate the supporting areas of the museum on both sides. After the narrative tour, visitors can enter the feedback activity area (see Figure 40) to buy souvenirs or design their kites through electronic devices.

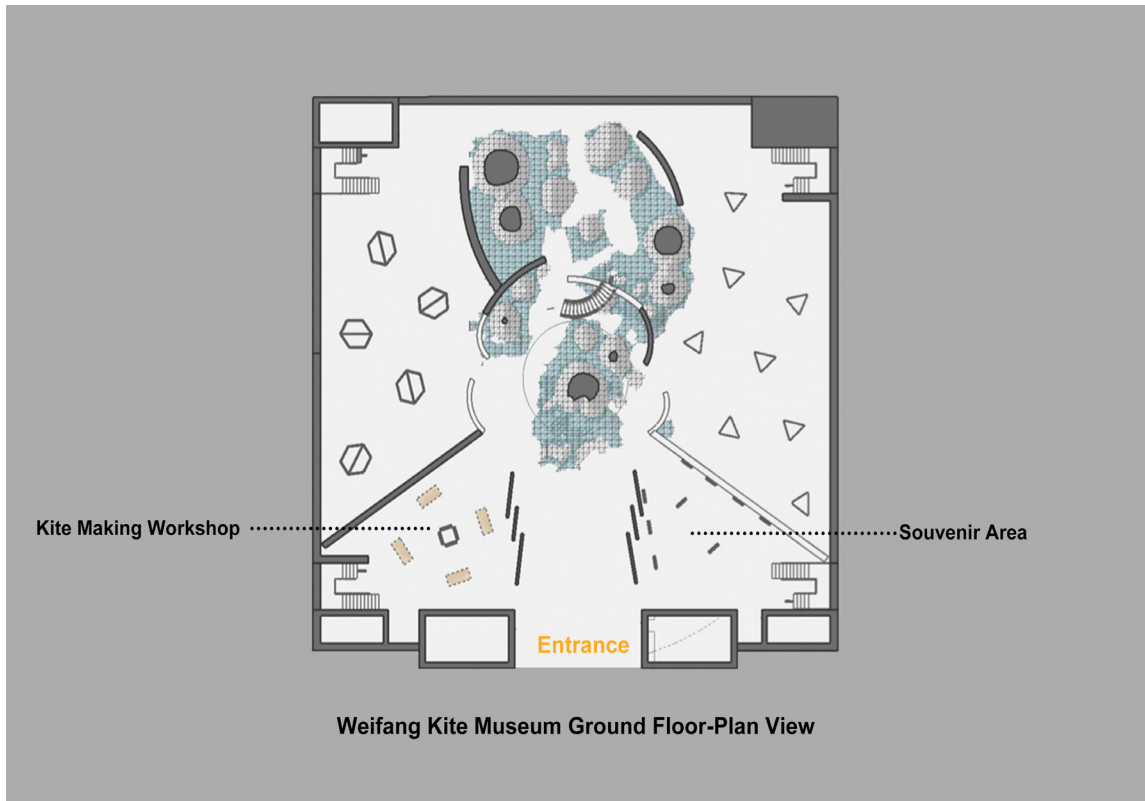
Walls of different heights separate scene areas A and B (see Figure 41), and the mountain models are established to simulate the landscape of the Weifang Bailang River and the habitat of the little white dragon, respectively. The space has enough height to support the construction of large-scale landscape models, providing visitors with an immersive environmental experience. The storyline of the narrative exhibition starts from scene area A, passes through scene area B, and goes back to scene area A. Scene area A represents the environmental change, from the dry yellow of the land to the green with renewed vitality and back to yellow (see Figure 42). This transitional cycle of lights conveys information about the environment. Layered lighting can emphasise mood and change (Hughes 132) and lead people to think about the ecological environment and how humans should respond to natural disasters caused by climate change. Scene area B is the habitat of the little white dragon, where there is sufficient water and a beautiful environment with green and blue light sources, and the surrounding screen creates a paradise through animation, contrasting scene A. In mythological stories, people can pray to immortals, while in the real world, humans need to make adaptations to save their world.



*(Figure 38) Initial idea model in each layer.*



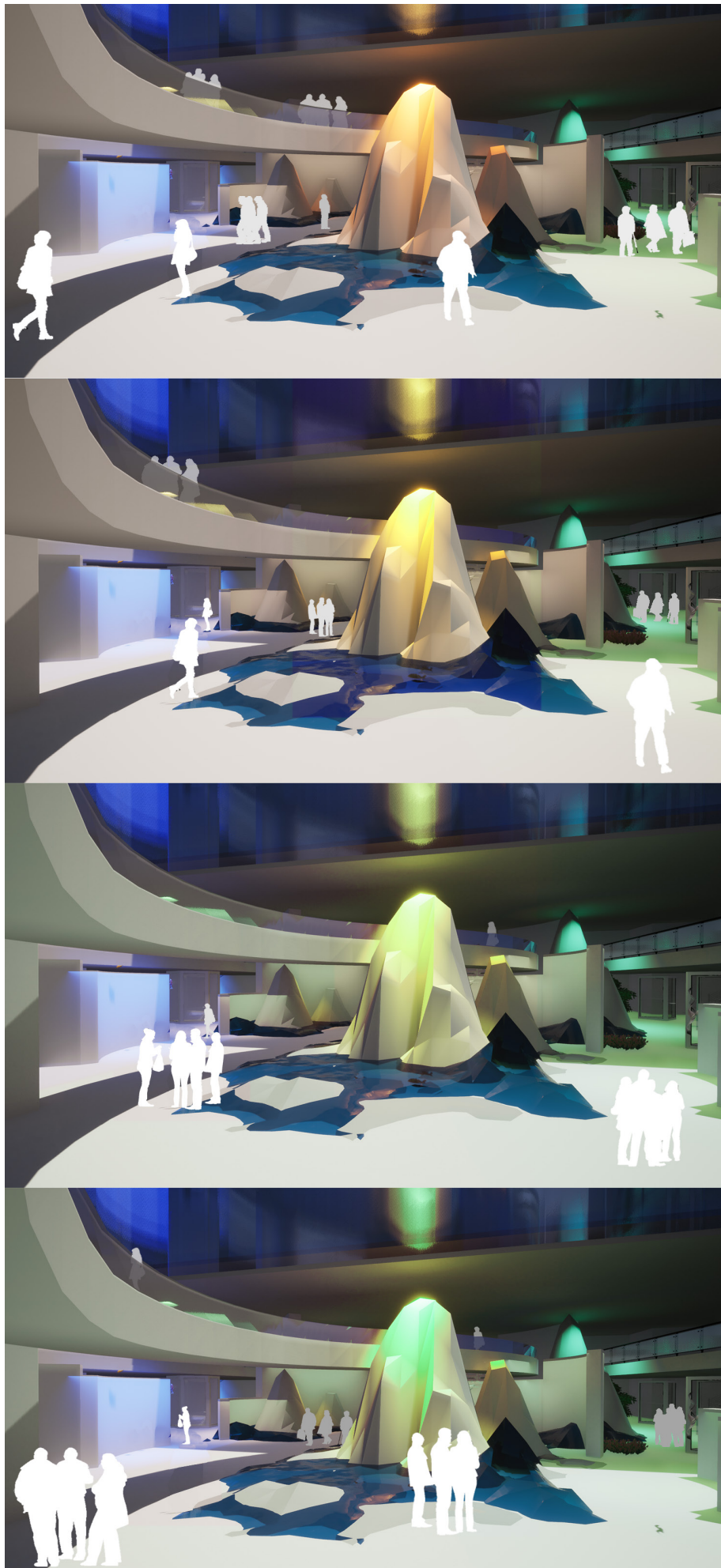
*(Figure 39) The entrance area in the initial model.*



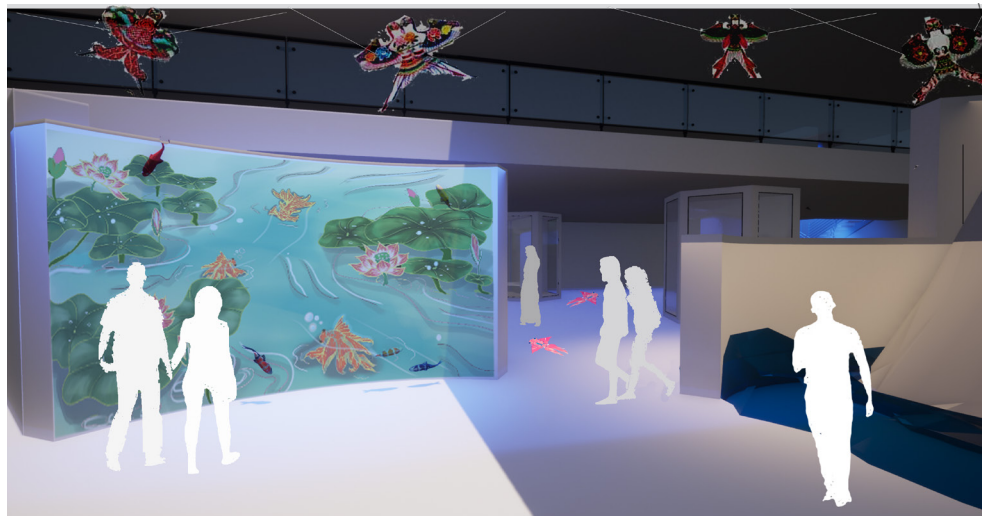
*(Figure 40) The feedback activity area.*



*(Figure 41) Walls of Scene A and B area.*

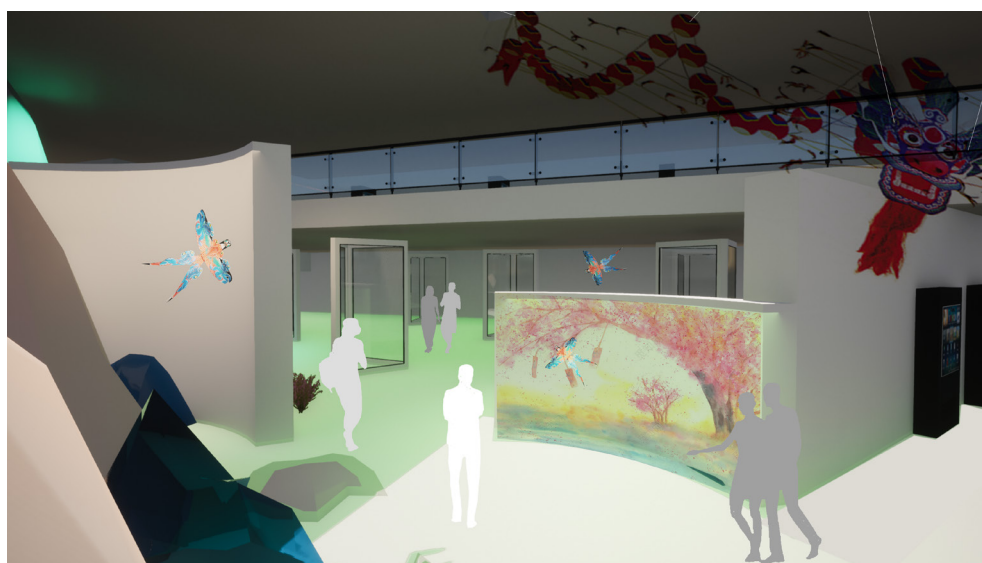


*(Figure 42) The environmental light change storyboard, from the dry yellow of the land to the green A.*



*(Figure 43) The entrances to the Fish Path.*

On both sides of scene area A are the entrances to the Fish and Swallow Paths (see Figures 43 and 44). The walls at the entrance show animations about fish and swallows through projection equipment, establishing connections with the animations at the entrance and guiding people into different visiting routes. Fish Path's exhibition area uses blue as the ambient light to simulate the water environment, stimulating visitors to expand their imagination of the environment and thoroughly immerse themselves in the narrative role. The exhibition area of Swallow Path uses green as the ambient light to simulate the environment of a forest, combining some environmental aspects of grasses and trees to show the spring atmosphere.



*(Figure 44) The entrances to the Swallow Path.*

The stairwell leading to the first floor builds a scene according to one of the storylines of the narrative exhibition, using lights, sound effects and projections to simulate the upstream river (see Figure 45). When visitors cross the stairs, they imagine they are fish preparing to jump the gantry, helping them integrate into the narrative exhibition and obtain an immersive experience.

On the first floor, a curved bridge (see Figure 46) is designed, the shape of which is inspired by the figure of the dragon and the flight path of the dragon kite. The bridge runs through two scenes, passing through the mountain model. Scene area B has two curved panoramic screens on both sides, playing animation as the background environment, creating a sense of majestic atmosphere.

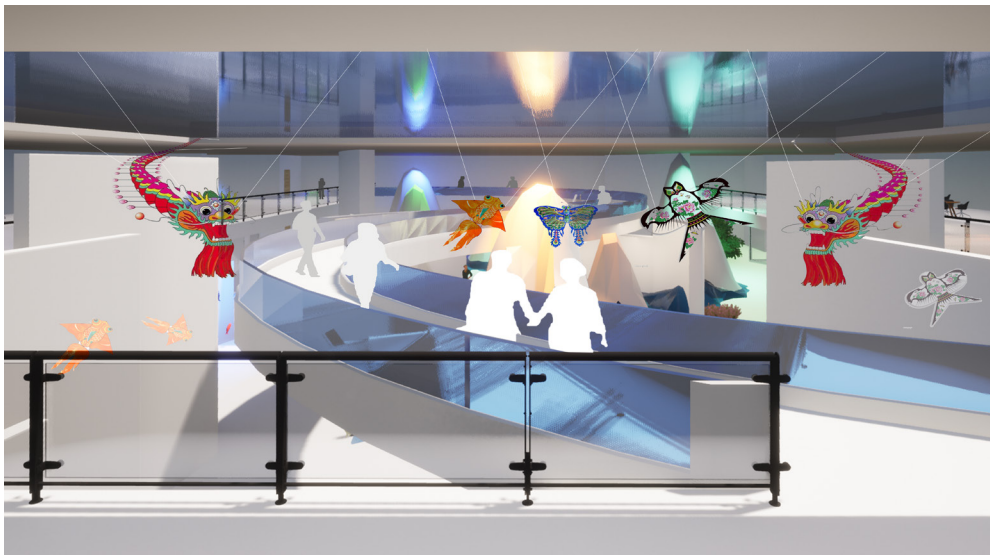
The scheme retains the glass skylight on the ceiling (see Figure 47), which provides indoor lighting through natural light and casts the environment in light at different periods. The weather changes make the atmosphere of the environment more realistic. Visitors can intuitively look up and see the sky as they are in the scene.



*(Figure 45) The stairwell area.*



*(Figure 46) The first floor, a curved bridge.*



*(Figure 47) The glass skylight on the ceiling provides indoor lighting through natural light.*

## 4.4 DESIGN WORK

### 4.4.1 DEVELOPMENT

Through the development of the design concept, the project selected black and grey as the background tones of the entire environment, and the light source was focused on the scene model. Through the contrast of light and dark, visitors' eyes were focused on the construction of the interior of the scene to avoid being affected by the surroundings and distracted from the narrative clues.

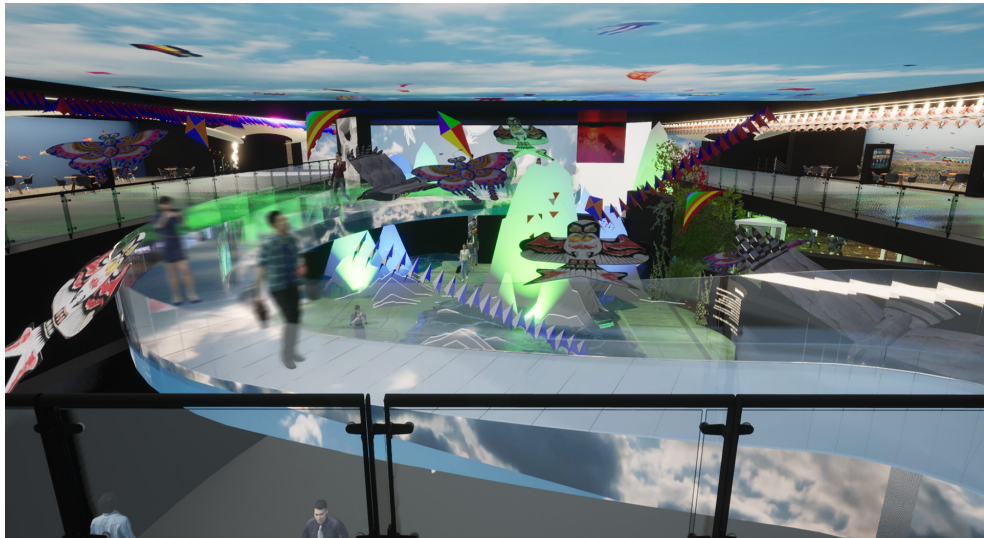
Due to there being many levels of partition in the whole scene, the walls on both sides of the entrance are changed into a curved wall (see Figure 48) in the development of the design, which visually provides a more immersive experience of being wrapped than layered walls, and the effect of the animation display is smoother.



*(Figure 48) The curved walls in the development design.*

At the end of the story of the little white dragon, people fly kites beside the Bailang River every year, and Weifang still holds the International Kite Festival as a commemoration. The whole exhibition aims to bring visitors an immersive experience of the kite festival even though they are inside. Therefore, the central scene area A retains the original hanging kite elements in the museum, replacing the glass on the ceiling with an LED screen and

creating a visual effect of kites flying in the sky through the animation of changing cloud effects (see Figure 49). In combination with the landscape of the Bailang River below the space, visitors can experience the atmosphere of the kite festival as soon as they enter this area. When they enter the ground floor of scene area A during the tour, visitors will be at the same height as these kites and experience the feeling of becoming a kite and flying in the sky together. The floor of this area also uses the map of Weifang City as a display element so that visitors can quickly establish the resonance of the location and integrate it into the narrative experience (see Figure 50).

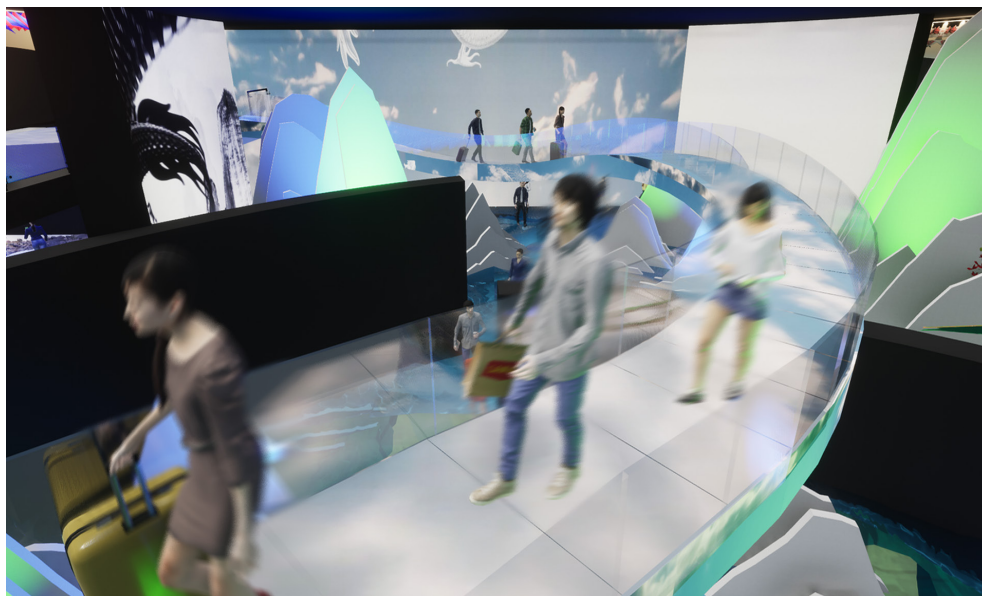


*(Figure 49) First floor view in the development design.*



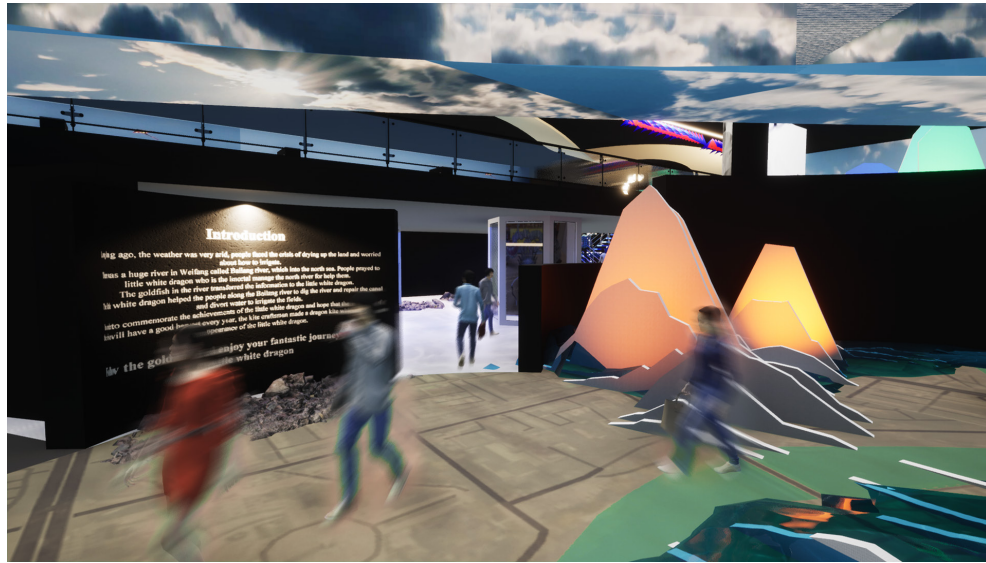
*(Figure 50) Ground floor Scene A view in the development design.*

Establishing a sizable three-dimensional mountain model in a closed space can easily cause the atmosphere to be overbearing, and the clarity of visitors' vision could also be affected. If the exhibition does not control the number of visitors efficiently, the space could make visitors feel crowded. Therefore, in the design development, the mountain model is divided from a whole into a layered mountain, with gaps between the two layers that can be crossed at different intervals, which develops a new tour path for some curious visitors (see Figure 51). Visitors can observe the mountain model layers from different angles, and it forms different shapes of the mountain. It will not make the atmosphere feel depressed but also can play a certain role in the interval.



*(Figure 51) Gaps between the two layers*

The animation at the entrance of the original Fish Path and Swallow Path exhibition areas created too many elements in this space, which quickly distracted visitors' attention, additionally, there is a lack of guiding text in this area to explain the nature and content of the entire exhibition. Although the narrative exhibition can promote the narrative development through the transformation of the scene, the interpretation and introduction of the text are also indispensable, allowing visitors to understand the whole exhibition and play a guiding role in information comprehension. In order to enable visitors to clearly understand the exhibition's content and focus their attention on the scene, the animation at the entrance is replaced by a text introduction (see Figure 52 and 53), which plays an auxiliary role in the entire scene.



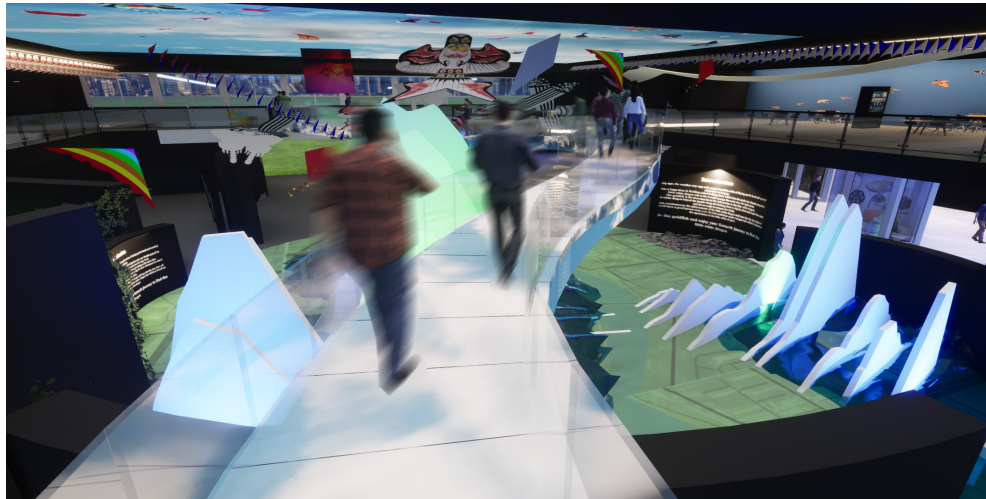
(Figure 52) The text introduction at the Fish Path entrance.



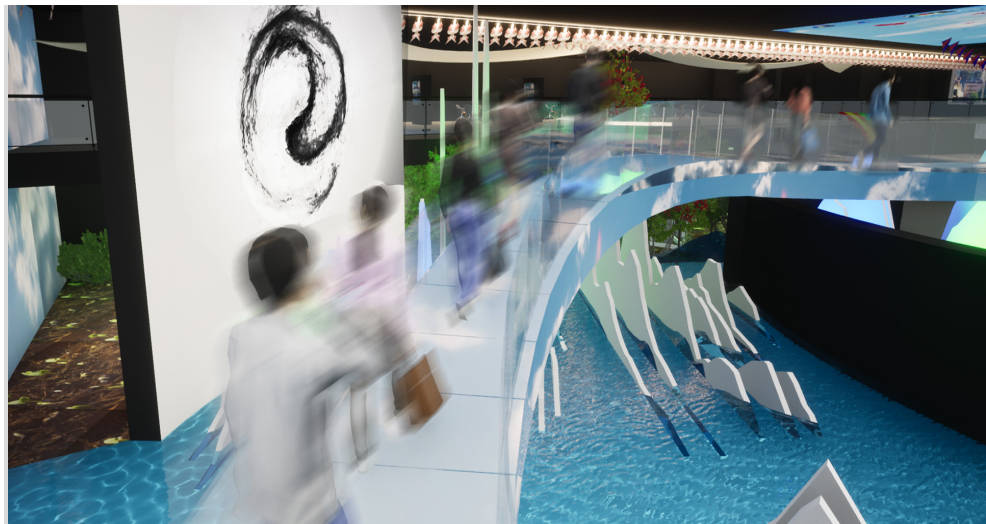
(Figure 53) The text introduction at the Swallow Path entrance.

In the design development, some adjustments were made to the dragon bridge on the first floor. To bring the visitors an immersive experience, the dragon bridge had different angles adjusted, from the horizontal curve to the undulating shape, which was inspired by the movement traces of the dragon kite. This helps visitors to adopt the perspective of the small white dragon during the walking process (see Figure 54 and 55) and think about their responsibilities in the changing circumstances of life. The bridge's guardrail uses transparent glass so visitors can see the surrounding scene and atmosphere. The bridge body uses a digital screen to cooperate with the

transformation of the scene's environmental lighting to create an animation effect of the sun's change. This demonstrates to visitors on the ground floor the environmental changes brought by climate change, while visitors on the first floor feel like they are in the sky and become the role that brings change.



*(Figure 54) Visitors to adopt the perspective of the small white dragon during the walking process A.*



*(Figure 55) Visitors to adopt the perspective of the small white dragon during the walking process B.*

## 4.4.2 INTERACTIVE DESIGN

The design of this narrative exhibition requires much consideration for the interactive aspects. Interactive design is a memorable method for young audiences and should be used as part of the overall experience rather than as an add-on item (Hughes 156).

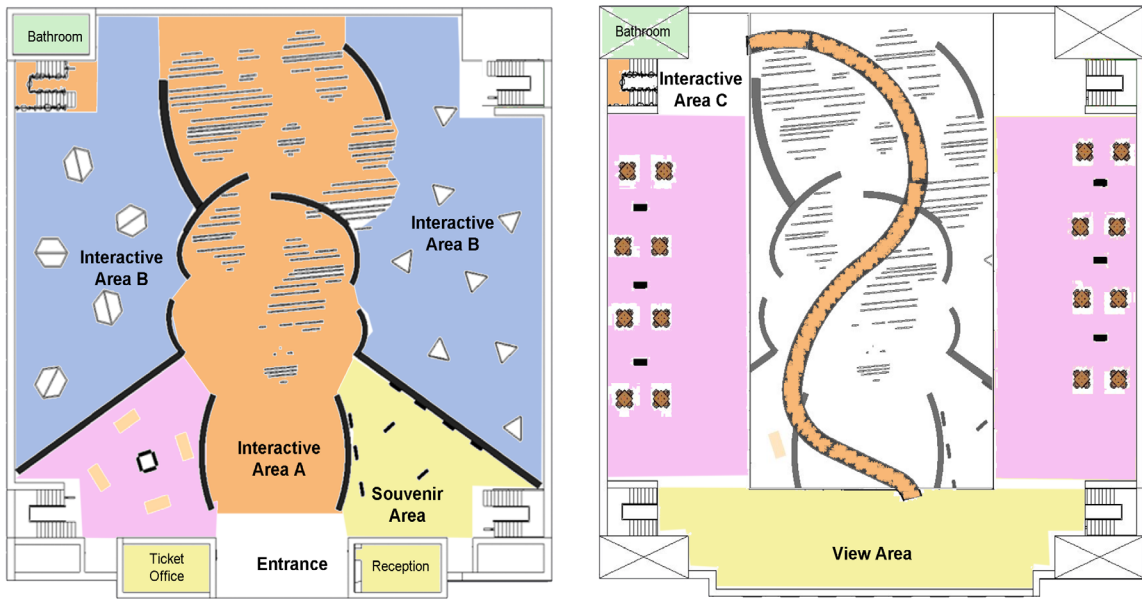
The interactive experience is usually part of an exhibition that attracts visitors' interest, and its use and presentation should be simple and concise to avoid confusing visitors (Hughes 157). An interactive experience with too much information or too complicated an operation cannot give the participants a relaxed and pleasant experience, which may cause the participants to lose confidence or interest in the exhibition content. The interactive experience has single-player and multiplayer modes. Single-player mode can quickly establish the relationship between the content of the experience and the experienter, but its efficiency is lower than that of multi-player mode. Multiplayer can simultaneously provide a broader range of experiences but may make some participants feel indisposed (Hughes 157).

The exhibition has three interactive areas (see Figure 56): the entrance, the exhibition area, and the stair junction.

### *Area 1*

When designing the primary interactive part of the project, this area was set up at a relatively wide entrance. One reason is that the interactive experience is used as a hook to attract people's attention; another reason is that when a participant interacts, the surrounding visitors can clearly see the process and freely choose whether to participate in the interactive experience. Even if some people choose to skip it and do not get a personal experience, they have ideally recognised that the exhibition will be an emotional experience. The interactive experience is not limited to the embodied experience provided by technology; emotional interaction is also part of the exhibition. A large exhibition's environment is an interactive experience, bringing sensory stimulation to visitors and thus promoting narrative development (Hughes 161).

The interactive experience at the entrance is inspired by kite makers transforming natural animal forms into kites, and the two branches of the narrative exhibition are goldfish kites and swallow kites, which also have actual forms as references. The kite is the product of the message conveyed, and its most profound meaning is the archetypal creatures endowed with significance and the stories behind them. The leading role of the narrative exhibition is the kite, and it is also the creature that evolves into the kite. The storyline of the dragon kite displayed in the main path is also the evolution



Public Activity Space
  Public Infrastructure Space
  Exhibition Display Area
  Kite Making Workspace Area
  Narrative Interactive Area

*(Figure 56) The three interactive area in the exhibition.*

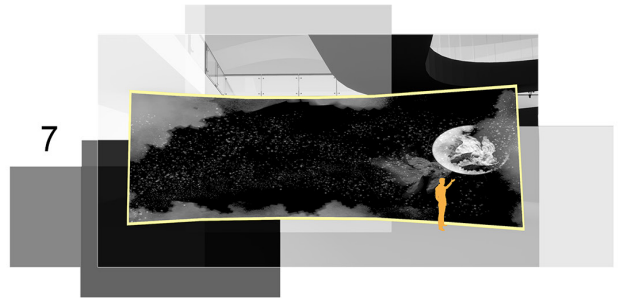
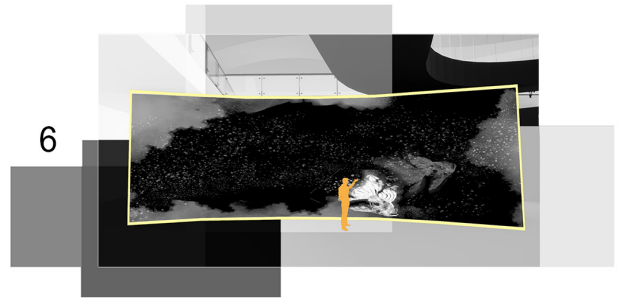
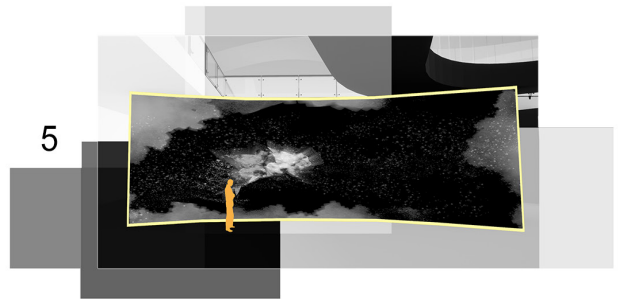
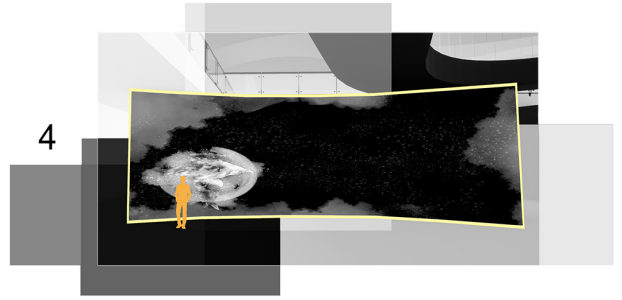
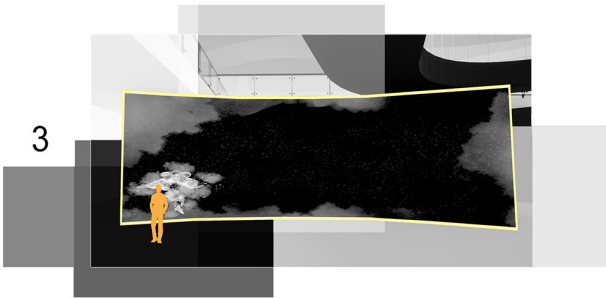
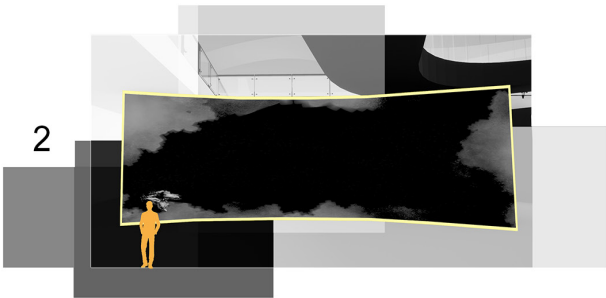
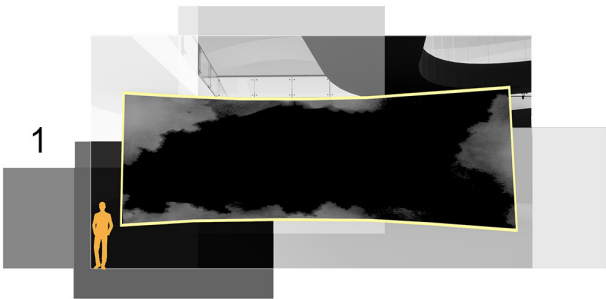
process of the dragon kite. Therefore, this interactive experience presents a process of transforming from an inanimate fish kite to a dynamic fish and guiding the experiencer forward, both as the experience becomes the kite and as the protagonist of the narrative, promoting further development.

This interactive experience is crucial as the exhibition's introduction, as it stimulates visitors to immerse themselves into the narrative role to better respond to the exhibition's theme. Too specific an image can easily limit the imagination of visitors; vague images can better stimulate interaction and interactive content exploration.

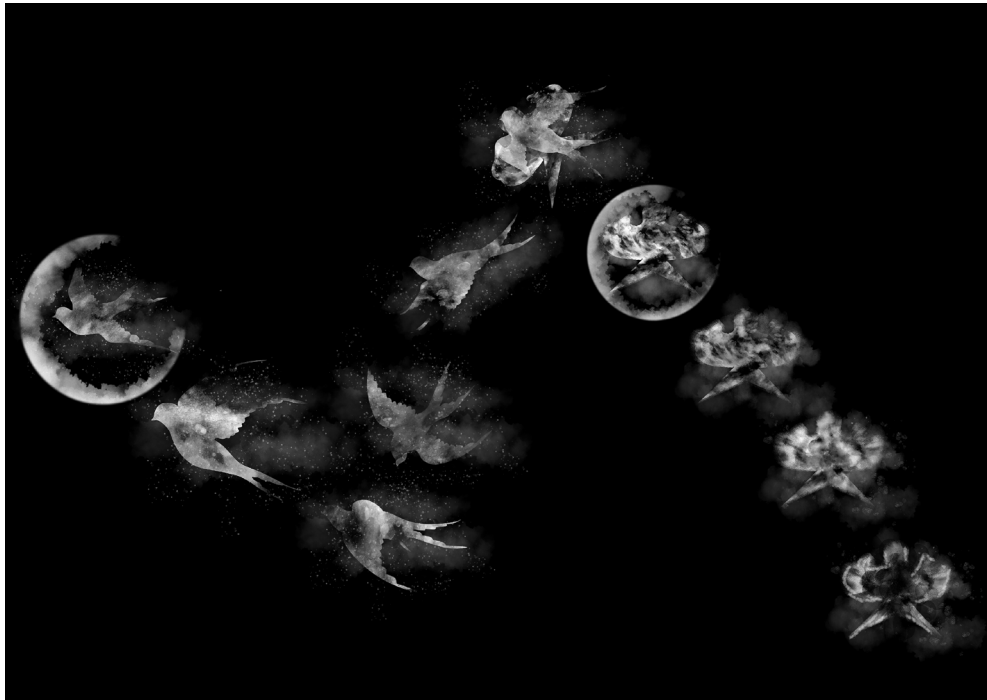
Figures 57 and 58 are the Fish Path storyboard of interactive processes and the process of conceptual image transformation. Curved walls are built on both sides of the entrance as projection screens, and sensors are installed on the ceiling to capture visitors' silhouettes and movement paths. When the interaction is far away, the screen simulates the fuzzy kite shape according to the silhouettes. As the interactor approaches the screen, the silhouette area gradually expands, and the kite's shape will gradually become clear. When the complete fish-shaped kite appears, it will be transformed into a flexible fish swimming to the central area of the exhibition, guiding the interactive towards the fish-kite tour route.



*(Figure 57) The process of conceptual image transformation of Fish Path.*

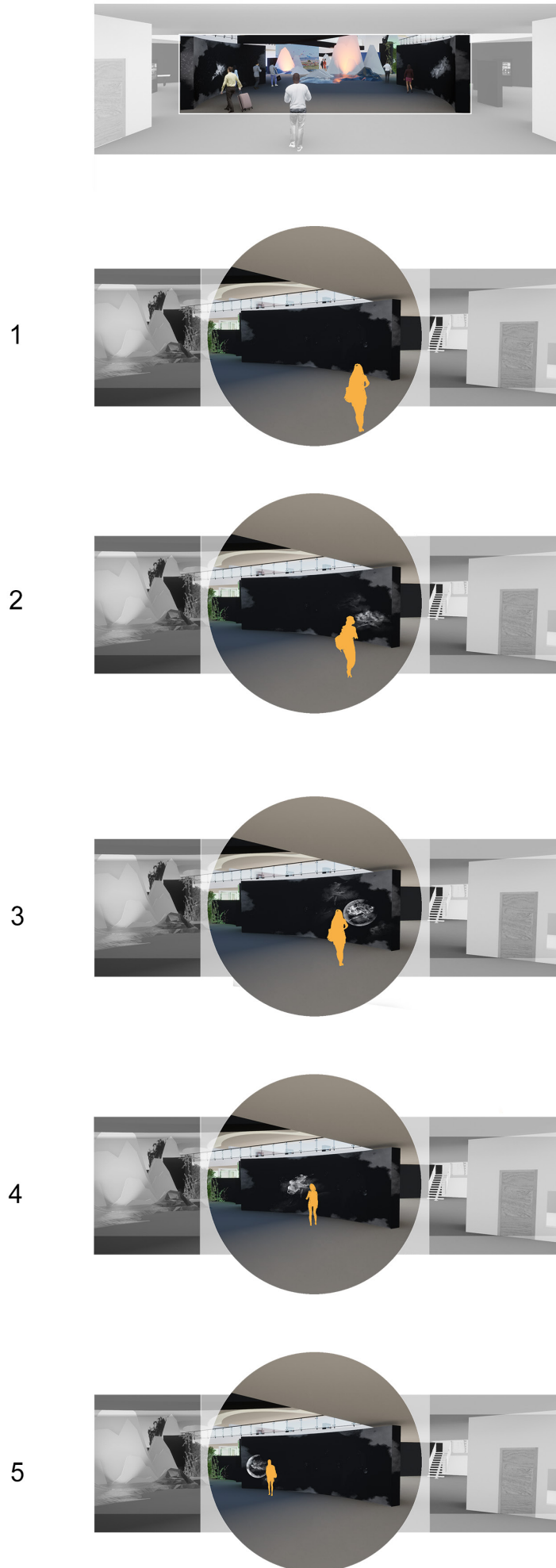


(Figure 58) The Fish Path storyboard of interactive processes and the process of conceptual image transformation.



*(Figure 59) The process of conceptual image transformation of Swallow Path.*

Figures 59 and 60 are the storyboard of Swallow Path's interactive process and the process of conceptualised image transformation. On both sides, the interactive experience is a multiplayer mode, triggered when the visitor walks to the location the sensor can sense.



*(Figure 60) The Swallow Path storyboard of interactive processes and the process of conceptual image transformation.*

### ***Area 2***

When visitors pass through the interactive area at the entrance, they walk to the central scene area A, flanked by the alternative Fish Path and Swallow Path. After selecting a route to the exhibition's introduction, a fish kite will appear on the floor (see Figure 61), and a tour guided by a swallow kite will appear on the ceiling (see Figure 62).

These two areas do not directly interact with participants through technological tools but rather provide a way to assist participants in gaining experience. The animation is projected onto the floor through a projector to form a clear suggested excursion route, simulating the flight path of both soft-winged and hard-winged kites. Through the suggested routes, visitors can experience the flight paths of different kites, imagine themselves as a kite, and explore the history or collection of kites while flying.

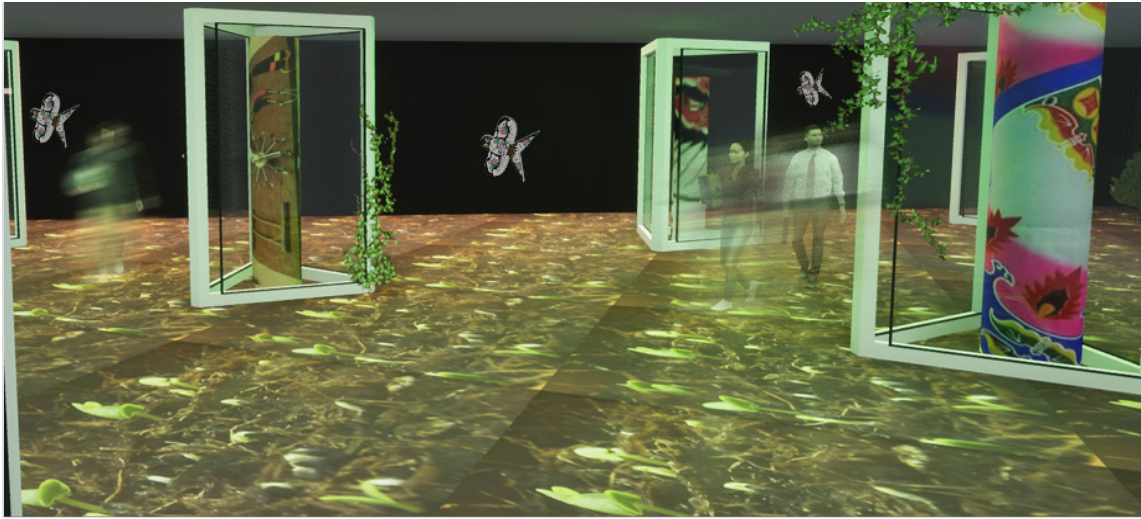
### ***Area 3***

Fish Path's tour route has a significant narrative scene. The fish leaps over the dragon gate, which is also the connection between the ground and first floors in the narrative exhibition.

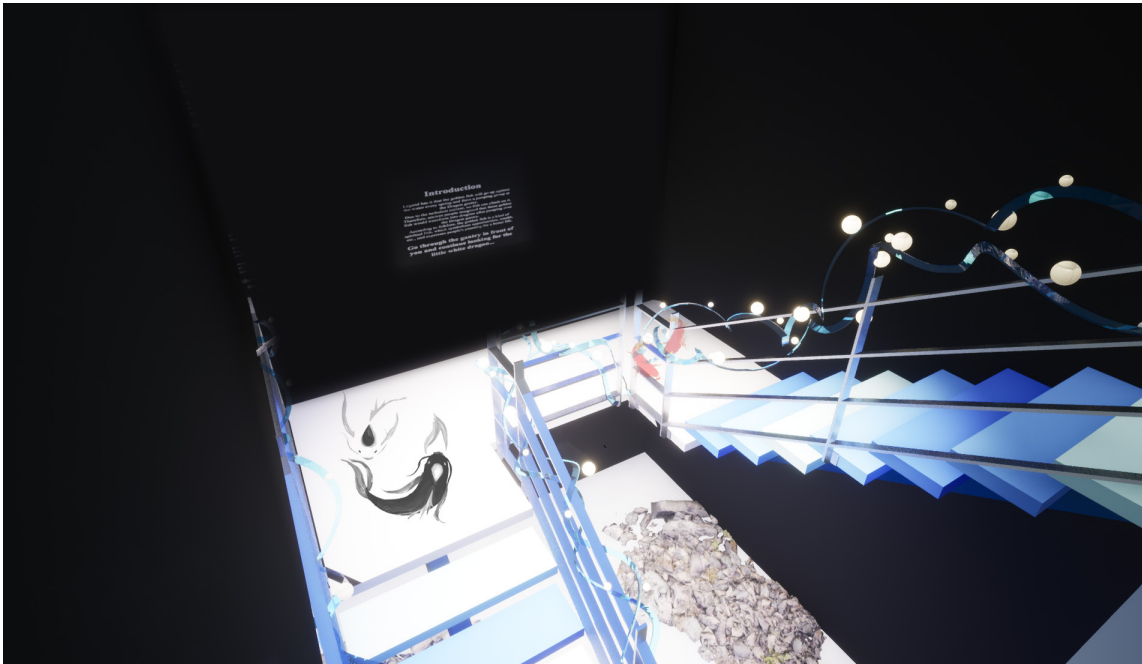
Guided by the Fish Path, visitors are led from the ground to the first floor. The staircase sets up a scene of fish leaping over the gantry and the sensor will put the animation on the platform (see Figure 63). A large number of fish swim to the first floor together when people walk up the stairs. Visitors are simulated to be a member of a school of fish, striving to swim upstream, and when they pass the "dragon gate" composed of light balls, the shining light symbolises the role of visitors, from fish to dragons, and enter the next scene B.



*(Figure 61) Fish kite animation in the exhibition area.*



*(Figure 62) Swallow kite animation in the exhibition area.*



*(Figure 63) The animation on the platform in the stairwell.*

### 4.4.3 MATERIALS

The original kite was called the paper bird; the primary material was Xuan paper (see Figure 64), and then the development gradually evolved into nylon (see Figure 65). Compared with paper, nylon is not easy to break, the material is relatively light, and the transmission of light is intense. The skeleton of the kite is made of Mao bamboo (see Figure 66), a tough bamboo that bends into the desired shape when roasted by fire.

Interactivity is an essential part of a narrative exhibition, and the experience visitors get should be diverse. The exhibition provides a sense of immersive experience visually through the scene's atmosphere, and touch is also an effective method of interaction. Kites are made of materials that are often waterproof and solidified and have a special texture. This physiological perception often helps to establish the connection between artefacts and visitors. Also, it allows visitors who need to learn more about kites to have a preliminary understanding of kites in this way.

In the scene construction of the stairwell, bamboo and nylon are rolled into undulating lines and spheres to form waves and arched doors (see Figure 67 and 68). The excellent light transmission of the nylon, combined with the intelligent light belt, can simulate the atmosphere of the river. Visitors can enhance the sense of interaction by touching the material as they pass through the scene.

Also using kite-making materials are the mountain models in Scenes A and B. Bamboo was used for the frame of the mountains, and nylon which can enhance the light transmission was used for the cover materials for the mountain models (see Figure 69). Visitors can touch the surface material while passing through, which may leave a specific imprint on the mountain models. After a long period of touching, when people look back at the models, the imprint of human behaviour on them represents the harm people have done to the natural environment. These marks do not disappear over time, only become more oxidised and blackening, and this is the end of this interactive narrative exhibition, which leads young people to rethink their actions. They might play a role in the destruction of the environment or a role in bringing new life to the environment.



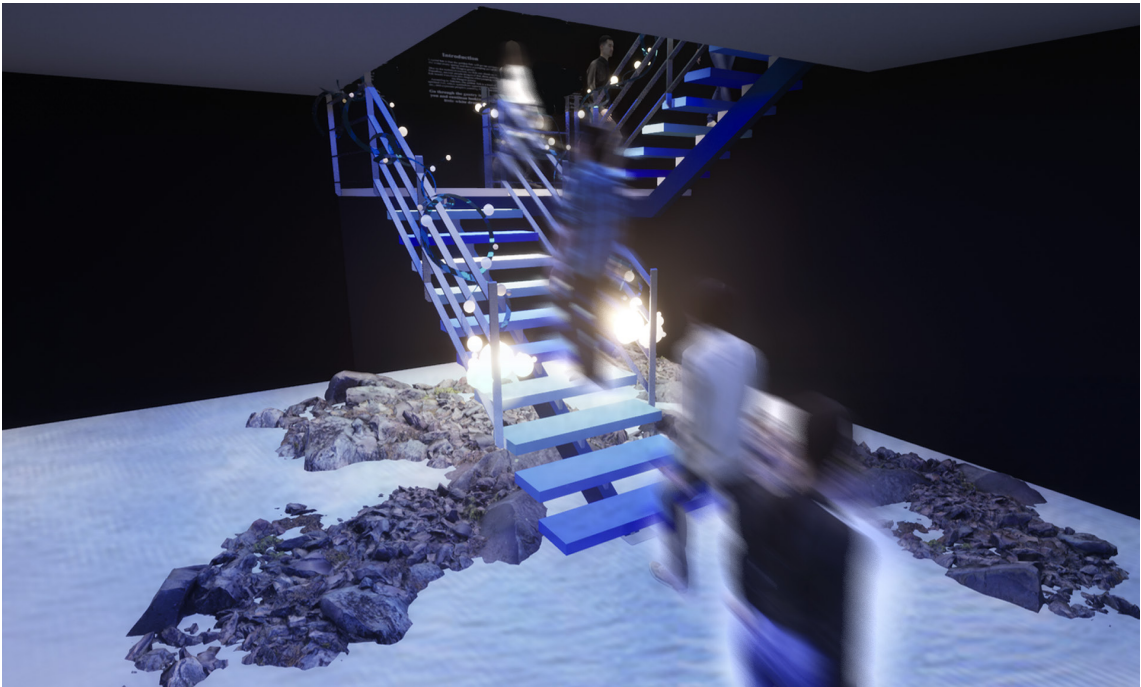
*(Figure 64) Xuan paper.*



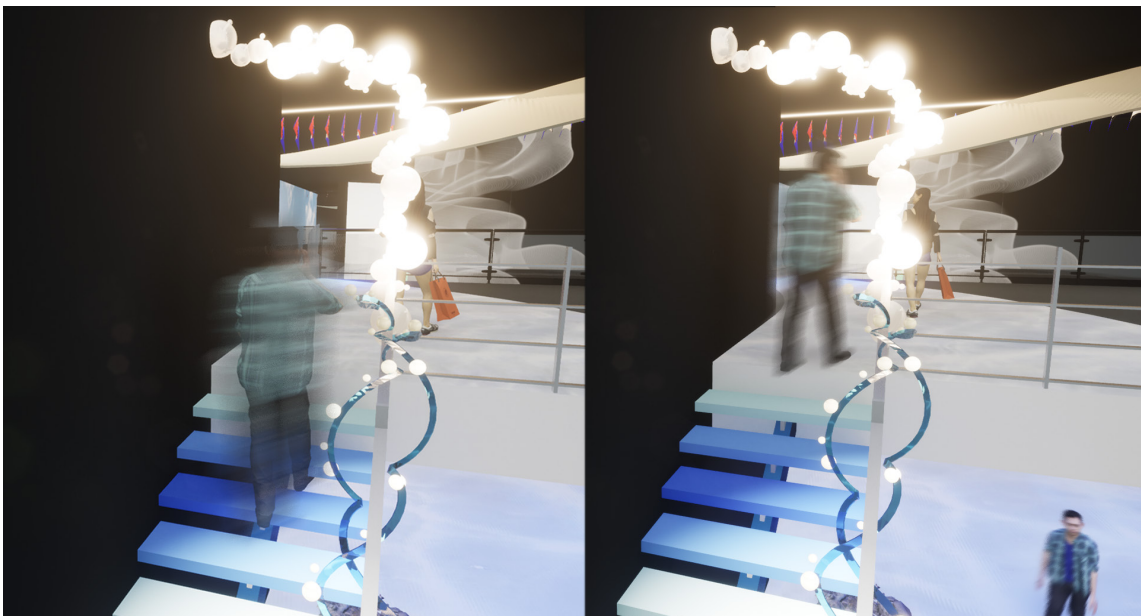
*(Figure 65) Nylon material.*



*(Figure 66) Mao bamboo sticks.*

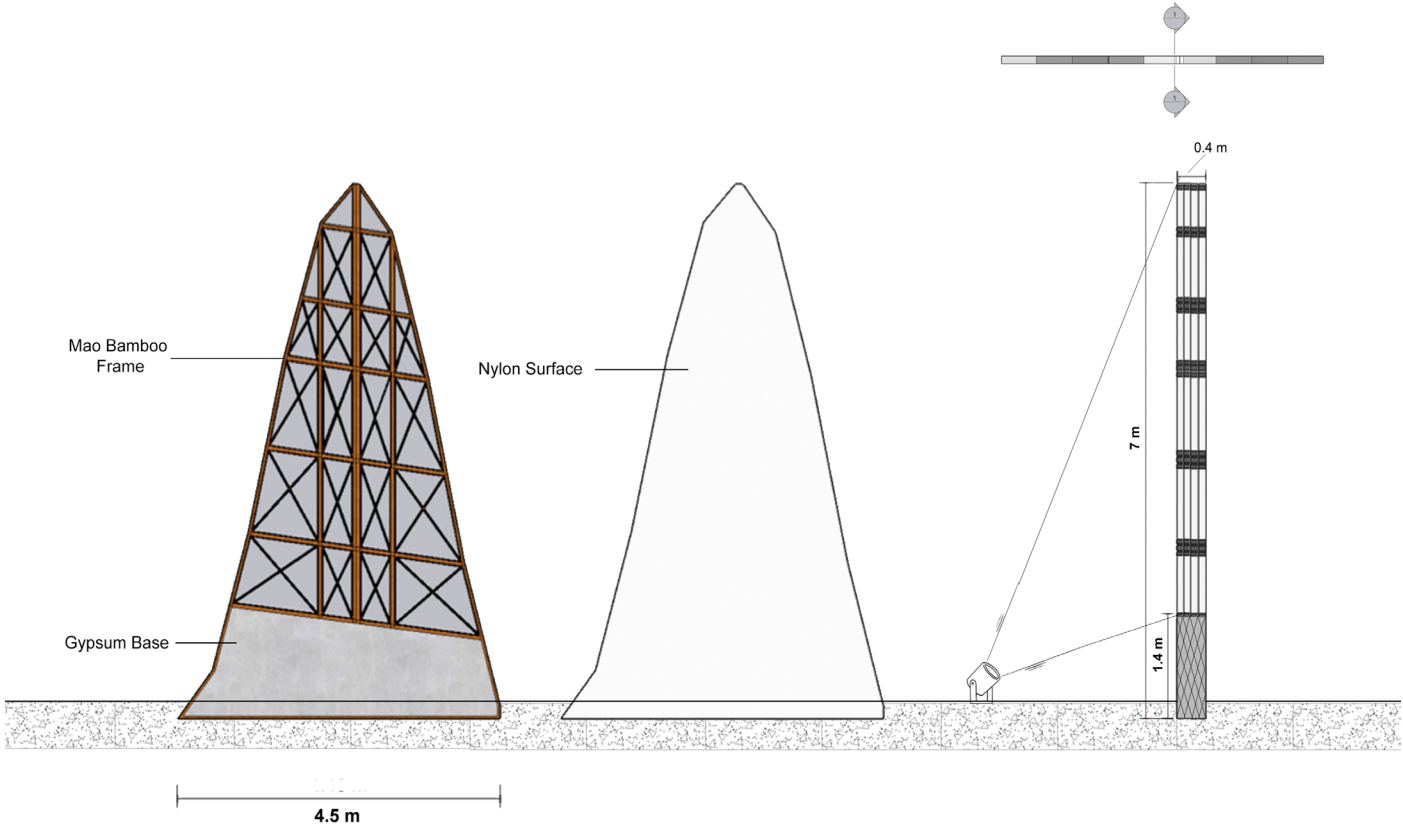


*(Figure 67) Bamboo and nylon are rolled into undulating lines and spheres to form waves and arched doors A*



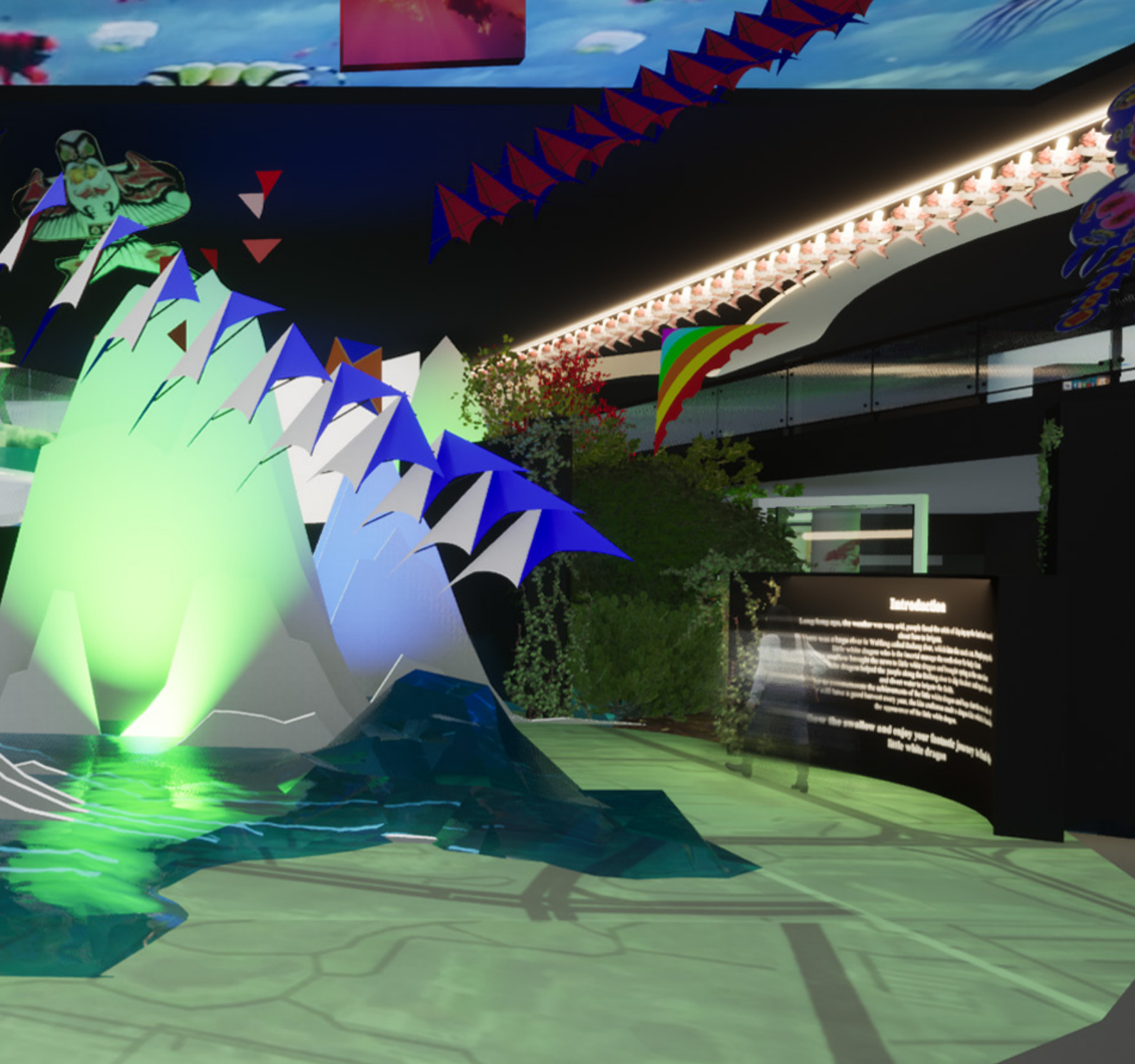
*(Figure 68) Bamboo and nylon are rolled into undulating lines and spheres to form waves and arched doors B.*

**Mountain Material View**



*(Figure 69) Materials for the mountain models.*

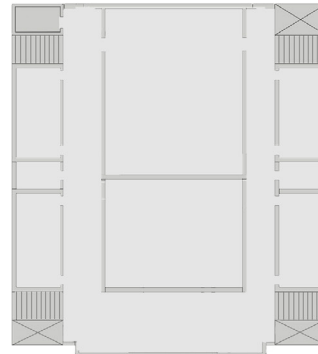
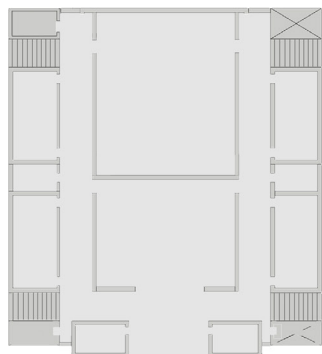




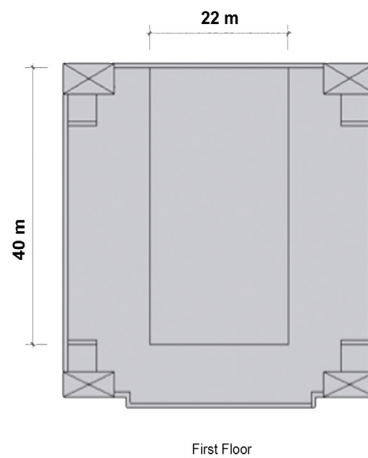
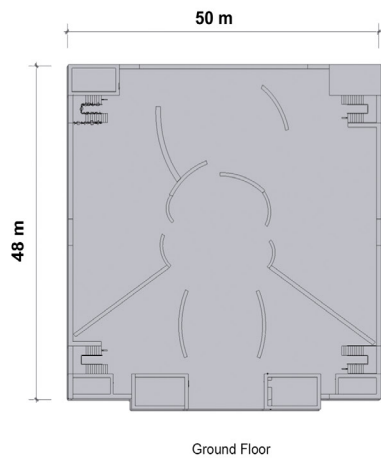
# 5.1 TECHNICAL DRAWINGS

**Weifang Kite Museum Wall Diagram**

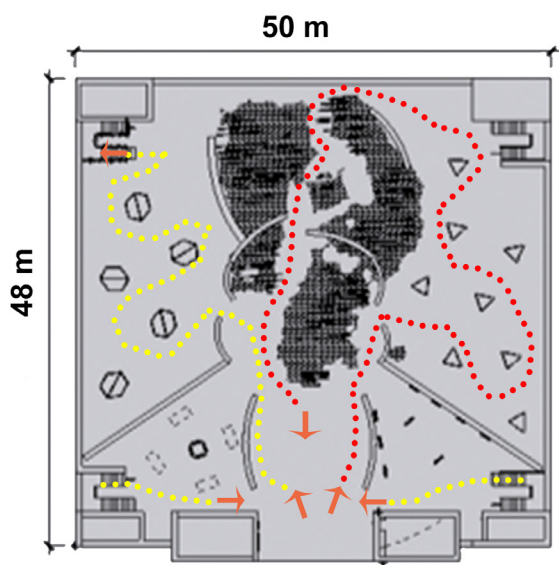
Existing Wall Diagram



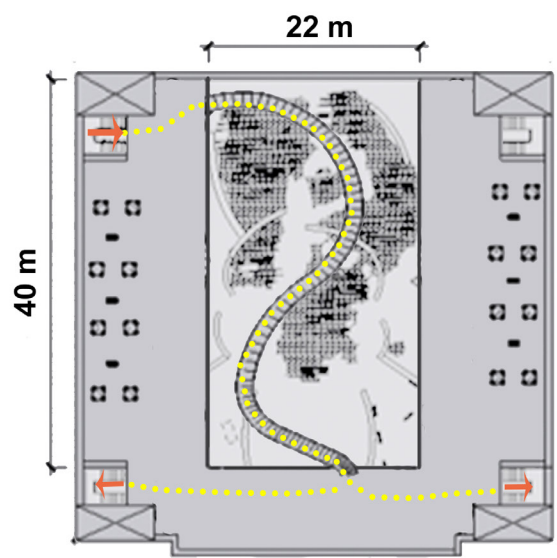
Development Wall Diagram



*(Figure 70) The Weifang Kite Museum plan view in different layers.*



**Ground Floor**



**First Floor**

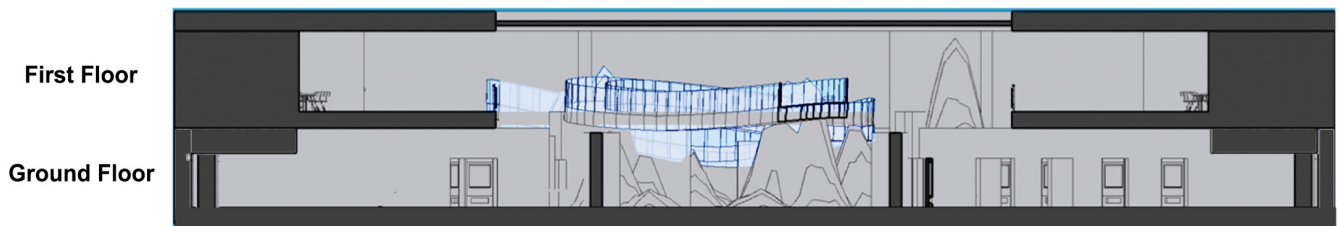
..... Fish kite tour line

..... Swallow kite tour line

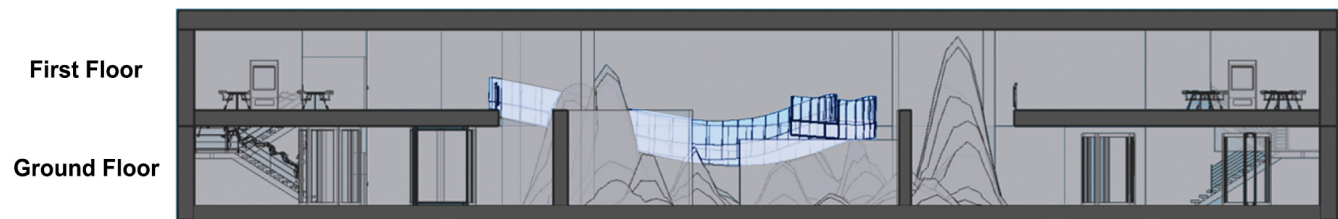
*(Figure 71) The tour line in the Weifang Kite Museum plan view.*



Section View-Front Layer 1



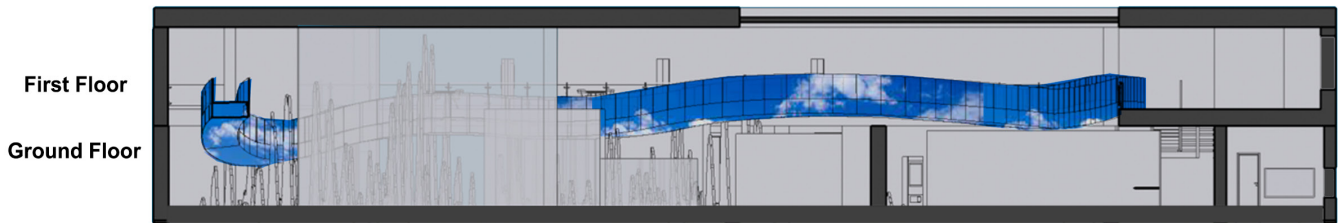
Section View-Front Layer 2



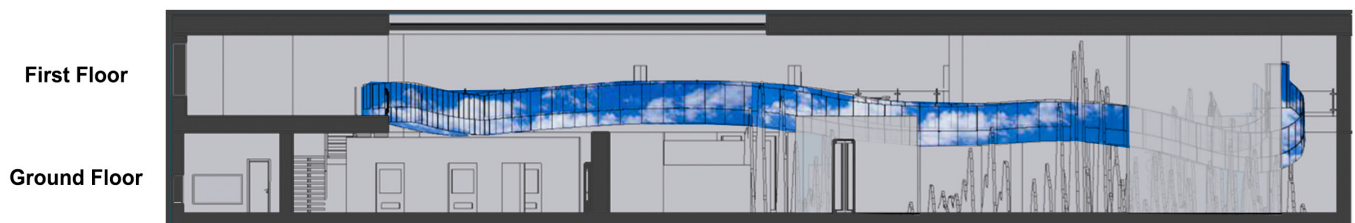
Section View-Front Layer 3

(Figure 72) The Weifang Kite Museum section view.

### Dragon Bridge Section View-Right

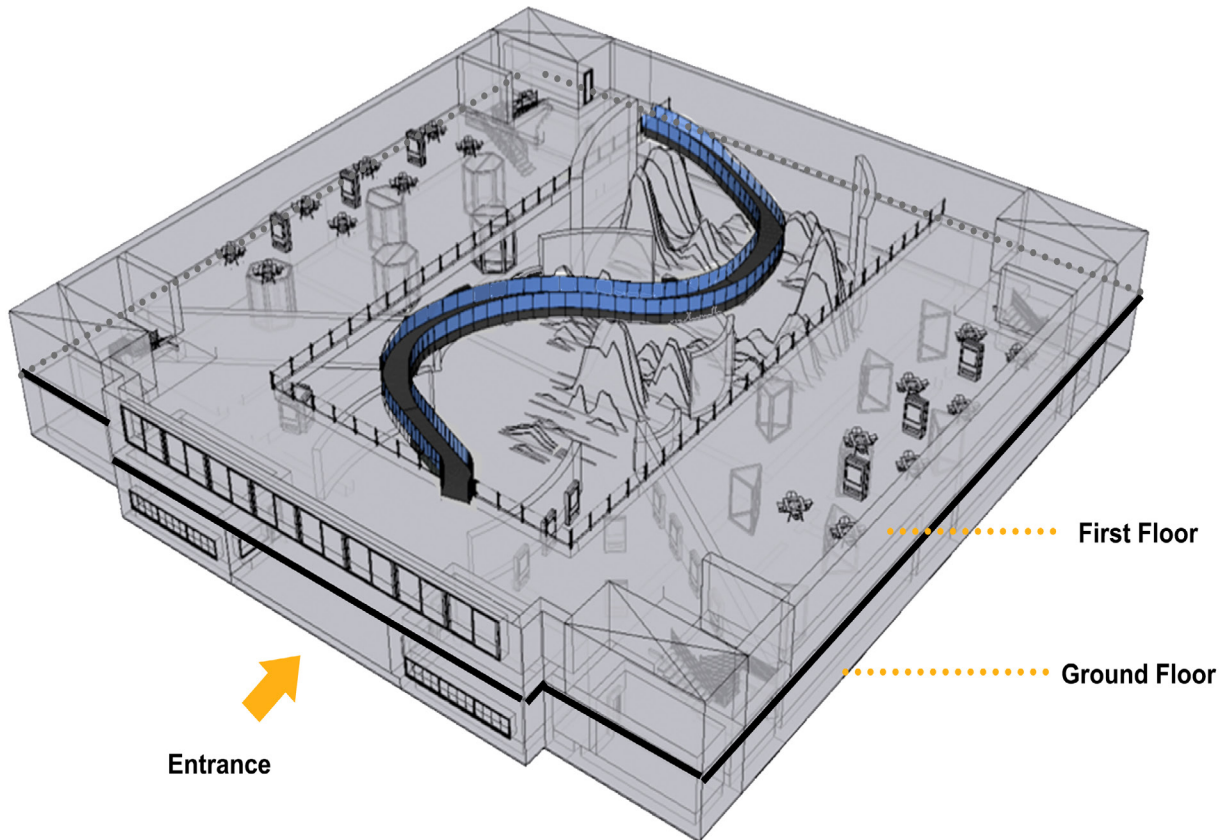


### Dragon Bridge Section View-Left

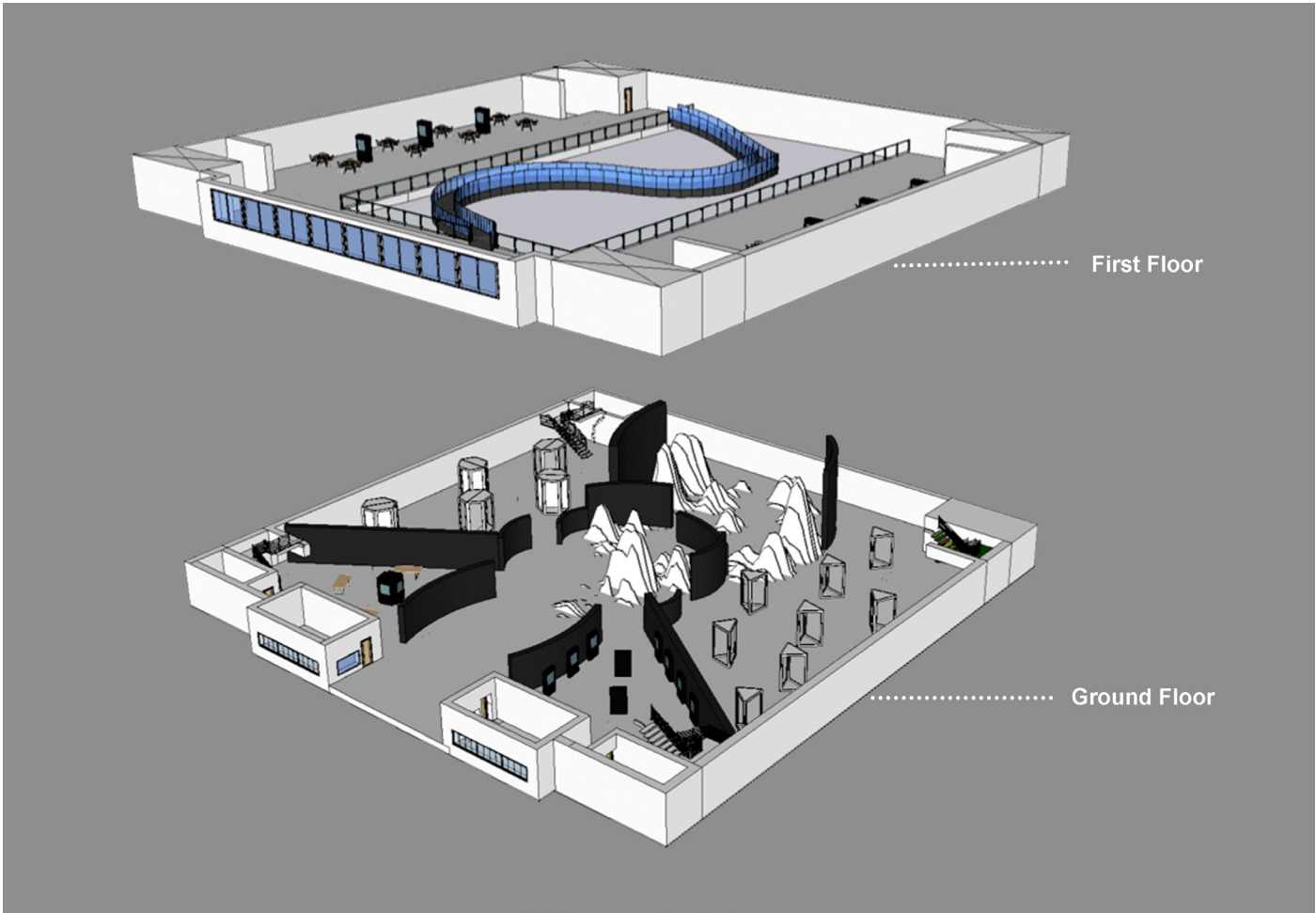


(Figure 73) Section view of the Dragon Bridge.

## 5.2 MODELLING

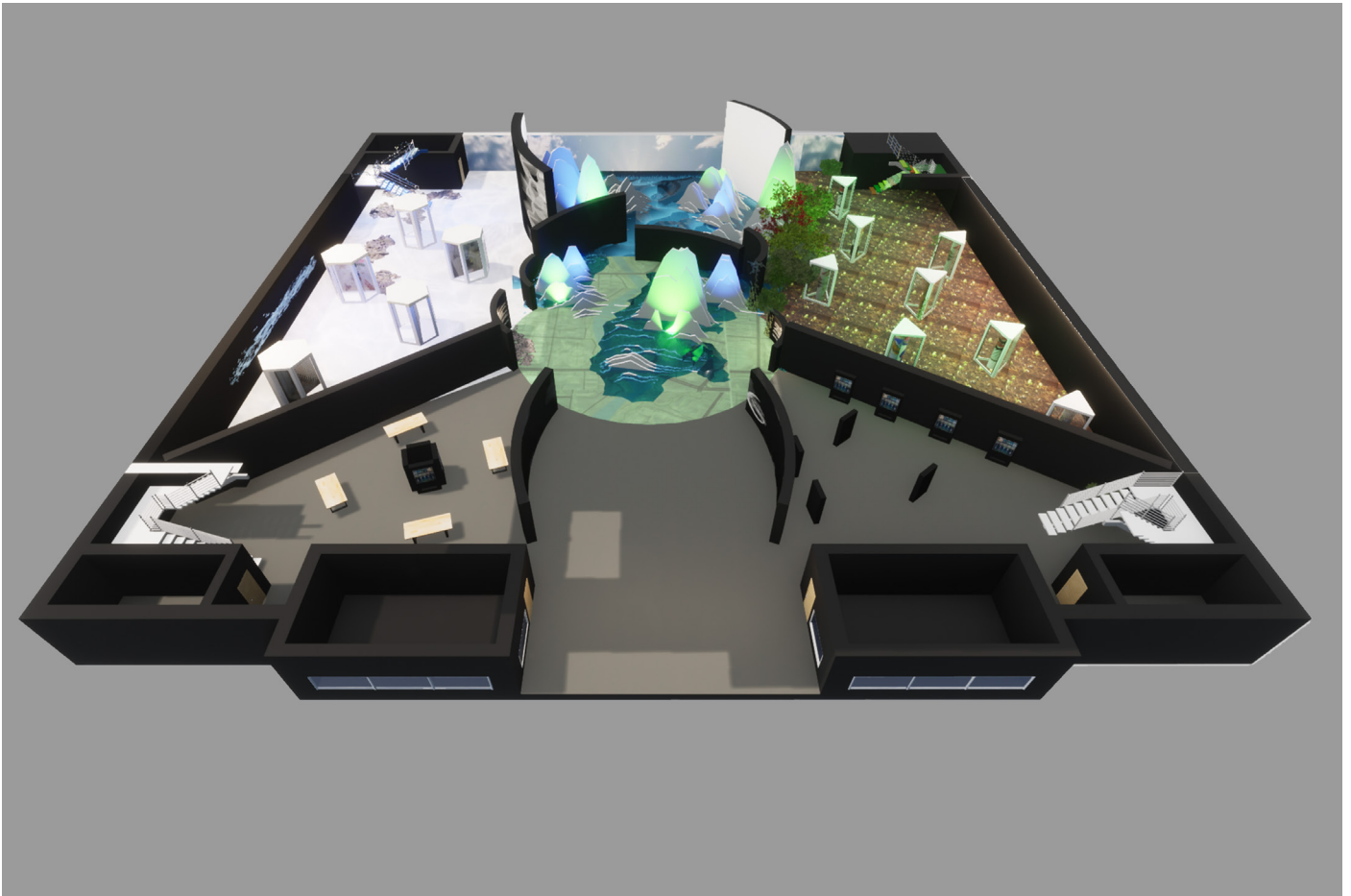


*(Figure 74) Model perspective A.*

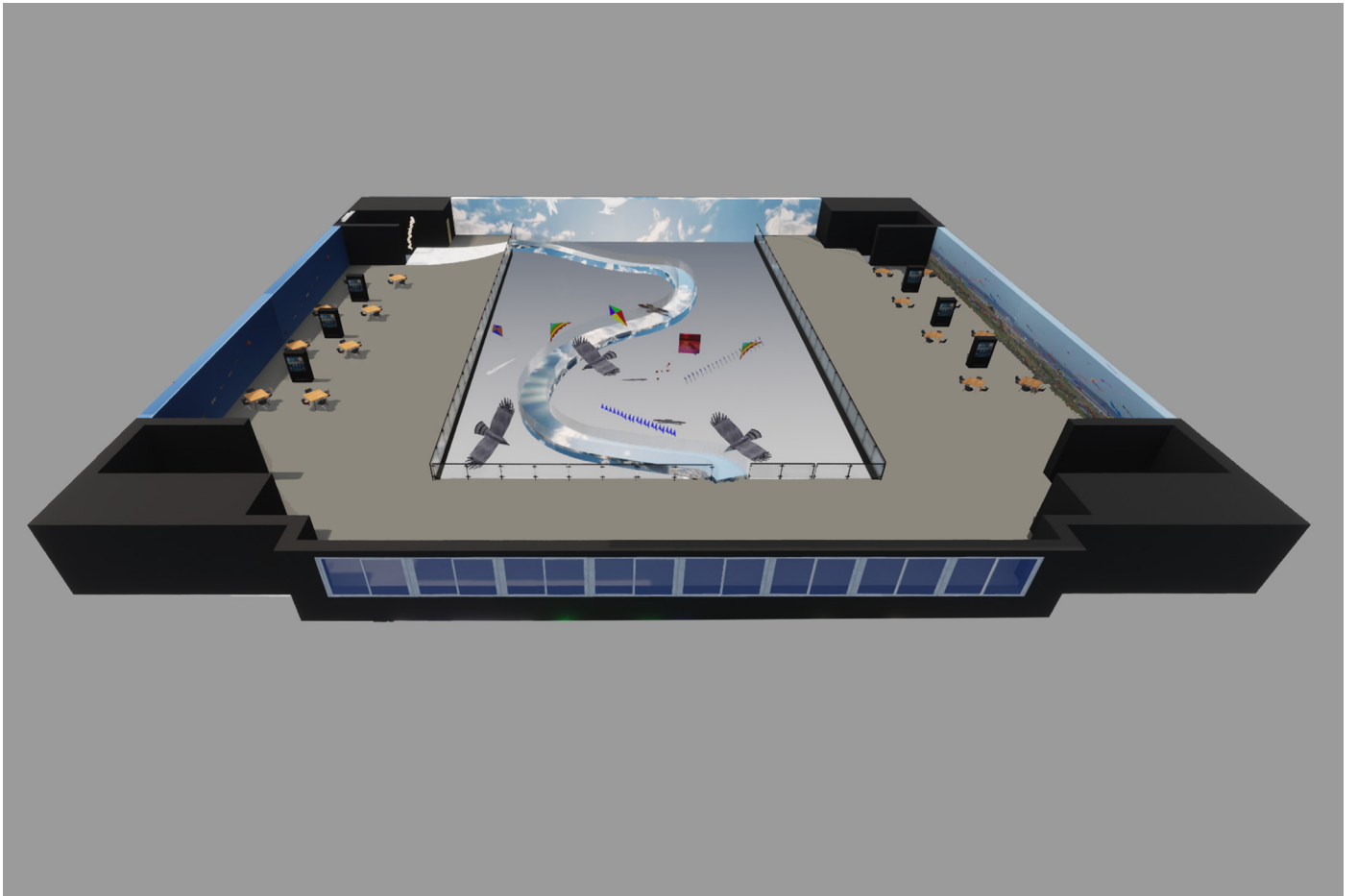


*(Figure 75) Model perspective on each floor.*

## 5.3 PERSPECTIVES

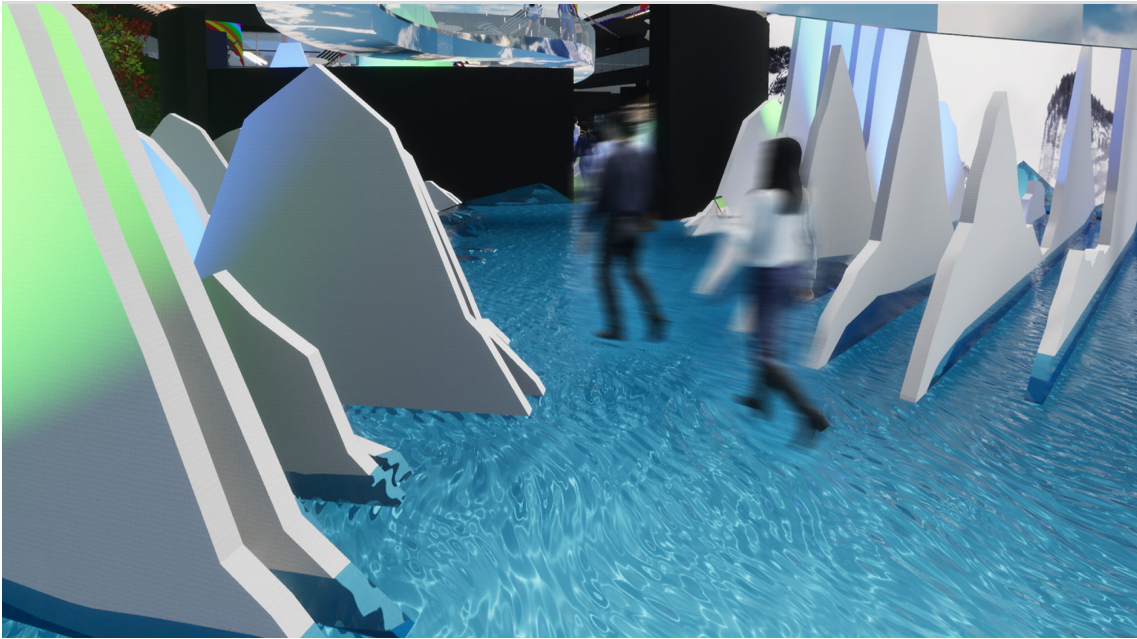


*(Figure 76) Ground floor rendering effect.*

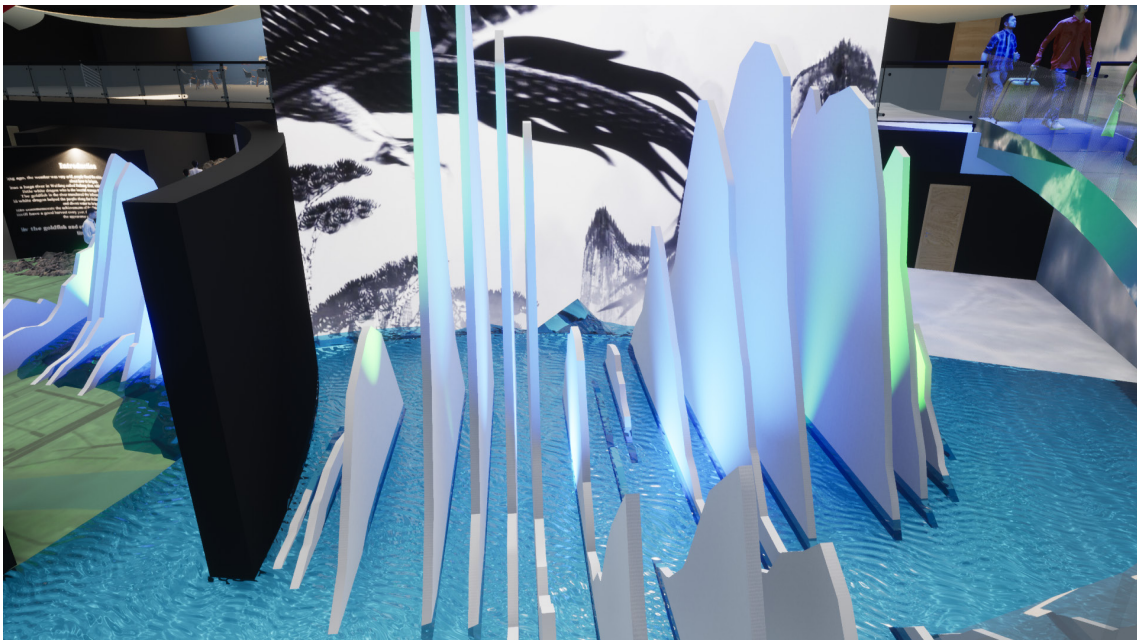


*(Figure 77) First floor rendering effect.*

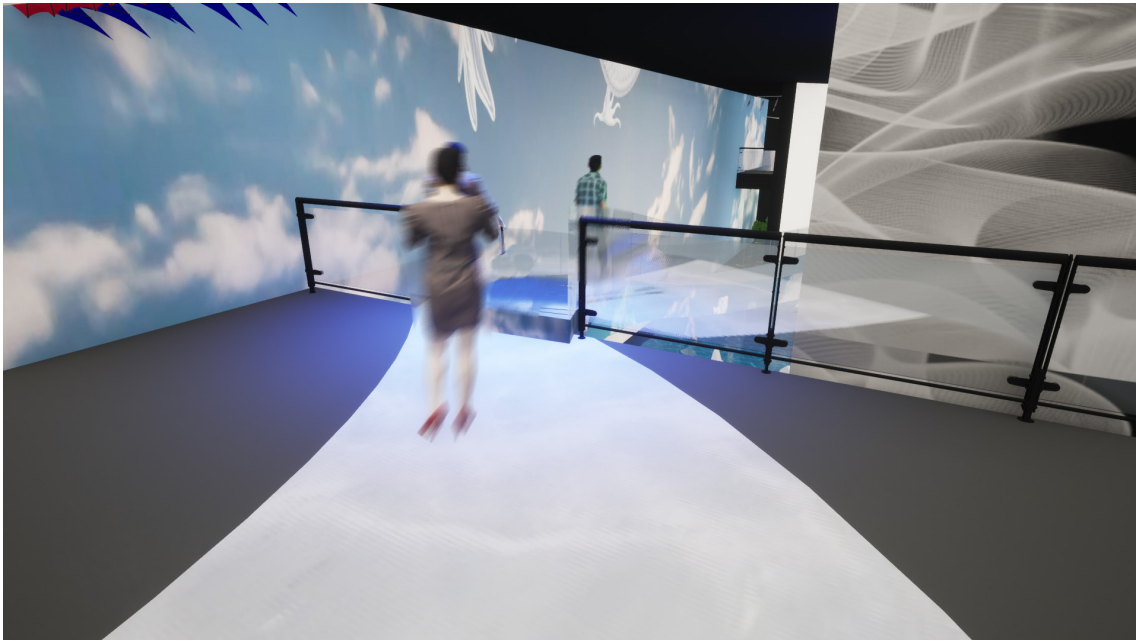
## 5.4 DETAILS



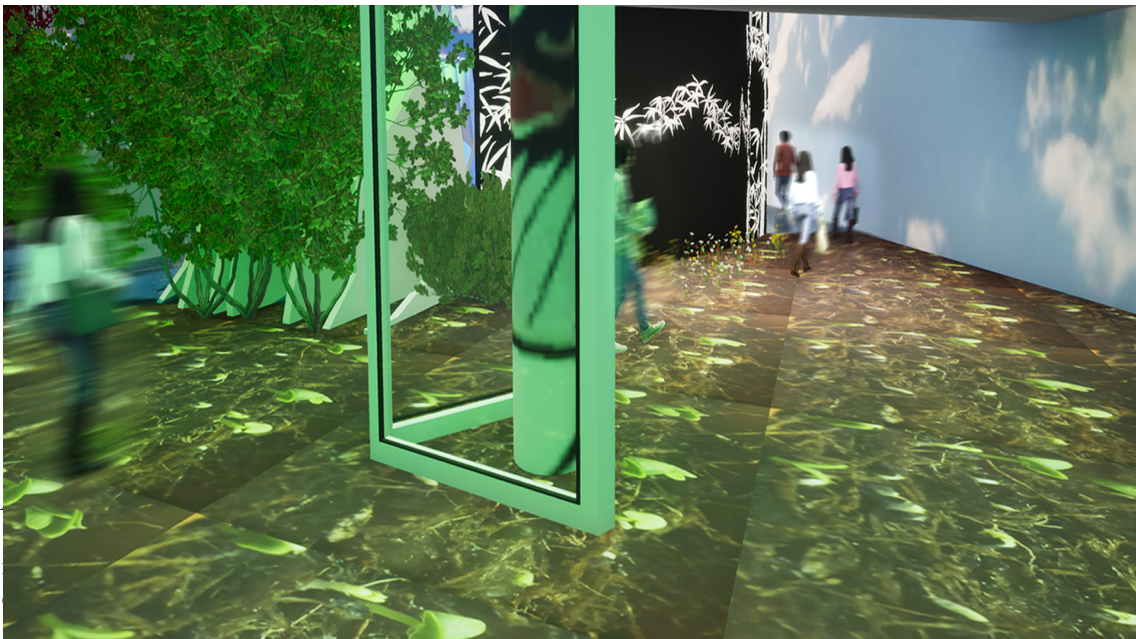
*(Figure 78) Scene B rendering effect.*



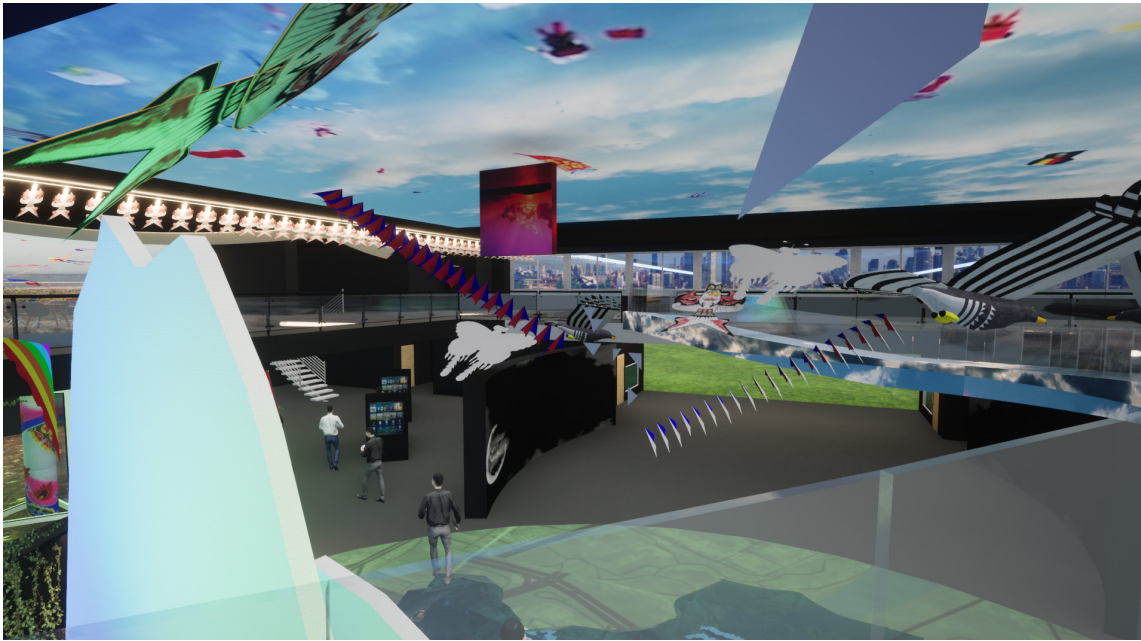
*(Figure 79) Visitors look down on the bridge view.*



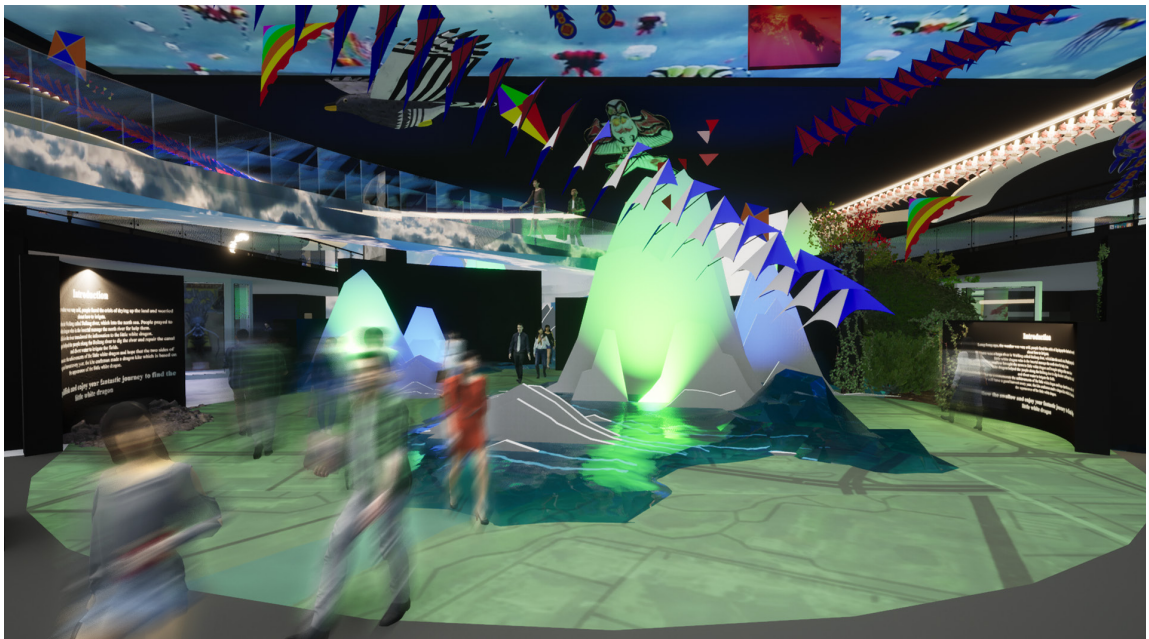
*(Figure 80) The link area between Fish exhibition area and Scene B.*



*(Figure 81) The link between the Swallow exhibition area and Scene B.*



*(Figure 82) Visitors look up on the bridge.*



*(Figure 83) Scene A rendering effect.*



*(Figure 84) Visitors walk through the Souvenir area.*



*(Figure 85) Visitors walk in the Kite Making workshop area.*

# CONCLUSION

This project designed a narrative interactive kite exhibition for Weifang Kite Museum, with the theme of “Being a kite”. The exhibition was designed in accordance with the existing spatial characteristics of the museum, breaking with traditional design strategy and adopting a variety of exhibition strategies. The target group of this exhibition is young people. It aims to enhance their interactive experience and engage them with the exhibition, allowing them to better understand the traditional Chinese cultural heritage and its significance, become a carrier of cultural transmission, and think about their environmental responsibility.

This exhibition employs the exhibition design framework of Philip Hughes, combining three display strategies, “The multiple paths”, “The radial pattern”, and “area of affinity.” The design scheme adopts Weifang’s most representative kite of the dragon and incorporates it as the main spatial narrative within the museum. Through the environmental changes of the two main scene areas, A and B, two guide visiting routes were designed, Fish Path and Swallow Path, referring to the flight tracks of different types of kites, so that visitors can simulate the experience of flying different types of kites in the sky. The interactive part of the exhibition is built at the entrance and different scenes are connected using projectors, sensing devices and interactive installations to attract visitors to participate. Model material and lighting changes connect the shadows and movements of the interactors with the kites, helping them to integrate into the narrative exhibition more quickly. The narrative kite exhibition shifts focus from displaying of the kite to the narrative and meaning behind the kite, creating an experience-oriented and immersive exhibition for visitors. The narrative exhibition strategy aims to stimulate visitors’ imagination, and guide them to become an essential role in the exhibition, understanding the meaning behind being a kite.

The project was practice-led and informed by the “Knowing Through Making” method. The understanding of research problems and solutions was obtained in the process of design practice and applied to the design scheme, aiming to solve problems and improve the design, while answering the research questions through the final practice results. The exhibition is assisted by digital technology to transform the kite into a conceptual shape and establish an interactive relationship with the visitor. Within the narrative tour route, with the kite as the guide, visitors gain a perceptual experience through visual stimulus and activities. They simulate themselves as a kite

and feel the kite's movement traces. The changes in the design, materials and lighting of the scene environment in the space, as well as the visual effects brought by the background animation, provide visitors with an interactive narrative experience from various inductive elements. The interactive narrative exhibition has the possibility of a variety of tour routes, allowing visitors to explore so that they can understand the kite from multiple angles and experience the change of the environment. This engages young people to participate in the exhibition repeatedly and helps the museum achieve the goal of sustainable development.

The Weifang government has been committed to developing and protecting kites as a cultural heritage. The kite carries many profound meanings and is the wish and sustenance of people's spirit for the future. Delicate and complex, kites can be used as a sport but are also historical artefacts that are important to learn about and protect for young people. The narrative behind the kite also reflects the reality that people expect the environment and resources to bring them wealth but fail to reciprocate by caring for the environment. With climate change, natural disasters frequently occur, habitats of organisms are destroyed, and species continue to decrease, which means that the environment urgently needs our protection and shift towards sustainable development. The purpose of this interactive narrative exhibition is not only to protect and pass on cultural heritage but also to call on young people to renew their thinking about environmental care. Human beings are the victims of the environment but can also be the protectors of the environment. Young people are the new hope, and need to realise their social responsibility and become the protectors of the world's environment and culture.

For the Weifang Kite Museum, protecting and collecting kites was a critical task in the past. With the rapid development of China's economy, people have become more interested in the deeper spiritual pursuit of humanities and art. Therefore, the transformation of exhibition strategy of the cultural heritage museum is an important issue China faces. This interactive narrative exhibition can perhaps more effectively satisfy people's needs through novel exhibition curation. A key concern of this exhibition strategy is the experience and behaviour of young people in the museum, which can encourage them to explore new ways of visiting and promote their perception of the environment and cultural heritage.

The primary purpose of spatial design is the sense of experience. The designer inspires people's psychological and physiological induction through various sensory elements in space, thus transmitting information to guide people to think and simultaneously giving people the opportunity to think independently. Restrictive designs inhibit visitors' curiosity and

thinking abilities, especially young people, and an overly open design can mean visitors struggle to connect with the exhibition. Therefore, during the design process of the interactive narrative exhibition of the Weifang Kite Museum, the designer needed to constantly review each step to ensure that they maintained contact with each other and find the right point to guide the entire exhibition's direction. This aimed to ensure that visitors had the opportunity to explore by themselves while having the narrative tour route. Getting feedback through the practice process is also a way of self-testing. For designers of the Weifang Kite Museum, it can be a more effective and straightforward way to understand their position and consider what changes can be made.

As a designer who constantly explores in practice, I am committed to providing a dynamic sense of experience to design objects and bring innovative cultural heritage exhibitions to visitors. National and regional cultural heritage should not be forgotten, as they are spiritual symbols that support generations of people to move forward into the future. Interactive and immersive exhibition design is an effective way to allow cultural heritage artefacts to communicate with the public. Curators must be full of passion, responsibility, and love and use their design ability to convey the narrative behind the artefacts to society. As a designer, I will continue to promote the combination of cultural heritage, modern technology and narrative, to encourage interest and improve the sustainability of cultural heritage knowledge.

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# LIST OF FIGURES

Figure 1 Photo by Aihua Sun, permission in Appendix

Figure 2 Photo by Yuan Wang record in the Weifang Kite Museum of China

Figure 3 Photo by Yuan Wang record in the Weifang Kite Museum of China

Figure 4 Photo by Yuan Wang record in the Weifang Kite Museum of China

Figure 5 Hughes, Philip. *Exhibition Design*. 2nd edition, Laurence King Publishing, 2015.

Figure 6 Chen, Tin-Kai. 'Preserving Chinese Shadow Puppetry Culture through Digitisation'. *The Routledge International Handbook of New Digital Practices in Galleries, Libraries, Archives, Museums and Heritage Sites*, Routledge, 2019.

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Figure 7 Levin, Jeffrey, et al. *Meeting the Challenge of the Immoveable: Experiencing Mogao Grottoes Cave 45 with Immersive Technology*. *Routledge Handbooks Online*, 2019. [www.routledgehandbooks.com](http://www.routledgehandbooks.com), <https://doi.org/10.4324/9780429506765-25>.

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Figure 8 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

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Figure 9 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

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Figure 10 'Gallipoli: The Scale of Our War'. *Museum of New Zealand Te Papa Tongarewa, Wellington, NZ*, 21 Dec. 2015, <https://www.tepapa.govt.nz/visit/exhibitions/gallipoli-scale-our-war>.

Figure 11 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

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Figure 12 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

Te Papa Exhibition conditions: photos and video allowed for personal, non-commercial use unless otherwise indicated.

Figure 13 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

Te Papa Exhibition conditions: photos and video allowed for personal, non-commercial use unless otherwise indicated.

Figure 14 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

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Figure 15 Photo by Yuan Wang record in the Te Papa Museum of New Zealand

Te Papa Exhibition conditions: photos and video allowed for personal, non-commercial use unless otherwise indicated.

Figure 16 Kossmann, Herman, et al. *Narrative Spaces : On the Art of Exhibiting*. 010 Publishers, 2012.

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Figure 17 Kossmann, Herman, et al. *Narrative Spaces : On the Art of Exhibiting*. 010 Publishers, 2012.

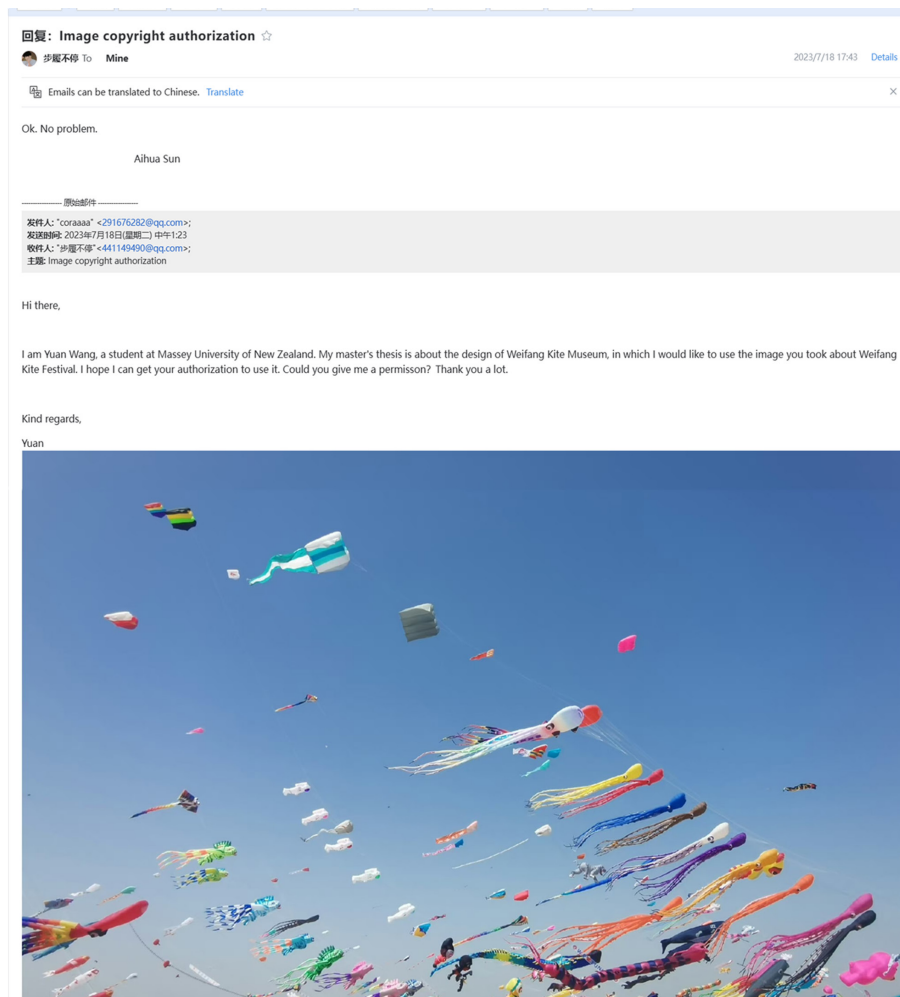
Rights holder of original works not contactable. Image being reused under NZ Copyright Act 1994 s.42 which provides for the copying of a work for purposes of criticism or review accompanied by sufficient acknowledgment.

- Figure 18 The Treachery of Sanctuary - CHRIS MILK. <http://milk.co/treachery>. Accessed 11 June 2023.  
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- Figure 19 The Treachery of Sanctuary - CHRIS MILK. <http://milk.co/treachery>. Accessed 11 June 2023.  
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- Figure 20 'Hong Kong International Wetland Park'. MET Studio, <https://www.metstudiodesign.com/work/hong-kong-international-wetland-park/>. Accessed 21 June 2023.  
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- Figure 21 'Sea Voyage'. MET Studio, <https://www.metstudiodesign.com/work/sea-voyage-at-het-scheepvaartmuseum/>. Accessed 21 June 2023.  
Rights holder of original works not contactable. Image being reused under NZ Copyright Act 1994 s.42 which provides for the copying of a work for purposes of criticism or review accompanied by sufficient acknowledgment.
- Figure 22 Light House . <https://www.lighthouselab.cn/#/work/64>. Accessed 21 June 2023. <https://www.lighthouselab.cn/#/work/20>. Accessed 21 June 2023.  
Rights holder of original works not contactable. Image being reused under NZ Copyright Act 1994 s.42 which provides for the copying of a work for purposes of criticism or review accompanied by sufficient acknowledgment.
- Figure 23 Light House . <https://www.lighthouselab.cn/#/work/64>. Accessed 21 June 2023. <https://www.lighthouselab.cn/#/work/20>. Accessed 21 June 2023.  
Rights holder of original works not contactable. Image being reused under NZ Copyright Act 1994 s.42 which provides for the copying of a work for purposes of criticism or review accompanied by sufficient acknowledgment.
- Figure 24 Photo by Yuan Wang
- Figure 25 Photo by Yuan Wang
- Figure 26 Photo by Yuan Wang
- Figure 27 Drawing by Yuan Wang
- Figure 28 Drawing by Yuan Wang
- Figure 29 Screen shot from Google Earth by Yuan Wang
- Figure 30 Technical drawing layout by Yuan Wang
- Figure 31 Photo by Yuan Wang record in the Weifang Kite Museum of China
- Figure 32 Modeling layout by Yuan Wang
- Figure 33 Technical drawing layout by Yuan Wang
- Figure 34 Photo by Yuan Wang
- Figure 35 Drawing by Yuan Wang
- Figure 36 Testing sketch by Yuan Wang
- Figure 37 Drawing by Yuan Wang
- Figure 38 Modelling layout by Yuan Wang
- Figure 39 Modelling layout by Yuan Wang
- Figure 40 Technical drawing layout by Yuan Wang
- Figure 41 Modelling layout by Yuan Wang
- Figure 42 Modelling layout by Yuan Wang
- Figure 43 Modelling layout by Yuan Wang

Figure 44 Modelling layout by Yuan Wang  
Figure 45 Modelling layout by Yuan Wang  
Figure 46 Modelling layout by Yuan Wang  
Figure 47 Modelling layout by Yuan Wang  
Figure 48 Modelling layout by Yuan Wang  
Figure 49 Modelling layout by Yuan Wang  
Figure 50 Modelling layout by Yuan Wang  
Figure 51 Modelling layout by Yuan Wang  
Figure 52 Modelling layout by Yuan Wang  
Figure 53 Modelling layout by Yuan Wang  
Figure 54 Modelling layout by Yuan Wang  
Figure 55 Modelling layout by Yuan Wang  
Figure 56 Technical drawing layout by Yuan Wang  
Figure 57 Interactive animation effects by Yuan Wang  
Figure 58 Modelling layout by Yuan Wang  
Figure 59 Interactive animation effects by Yuan Wang  
Figure 60 Modelling layout by Yuan Wang  
Figure 61 Modelling layout by Yuan Wang  
Figure 62 Modelling layout by Yuan Wang  
Figure 63 Modelling layout by Yuan Wang  
Figure 64 Modelling layout by Yuan Wang  
Figure 64 Photo by Yuan Wang  
Figure 65 Photo by Yuan Wang  
Figure 66 Photo by Yuan Wang  
Figure 68 Modeling layout by Yuan Wang  
Figure 69 Technical drawing layout by Yuan Wang  
Figure 70 Technical drawing layout by Yuan Wang  
Figure 71 Technical drawing layout by Yuan Wang  
Figure 72 Technical drawing layout by Yuan Wang  
Figure 73 Modelling layout by Yuan Wang  
Figure 74 Modelling layout by Yuan Wang  
Figure 75 Modelling layout by Yuan Wang  
Figure 76 Modelling layout by Yuan Wang  
Figure 77 Modelling layout by Yuan Wang  
Figure 78 Modelling layout by Yuan Wang  
Figure 79 Modelling layout by Yuan Wang  
Figure 80 Modelling layout by Yuan Wang  
Figure 81 Modelling layout by Yuan Wang  
Figure 82 Modelling layout by Yuan Wang  
Figure 83 Modelling layout by Yuan Wang  
Figure 84 Modelling layout by Yuan Wang  
Figure 85 Modelling layout by Yuan Wang

# APPENDIX

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**BEING A KITE**  
An interactive narrative exhibition in the Weifang kite museum.