

# From “Illustration” to “Interpretation”—Using Concrete Elements to Represent Abstract Concepts in Spatial Design

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**Abstract.** Spatial art and spatial design both requires the exploration of the formation and elements of space before creating a physical space by combining the elements. Then, perceptual space is formed after the incorporation of the designer’s subjective concepts in order to gain the approval of participants or users. Creating a spatial design mode from concrete to abstract is an issue that should be researched to establish captivating and meaningful space. This study explores the illustration of spatial abstract concepts and abstract time metaphor of spatial representation from the formation of space, the definitions of physical space and perceptual space, and the temporal factors in spatial context, proposing a spatial design mode of concept-element-interpretation-design with different spatial designs.

**Keywords:** Metaphor · Spatial design · Interpretation · Design model

## 1 Introduction

The difference between art and design is that art allows for self-expression via mediums while design addresses stated needs and solves problems. Art is subjective to the eyes of the beholder while design is objective. However, in both spatial art and spatial design, the formation and elements of space should be explored first before creating a physical space by combining the elements. Then, perceptual space is formed after the incorporation of the designer’s subjective concepts.

Space is formed from the relationship between forms. Space represents the location, direction, area, and distance of forms through the hollow part of a 3D structure. Therefore, space is not a part of design; it is created from the interaction of styling elements and design principles (Jiang et al. 2007).

Elements and composition define the existence of space. For example, the porosity of roofs and walls determines the composition of space, which can be enclosed, partitioned, or combined. The enclosure of space is determined by its elements and opening. These elements have a major impact on the perception of spatial style and orientation. To some degree, the partitioning and enclosing of space are different but with closely related features. Partitioning involves roofs, walls, and the floor and combination applies

enclosing and partitioning interchangeably for richer spatial changes. The formation of physical space utilizes styling elements such as ceilings, walls, and the floor to express real-life dimensions and spatial functions.

Perceptual space is presented using size of forms, layering, color contrast, and material transformations to depict the distance, position, and lighting of space and express the imaginative spatial perception. Constructing physical space with concrete elements is simple, but using concrete elements to express abstract perceptual space requires developing conceptual creation into creative design.

Time is represented through space; therefore, time also requires space to be remembered. Time transports through changes in the land and colors. Space is the remains of time in the natural world and is human activity in humanity (Jian 2005). As people move in the environment, they become aware of the temporality of space, not simply by the vastness of space, but mainly by manifesting temporal and spatial changes through the perception of changes (Liu 2010).

According to French Marxist philosopher and sociologist Henri Lefebvre, there are three levels in the production of space: perceived space (spatial practice), conceived space (representations of space), and lived space (representational spaces). Perceived space is physical place, conceived space is mental place, and lived space is social place. Art and literature present representational spaces using imagination to rewrite space controlled by the objective world. Poets write poems by using their imagination through reality, which also results in the creation of metaphors. Artists create artworks by using their imagination in reality and their works of art are a metaphor of the artists' imagination.

The properties (character) and course of time (history) of space and social factors (people in motion) are correlated. How is the character of space shaped? Time (history) is an important factor. All things on earth need time to be created (Chen 2008).

As such, by using time factors as an inspiration for design creativity to explore the transformation of the significance of space caused by temporal changes, innovation and new ideas can be evoked, forming a close connection with the local environment.

## 2 Spatial Design: From Abstract to Concrete

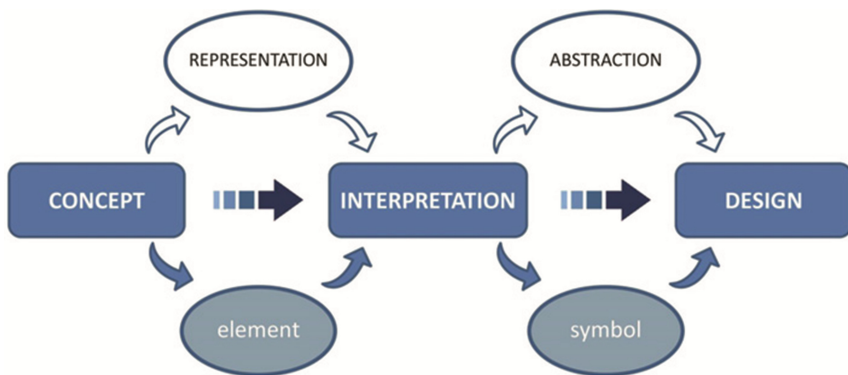
Design activities are considered as a series of complex design related problem-solving processes (Goldschmidt 1997). In terms of its organization and presentation, design problems are passive in which designers provide an active response based on the design objective. Design problems are solved by searching and finding the solution. Jones (1992) asserted that a design process can be classified into data collection, idea generation and development, detailed designs, and project implementation. Archer (1984) proposed an operable design model where he divided the design area into three stages and six procedures while emphasizing the correlation and feedback behavior between each procedure. The three stages include analysis, creation, and evaluation and the six procedures include architectural planning, data collection, analysis, integration, development, and communication.

Form is a method in which design concepts are expressed by constructing. When an exterior form expresses an interior meaning, this certain form then becomes an element that represents the interior meaning.

Space refers to the perception of atmosphere created from architectural elements. The perception of atmosphere in space plays an important role in architectural design; it is the internal representation of an exterior form. By organizing and arranging architectural elements, spatial perception can conform to the conceptual perception and imagination (Hwang 2007).

Abstraction is a conceptual process in which general rules and concepts are derived. Therefore, abstract is not just a simplification of contour, but also includes the extraction of essence and meaning (Norman 1998). Symbols refer to the delivery of an abstract meaning through a certain meaningful agent, which is the symbol. However, a direct correlation is not always evident between the meaning and symbols; sometimes it is established by convention.

Visual message can be categorized into three functions: (1) Representation: exploring the things people see and identify in the environment and from past experiences (in particular, photos); (2) abstract: reducing certain visual elements and emphasizing direct, emotional, or original messages; (3) symbol: giving meaning. Therefore, a spatial abstract design model involves extracting styling elements from spatial concept, using symbols to interpret the meaning to complete the design process, as shown in the Fig. 1.



**Fig. 1.** Spatial design model from Representation to Abstraction

### 3 Interpreting Abstract Perceptions with Concrete Elements

Using concrete elements to interpret abstract perceptions include illustrations of abstract concepts and spatial metaphors of abstract concept of time. In terms of the former, illustrated abstract concepts can be expressed by scaling up or down to display the observer’s location, using 2D to determine 3D space or spatial contour for conversion

of meaning. Temporal dimensions are used to explore the historical meaning of space, using temporal factors in spatial context as materials for interpreting and creating new space.

3.1 Using Illustrations to Express Abstract Concepts in Space

Spatial illustrations are products of designers’ thinking and spatial interpretation further enhances designers’ creative thinking. Illustrations are tangible and visually comprehended by observers while interpretations are intangible and require observers to perceptually experience.

In order to express space and convey ideas, designers or artists utilize various perspectives to draw different views. Views are produced based on the principle of graphics, presenting real-life space or styles on paper via parallel projection according to the observed position and direction, thereby producing top views and elevations. Perspective drawings are produced through perspective principles. Therefore, the view-point and position of observers determine the way with which space is presented in views.

Views determine perspectives. Thus, spatial design is not just a concrete illustration; it requires the use of interpreted perspectives and methods to allow space to be easily understood. Ways to expressing abstract concepts with illustrations include scaling down, scaling up, 3D projecting, 2D space, and contouring.

The following sections are descriptions of land art, memorial space, installation art, exhibition, and interior design.

3.1.1 Scaling Down to Express Macro Views

Think of our living environment as puzzles of various architectures and use 3D building blocks to construct Taoyuan Land Puzzle and Art, in which the red 3D blocks symbolize buildings, green 3D blocks symbolize green land and farms, large white and green squares symbolize intertwining buildings and green spaces, and blue glass square plates symbolize Taoyuan’s land feature, ponds. This work of art features the use of building blocks to portray the land and environment in macro view. The design process, as shown in the Fig. 2.

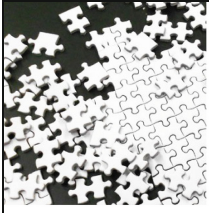
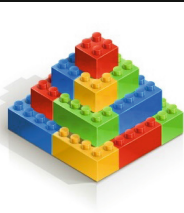
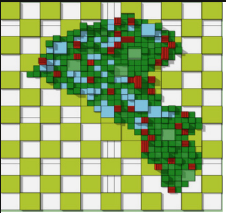



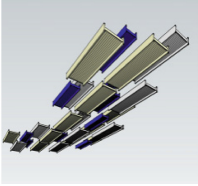

Concept (puzzles)	Element (building blocks)	Interpretation (compose)	Design (land art)
			

Fig. 2. Design process for scaling down to express macro views (Color figure online)

### 3.1.2 Scaling up to Emphasize the Concept of Memory

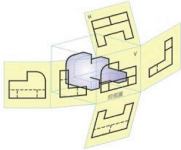
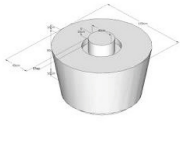
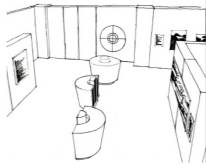

In order to search for the concept of “memory” in the history of Chung Yuan Christian University (CYCU), enlarged books are used as the styling element to enclose the space of Chung Yuan Christian University Chang Ching Yu Memorial Library using ceilings and walls layered with books and pages. The purpose is to seek for the memory of history. The physical environment of books is not the purpose of design; rather, the main significance of design is establishing the abstract spatial concept of restoring memories to reconstruct history. The design process was shown in the Fig. 3.

Concept (reading)	Element (book)	Interpretation (file)	Design (memory space)
			

**Fig. 3.** Design process for scaling up to emphasize the concept of memory

### 3.1.3 Using Projection to Establish 3D Drawings

Scaled up doorknob are used as elements to be projected on walls to present top views. A set of doorknob cut in half metaphorized the section that cannot be seen in space. The spatial installation art of graphics interpret the 3D projection and the undetected section in space. The design process was shown in the Fig. 4.

Concept (drawing)	Element (doorknob)	Interpretation (section/projection)	Design (installation art)
			

**Fig. 4.** Design process for using projection to establish 3D drawings

### 3.1.4 Using 2D Views to Define Space

Here, walls, sliding doors, and windows are the elements. The exhibition space of Space in Painting vs. Drawing for Space is divided and enclosed with walls or with drawing symbols on the floor to present the abstract doors and windows and portray the different

divisions of space. The floor plan presented on the floor creates a perceptual space of seeing drawings through space and establishing space with drawings. The design process was shown in the Fig. 5.

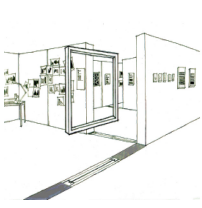
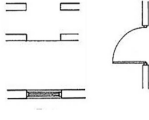


Concept (cross)	Element (drawing symbol)	Interpretation (connection)	Design (exhibition space)
			

Fig. 5. Design process for using 2D views to define space

3.1.5 Using Contouring to Extract Styles

Irrigation ditches are chosen as the elements and contours are used to symbolize flowing water. The Taoyuan City Library uses the ceiling and floor patterns, bamboo slips, and wavy design counter irrigating the books in the library to symbolize the features of irrigation ditches in Taoyuan. The design process was shown in the Fig. 6.





Concept (flowing)	Element (Irrigation stream)	Interpretation (rich)	Design (library)
			

Fig. 6. Design process for using contouring to extract styles

3.2 The Temporal Factors in Spatial Representation

“Representation, or exhibition, aims to allow people to understand its inner meaning as well as its exterior appearance by displaying. Here, the presenter, or exhibitor controls the initiator, not the audience” (Han 2000).

Representation refers to the whole manifestation, not the sum of exhibits. People are closely related to space. From a user-centered perspective, this study explores people’s purpose and demands towards appreciating art or design in different spaces. Exhibitions can be viewed as text, using a unique language to convey its desired message (Chang 2011).

Exhibition design preserves and interprets different cultures by displaying historical events or current nature and art so as to connect visitors with culture and promote exchange. Curation is an important part of exhibition design. A creative way to develop exhibition design from theme planning and storylines to spatial design is to influence people with the atmosphere and narrate with space.

Spatial presentation, circulation arrangement, narrative text, and spatial shaping create resonance with the audience, further giving visitors a better understanding towards the occurrence of the event. Designers need to consider the interaction between the audience and the environment and pay attention to the connection between exhibits and space. As a result, space is able to deliver information on the exhibition by interacting.

Temporal factors control spatial context, exploring the meaning of space through the sequence of time to interpret and create new spaces.

### 3.2.1 The Reading Sequence of History

Commemorative space is used to honor or preserve the memory of a historical figure or event. The reading sequence of a person’s life or an event represents time. The Chang Ching Yu Memorial Hall in Chung Yuan Christian University was designed with the concept of “turn a page of history and open the door to his life.” The life of Chang Ching Yu is narrated in 12 chapters, which are designed as panels placed on the walls for visitors to read as if reading from the pages in a book.

By means of telling a story on 3D pages and using digitally processed portraits on glass doors, visitors can get an insight into the life of Chang Ching Yu, surrounded by a sea of books on the ceiling and walls. Space shown as Fig. 7.



Fig. 7. The reading sequence of history (Chang Ching Yu Memorial Hall, CYCU)

### 3.2.2 Contrast of a Historical Figure and Scene

In Space in Painting vs. Drawing for Space, the difference between the years in which the artworks were completed serves as a metaphor for the changes of the divisions at the exhibition venue reflecting history. With paintings and drawings as the main characters of a story, each space contains different paintings and designs to explain the meaning of the divisions. The four divisions include the space of history, the space of modern, the space of imagination (designer), and imagination of space (artist). Space shown as Fig. 8.



**Fig. 8.** Contrast of a historical figure and scene (Art Exhibition)

In the space of history, a painting by Song Dynasty artist Zhang Zeduan *Along the River During the Qingming Festival* and the version by five Qing dynasty court painters and *One Hundred Stallions* by Guiseppe Castiglione in the Qing Dynasty are displayed to portray the historical changes of Chinese paintings in the interpretation of space and the viewpoints of painting in different times in history including visual angles, graphics, and lifestyles.

In the space of modern, hand-drawn maps of Taipei by British talent Tom Rook and Chen Chien-Jung's masterpiece of modern city from an architectural perspective serve as metaphors for the changes in exhibition divisions and time with the sliding doors and fixed window drawings.

In the exhibition, cities painted by artists and space created by the designer form a drawing that represent time, giving visitors the chance to personally experience the drawing and space from the works of art.

### 3.2.3 Changes in Life

*Ponds vs. Houses* explores temporal factors in spatial context. "Shinwu" is a current geographic name and also the record of past development. New houses in history transforming into ancient houses in geography represents an exchange of time. Fan-jian Clan Ancestral Shrine, located in Shinwu, and apartment buildings create a contrast of old and new, traditional and modern. Space shown as Fig. 9.



**Fig. 9.** Changes in Life (Land art- Ponds vs. Houses)

*Ponds vs. Houses Part 2—Rediscover Shangri-La* continues the concept of “weaving,” adding 3D blocks with recycled calendars and shopping mall advertisements and the colors red, blue, yellow, white, and black to symbolize diversified thinking to compose a *Rediscover Shangri-La* landscape puzzle with temporal elements and living content.

Rediscover Shangri-La aims to inspire the audience to take action towards the environment. All participants choose the environment they wish to live in. “Time” is an important element of the exhibition and “participation” changes artwork. The exhibition displays photos taken every day and the original versions for the audience to compare the different changes every day and recognize their roles in the environment (Fig. 10).



**Fig. 10.** Changes in Life (Land art- Rediscover Shangri-La) (Color figure online)

## 4 Conclusion

The creative concept of space can be expressed with 2D drawings. The meaning behind space can be interpreted by changes in style. Using concrete elements to depict abstract thinking refers to the use of existing images from illustration to interpretation, which can also be said as the different levels of design creativity. Presenting space by storytelling is the process of organizing the order of space, using temporal factors in spatial context to enrich the hidden elements in works of art. The transformation from the physical space of using materials, colors, and styles to the perceptual space of using metaphoric interpretation can enhance the levels of design to substantial perception to psychological perception, enriching the outcomes of spatial design.

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