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Reconfiguring industrial heritage: Human-centered narrative design for reconciliation and inclusive storytelling

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Abstract: This article takes the Shenyang China Industrial Museum as an example to expose the interpretation and design of China's representative industrial heritage museums dominated by authoritative narratives and technocratic biases. Through the case study of the “Steel Home Still” exhibition, explore how narrative design can reconstruct industrial archives and challenge their power structure. This article conducts a comparative analysis of two cases based on three parameters: narrative themes and strategies, representation of individuals and workers, technology narratives and human engagement, discussing how human-centered exhibition narratives reposition human memory at the core of industrial heritage, transforming it from static representations of industrial and technological achievements into a dynamic platform for emotional connections and inclusive storytelling of workers and industries. The research results show the exhibition achieves this goal by reconstructing multi-dimensional scenes of workers' work and life, juxtaposing technological and living environments of different eras, and employing universal emotional narratives.

Keywords: Human-Centered Narrative Design; Industrial Heritage Museums; Social Equity and Cultural Inclusiveness; Emotional and Multi-sensory Experiences

1. Introduction

Industrial museums are closely linked with industrial heritage worldwide. In the West, these museums have evolved from displaying technology-based artifacts to highlighting their social and cultural impacts (Méndez & Cuéllar, 2017). Their development stems from post-industrial transformations focused on remembering the industrial past and reflecting on the social, environmental, and cultural effects of industrialization (Méndez & Cuéllar, 2017). A shift toward human-centered content (Cutcliffe & Lubar, 2000; Leary & Sholes, 2000) lets



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Western museums address topics such as diversity, sustainability, and contemporary issues (Müller, 2013). In contrast, the evolution of the industrial museum in China reflects China's industrialization and modernization process (Long & Cano Sanchiz, 2024, p. 150). Chinese museums emphasize industrial heritage preservation, technological education, tourism, national development, and patriotic themes (Bollo & Zhang, 2017; Long & Cano Sanchiz, 2024, pp. 159-60,163; Lu, 2021; Hao et al., 2019).

Industrial heritage museums have become significant places for preserving and distributing industrial culture and archives. Nevertheless, such museums tend to emphasize authoritative, technology-driven national histories at the expense of everyday workers (Long & Cano Sanchiz, 2024, pp. 159–160; Smith, 2006). This technocratic focus underrepresents impacts like state-owned enterprise reforms on workers' lives, identities, and social status (Feng, 1997; Zhou, 1999; Sun, 2003). Such narratives reflect selective biases and limit visitors' understanding of industrial heritage, missing chances to address community trauma and negative sentiments (Li, 2009; You, 2006; Guo, 2008; Huang & Ma, 2010).

This study examines how the national industrial narrative, as demonstrated by the Shenyang China Industrial Museum, reveals bias and inequality in its presentation of industrial history. Specifically, it analyzes the exhibition *Steel Home Still* to show how a human-centered, personal narrative challenges bias and traditional hierarchies within the dominant state narrative. By focusing on everyday life and routine, the exhibition provides a counterpoint to the grand state narrative. This research argues that human-centered narrative design fosters emotional engagement with industrial heritage through thematic curation, physical displays, spatial layout, and multimedia elements. The analysis demonstrates how chosen themes, narrative viewpoints, specific objects, and recreated scenes generate memory and emotional resonance. Ultimately, the study contends that adopting human-centered narratives in industrial heritage museums can move beyond authority-driven accounts, promoting more inclusive, fair, and meaningful relationships among diverse groups and across time.

2. Exhibition design as a communication tool

We must consider that an exhibition, being a unique form of communication, possesses distinctive value, significance, and rules. It conveys information or expresses metaphorical meanings by organizing and arranging items within a specific time and space, revealing the relationships among the exhibits. The significance of the exhibits in an exhibition depends not only on their inherent attributes but also on the environment in which they are placed and the way they are arranged. In this process, the exhibition becomes a narrative language, combining elements such as object selection, spatial design, text, audio, and visual to attract and inspire the audience (Borsotti, 2017, pp. 70-71). As Kossmann and de Jong (2010, p. 7) explain, an exhibition is a narrative environment; exhibitions create wonder, involvement, and experience in visitors through spaces, collections, images, text, photography, film, new media, and interaction, and the designer's task is to transform complex stories and academic goals into thought-provoking spatial narratives.

Uwe R. Brückner defines exhibition design as scenography, in which space and narrative provoke critical thinking and engage visitors. He noted that the art of exhibition design could challenge ideological constraints, foster diverse perspectives and contrasting narratives,

appeal to the imagination, and combine logic with magic (Brückner, 2011, p. 354). This narrative-oriented exhibition design approach seeks to go beyond ordinary experiences, immersing visitors in a multi-sensory environment and reinterpreting fragments of human history through interaction with objects and spaces. Through design intervention, industrial heritage can evolve from static repositories into dynamic narratives that evoke emotional appeal and foster a deeper attachment to the past.

The industrial heritage is valuable because it's not just a historical record, but an instrument that could bridge various periods, communities, and cultures through the exhibition narrative design, facilitating cultural dialogue and creating numerous relationships across time and space. The exhibition design is all about crafting a communication tool in the form of a narrative that will transform cultural remains into part of a longer human history and a present-day scenario (Borsotti, 2017, p. 69). The combination of language and images helps visitors learn more, whereas juxtapositions between temporal and spatial dimensions disrupt the linear conception of time and create a multidimensional, interactive atmosphere where people can think and communicate (Borsotti, 2017). The art of exhibition design is also being applied in modern times to give objects new meanings through digital media and multisensory experiences (den Ouden, 2016, pp. 33-36). Thus, the concept of the exhibition narrative design is much more than the display of objects; it is the combination of space, narrative, and multimedia, which redefines the concept of history, culture, and human experience and has an additional impact on the relationships of people and objects, people and history, and people themselves.

3. Methodology

3.1 Case selection

The 33 museums on the “Chinese Industrial Heritage Protection List”¹ and the 129 European museums on the European Route of Industrial Heritage database² were reviewed to address issues in Chinese industrial heritage museums. Purposive sampling was adopted to select two cases (Coyne, 1997). The Shenyang China Industrial Museum was selected as a paradigmatic case because it is state-oriented and emphasizes national industrial success, a common attribute of Chinese industrial museums. The temporary display *Steel Home Still*, on view at the Venice Biennale by a group of Chinese curators, focuses on personal memories and the past of the people living in the Shougang community in Beijing. It provides a substitute for the state-centric views. The comparison of the two cases allows examination of the conventional restrictions of the narrative and provides insights into how to improve the narrative design.

3.2 Data collection

A mixed-methods design was used to collect data:

¹ The Chinese Academy of Science and Technology for Development and the Urban Planning Society of China have been conducting ongoing investigations and selection processes for industrial heritage. Based on extensive consultation with experts from relevant societies, they have compiled three batches of the Chinese Industrial Heritage Protection List.

² ERIH, the European Route of Industrial Heritage, is the tourism information network of industrial heritage in Europe. In total, the website presents more than 2,400 sites from all European countries. Retrieved from <https://www.erih.net/>

- 1a Field Survey (Shenyang China Industrial Museum): Observed exhibition content, objects, design tools, and sensory elements; took photos; transcribed audio guides (see Table 1).
- 1b Visitor Observation (Shenyang China Industrial Museum): Two visitor groups (students and elderly government staff) were observed for differing perspectives. Students represent a younger generation that has not experienced the development of traditional industries. Government staff represent historical witnesses and are influenced by state-centric thinking. Behavioral patterns, such as interactions and emotional responses (see Table 2) were recorded.

2 Secondary Data Collection (Steel Home Still): Since the exhibition has ended, data was gathered from official works, media reviews, and exhibition archives. These included photos, videos, and audio. This data is used to analyze curatorial goals, design choices, and tools.

Table 1 Excerpt from Audio Content. The two sentences extracted from the audio recordings and presented in Table 1 are typical examples of historical and contextual references that could give rise to narrative sub-categories complementing the main curatorial structure. All audio records were originally in Chinese but have been translated into English.

Exhibition Theme	Audio Content
Wind and Rain Years	"Because of the serious impact of the 'Cultural Revolution,' China's industrial production suffered huge losses but still moved ahead in twists and turns."
Modern Workers	"With the adjustment of China's industrial structure, they stepped down from their posts and opened up new paths, enduring the life test of giving up 'a secure job.'"

Table 2 Excerpt from Visitors Behavioral Observations. The two observations outlined in Table 2 are representative of the potential of personal and collective memory that can be expressed, integrated into the curatorial and exhibition narrative, and explained to the younger generation to foster a more comprehensive and engaging understanding of the history of these places.

Location/Exhibits	Interactive Behavior (Spoken Content)	Emotional Response
National Emblem	A group gathered around an elderly visitor, who saluted and loudly proclaimed, "Long live the People's Republic of China."	The surrounding audience applauded in agreement. Nearby children were surprised, then began whispering and laughing (strange and funny).
Third Front Construction	An elderly visitor remarked, "At that time, a popular slogan in Sichuan was: 'Devote your youth, then your life, and after your life, your descendants.' It's a pity this isn't showcased here."	The guide, upon hearing this, became choked up.

3.3 Data analysis

This article applies the so-called "Partitura" (Brückner, 2019) as an analytical tool, drawing on thematic and content analysis. The Partitura integrates complex exhibition elements (content, objects, space, audience) and design tools (graphics, light, sound, media; see Figure 1). It is used to visualize exhibition content, curatorial strategies and intentions, and forms an integral part of the design methodology developed by Atelier Brückner, which they have named Creativ(e) Structur(e).

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theme	title	hundred years of hovering				move forward			scientific exploration			the rise of the east	
	sub-title	1. the beginning of Westernization	2. powers occupied China	3. the ups and downs of private enterprises	4. the labor movement wave	1. starting a new chapter	2. the booming era	3. wind and rain years	1. the horn of the reform	2. regretting the footsteps	3. modern workers	1. the transition and the new path	2. the green engine
space													
content	people related	• thinkers and advocates • china's most important naval ship production base in modern times - fuzhou arsenal • china's first modern military industry	• ship repair and processing (1840-1895) • talent cultivation • china's largest modern military industry - jiangnan manufacturing general bureau • china's first government-managed steel enterprise - hangnan iron works	• initial development • wanton plundering (1911-1945) • golden age (representative enterprises and entrepreneurs) • national industry in shenyang • gradual decline (evacuation of coastal industries inland) • decay and contraction during the liberation war • development history of shenyang's first national industry - fengtian mint (shenyang machine bureau)	• shenyang • lin xiangjun	• industrial policies and directions • national economic recovery • transformation of capitalist industry and commerce • soviet assistance and the first five-year plan • china's industrial achievements • workers in the 1950s	• industrial policies and directions • Great Leap Forward • china's industrial achievements • the first car in China • first atomic bomb • the Dajiang of field was discovered • "Iron Man Spirit" and "Dajiang Experience" • industrial policies and directions (third front construction)	• adjustment and recovery • china's industrial achievements • first hydrogen bomb • first artificial earth satellite • the high-speed train • the first electrified railway • industrial policies and directions (third front construction)	• industrial policies and directions • china's industrial achievements	• advanced collectors and individuals	• policy adjustments • major industrial bases	• energy conservation and environmental protection • pharmaceuticals and biotechnology • high-end equipment manufacturing • new energy vehicles • new materials	
objects		• "Illustrated treatise on the maritime kingdoms" • model of the huangshi steamship - unveiling the dawn of modern chinese shipbuilding • hanyang rifle - manufactured by hanyang iron works, modeled after the german gewehr 88	• replica of the cannon from the fushan port fort • a section of rail from the china eastern railway (with rusted text and steel grade) • flag and arms badges of the south manchuria railway company (green obtained the management rights for the shenyang-changchun section of the china eastern railway)	• vertical belt drilling machine (1930s) • labels and items from private enterprises • fengtian mint • paper cutting machine (1930s) • biplane produced in Germany (1940s)	• magazine for workers • manual sewing machine (1940s) • camera used in photo studio (1940s) • American pipe wrench (1950s) • American open-end wrench (1950s) • Japanese open-end wrench (1950s)	• transformer (1958) • industrial magazine (Machine Manufacture, Volume II) • study note of a worker (1950s) • 102 hand brand razor (1950s) • interest credence of joint state-private enterprise (Shenyang First Machine Factory) • national emblem (Shenyang First Machine Factory) • hexagonal machine tool (produced during the period of Soviet assistance) • Red Flag II missile	• white spirit bottle marked with the slogan of the Great Leap Forward • notebook marked with the slogan of "Leap Forward" • tea mug (1976) • first issue of "Northeast Worker" (1955) • labor insurance/Wang Jilai deed book (1955) • tools and clothing used by drilling workers • interview with model workers • Chinese-made small lathe (1976)	• haircut products for people participating in the third-front construction (1970s) • transport and music score used by people participating in the third-front construction (1970s) • Chinese-made 25-inch color TV (1978) • series of books on third-front humanistic works • mini sewing machine (1970s) • Shanghai-made tape recorder (1975) • Chinese-made small lathe (1976)	• home-made camera series (1970s) • home-made wrist watches series (1970s)	• communication tools (dial-up phone, wireless phone) • foreign technical drawing introduced by Shenyang Tractor Factory (1980s) • honor booklets (1980s) • model of the oilfield • paper production line with chain-gate machine-ratery like similar roller process • Long March 5A rocket model (1:20) • Shenzhou 5 manned spacecraft model and spacecraft	• "future of the small town" • leading manned submarine model		
recipients	sense	■ ■ ■ ■ ■	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □	□ □ ■ □ □
design tools	graphics												
	light												
	sound												
	video												
	multimedia												

Figure 1 Shenyang China Industrial Museum Partitura. Diagram developed by the Authors.

theme		service unit	work group			model and seminar unit		life group					video unit
	location	reception room	labour union lounge	drawing room in 1990s	preparation room	model room	show gallery	drawing room in modern time	courtyard	study	children's room	hidden room	video lounge
space													
content		selecting the perspective of the audio guide (father or son)	- workers' cultural life - workers' entertainment life - collective honor	drawing room in the 1980s-1990s (work environment)	blast furnace operation in the 1980s-1990s (work environment)	Shougang's No. 3 blast furnace model display	- Shougang's collective honor - Shougang's individual honor	drawing room in the current technological environment (work environment)	family balcony in the 1980s-1990s (family environment and life)	- family study environment in the 1980s-1990s - family living environment in the 1980s-1990s	children's bedroom in the 1980s-1990s (lack of documentation)	children's inner world	lack of documented records
objects			  	  						  	 	 	
recipients	sense smell listen see touch taste	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □	□ □ □ □ □		□ □ □ □ □	
design tools	graphics light sound video multimedia												

Figure 2 Steel Home Still exhibition Partitura. Diagram developed by the Authors.

A hybrid approach of inductive and deductive coding procedure (Fereday & Muir-Cochrane, 2006) is then used to define three pre-established parameters and themes based on research objectives and literature. Thematic analysis categorized exhibition data from the

“Partitura” (content and exhibits) into meaningful themes under each parameter. Then, content analysis and image analysis are used. This mixed approach identifies narrative focus and strategies.

1. Narrative Themes and Strategies: Examines how curatorial strategies and design shape storylines and assesses whether they evoke emotional responses or support inclusive storytelling, with attention to reconciliation.
2. Individuals and Workers Representation: Analyzes how exhibitions interpret worker identities and whether they emphasize experience, emotion, and social roles to humanize the industrial era.
3. Technology Narratives and Human Interaction: Analyzes how exhibitions present industrial and technological themes and assesses design strategies that make technological history more relatable and emotionally engaging with human experience.

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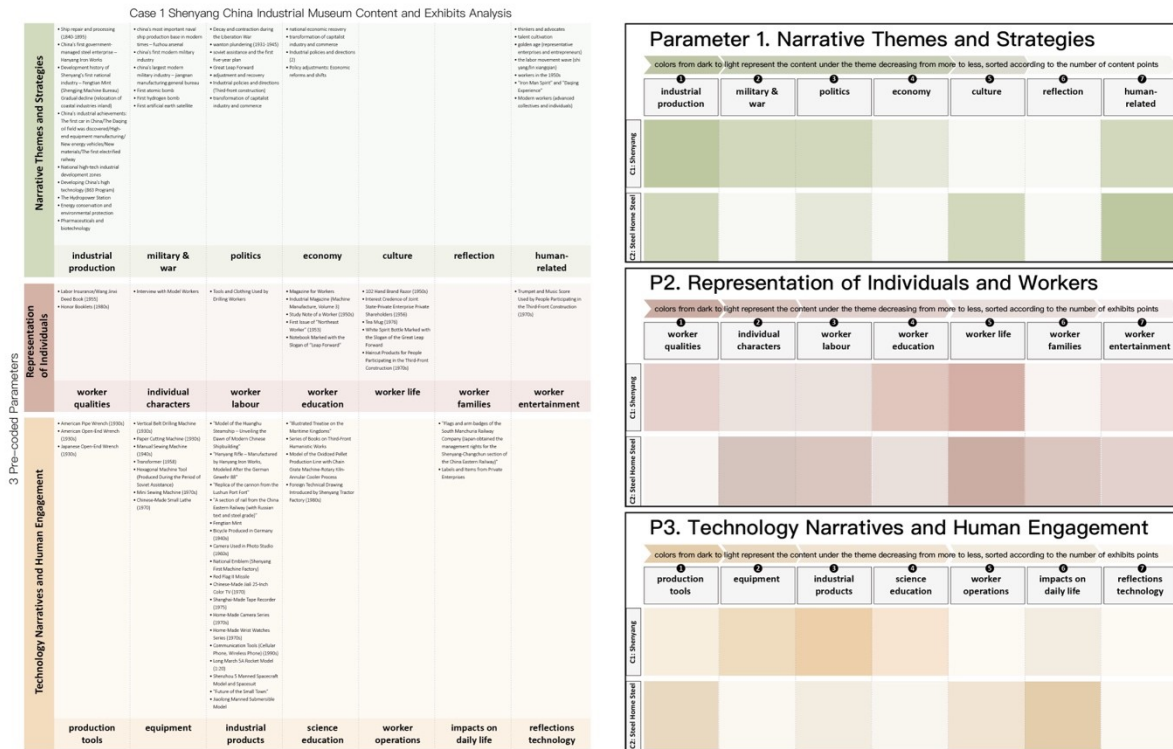


Figure 3 Content and exhibit analysis framework of the Shenyang China Industrial Museum: each parameter includes the identified seven themes, and the right side presents a one-to-one comparison of the three parameters between the two cases. Colors from dark to light represent the content under the theme, decreasing from more to less, sorted according to the number of content/exhibits points. Diagram developed by the Authors, starting from the ones developed by Woo and Ki-Young's (2025).

4. Case study

4.1 Overview of the exhibitions

4.1.1 Shenyang China Industrial Museum: State-centered narrative mode

The museum has reused the original industrial infrastructure of the Shenyang Foundry (the largest foundry in Asia, built in 1939). The General History Hall of the museum tells China's industrial history chronologically, from semi-colonial exploitation to modern industrial achievements (from the section "Century of Stagnation" through to the "Rise of the East"), entitled "Toward Industrialization". The exhibits of machinery, technological innovations, historical documents, and visual images highlight key historical phases—industrial recovery, socialist construction, and modernization, including breakthroughs in military-related products like the Hongqi-2 missile, state-led initiatives like the First Five-Year Plan and Third Front construction, as milestones in this transformative journey and culminate in China's rise as a manufacturing power. These elements collectively celebrate China's state-driven industrialization success and serve as a paradigmatic example of Chinese industrial museum narratives.

4.1.2 Steel Home Still exhibition: Personal perspective and one family-centered narratives in international dialogue

The Steel Home Still exhibition (铸忆 [casting memories]), presented at the 2018 Venice Biennale, (Curators: Bo Hongtao/CCTN and Wang Zigeng/Pills), showcases the urban renewal achievements of Shougang Park and the Shougang No. 3 Blast Furnaces Museum. Unlike the previous case's state-centric narrative description of representative industrial exhibits and events, this case focuses on the asynchronous everyday life and work of two generations of Shougang community residents (Wang, 2019), using a semi-fictional story between a father and son, to immerse international audiences in the realities of generational tensions and the collectivist life model of state-owned enterprise workers. Written by Jiang Fangzhou, a young and popular writer with experience in a similar state-owned enterprise community. The specific plot is as follows:

“The son, born and raised in a Shougang family and curious about the outside world, defies his father's wishes to study abroad after high school and settles overseas. However, he unexpectedly gains the ability to travel through time, experiencing the life he might have had if he had followed his father's wishes and become a Shougang engineer.” (Wang, 2019)

The setting and characterization of this story script are the main bases of the exhibition. The audience is encouraged to see beyond the surface of time and space and to relate to the lives and experiences of others through the narrative, scene, sound, and multimedia design.

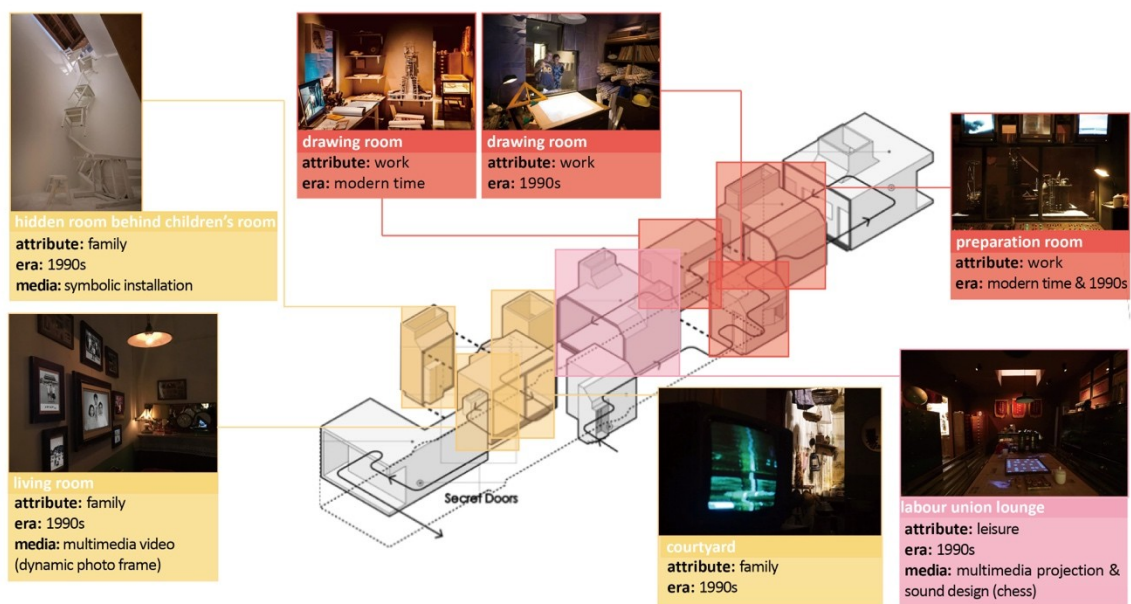


Figure 4 Exhibition scene analysis diagram. Each space represents a part or scene of daily work and life. Photos and axonometric diagram retrieved from <https://www.pills.com.cn/works/1600465976292413440>. © Pills Architects, inc. power by Stoyard.

The exhibition employs immersive spatial narratives, juxtaposing past and present settings through multimedia elements and symbolic spaces. To illustrate, the son's inner world is

symbolized by a room hidden behind a heavy wardrobe, a symbol of hidden conflicts and aspirations. White chairs in unstable positions further emphasize the son's struggle against traditional norms (Wang, 2019). At the entrance, visitors can choose the perspective they want to hear (father or son). The exhibition's background sound is composed of superimposed sound effects (environmental, ambient, and character voices, including the music of the group calisthenics and radio news) that resonate with history, the flow of time, and memory. Dynamic projection technology makes static exhibits come to life. For instance, in the son's diary and the chessboard, the handwritten text appears to be recorded in real time, and the chess pieces move along with the background sound of the father-son debate. The combination of sound, visuals, and the design of the physical scenes makes the exhibition experience rich in sensations and a real-life experience that connects individual and historical stories.

4.2 Case analysis: Narrative themes and strategies

4.2.1 State-centered priorities and selectivity in the Shenyang China Industrial Museum

Given its lack of innovation in exhibition design, the exhibition's narrative strategy is achieved through content selection. The Shenyang China Industrial Museum's narrative focuses on industrial production, military achievements, and political decisions to construct a linear narrative of national industrialization. Among the demonstrations, especially the success of the defense industry, including the creation of atomic bombs and the launch of artificial satellites, are highlighted, which underscore national strength and self-reliance. The exhibition inspires people with a sense of national security and pride, trying to reinforce their identity and beliefs.

Even though the exhibition addresses numerous topics, it places excessive emphasis on industrial and military accomplishments (see Figure 3). And the exhibition avoids addressing the environmental and social costs of industrialization, resource imbalances, and the sacrifices of workers and researchers. The presentation of controversial policies is limited to early historical events unrelated to the current government. Other controversial policies and sensitive topics, such as the large-scale layoffs during the 1970s economic reforms, are shortened and weakened (see Table 1). This imbalance in the narrative prevents it from fully demonstrating the complexity of industrialization and social transformation. Such a choice risks overshadowing a broader reflection – one that also takes into account the less positive aspects – to present a generally positive social image at the expense of fairness and authenticity. As Halbwachs (2020) pointed out, the social construction of collective memory often serves the interests and identity of the group. It does not provide a comprehensive or objective account of history.

Moreover, the exhibition failed to appeal to younger generations. The elderly visitors can be nostalgic or even shed tears upon seeing the national emblem or the exhibits of the Third Front construction. Young, inexperienced visitors do not connect with exhibits and such historical surroundings (see Table 2). Based on observations of the design elements and the use of tools at the site, it appears the exhibition did not intentionally employ design tools, such as multimedia and interactive elements, to evoke collective memories or trigger emotional resonance among the audience.

4.2.2 Personalized narratives and immersive experiences in Steel Home Still exhibition

The exhibition challenges the classical industrial history storytelling, usually centered on national success, by focusing on the daily lives and emotional experiences of ordinary workers. Its narrative strategies include in-depth interviews during the preparatory stage. It presents personal stories through reproductions of life scenes and the design of multimedia and soundscapes (see Figure 2). The curatorial team interviewed several families from Shougang in depth. They organized the exhibition's core narrative around life stories and personal items (Wang, 2019). This approach completely appreciates the importance of ordinary people to industry. It also naturally avoids emphasizing the great national story. The respect and recognition of individual workers are part of the process. For example, interviews will allow respondents to tell their stories and share their stuff, helping them re-recognize their own value and significance.

The design clearly focuses the narrative on the daily environment and experiences of workers and their families (see Figure 3). All multimedia design is used in content and spaces related to families. It re-presents personal experiences through real-life scenes rather than grand industrial settings. Such a design enables visitors without industrial memories to connect easily with the content. The design team chose ordinary people as main characters, which can further shorten the distance between the exhibition and the audience and evoke emotional resonance.

Soundscapes and multimedia design are key features in the exhibition. The design skillfully expresses collective memories and individual emotions through sound. For example, the chatter among workers in the work club, music during physical exercise, and intentionally interrupted news broadcasts suggest the suppression of individual lives by collectivism in the 1980s (Wang, 2019). This adds an auditory sense layer to the storytelling. And it guides the audience to reflect on the relationship between the individual and the collective during industrialization. Meanwhile, the design uses multimedia technology to strengthen the narrative effect. The combination of soundscapes, projections, and dynamic exhibit designs creates an immersive experience for visitors, improving the sensory engagement. The exhibition replaces static displays and preaching with scene-setting. Viewers first experience, then understand, the workers' past lives, work, and emotions.

4.3 Case analysis: Representation of individuals and workers

4.3.1 Selective and silenced voices in the Shenyang China Industrial Museum

In the section on workers, the exhibition continues its selective narrative (see Figure 3). Although the exhibits include items related to workers' lives and studies, the selection of these daily items mainly follows a political ideology and official perspective. Daily items such as water cups and notebooks with political propaganda slogans, labor insurance policies, and study notes reflect the improved working and learning conditions in the new China. It shows that the focus remains on emphasizing the achievements of the national industry and on shaping the national ideology, rather than on presenting the lives and work of workers or their significance to industrial development.

The portrayal of workers' social roles, emotional dimensions, and personal sacrifices are weakened. For instance, the economic reforms that led to mass layoffs are conveyed only through layoff certificates and vocational training certificates, with limited information in the audio guide (see Table 1). The identity of workers as parents, spouses, or community

members is completely missing. Such decisions led to a limited understanding of the worker group. This approach simplifies workers' lives, neglecting their individuality and undermining their sense of identity (Feng, 1997; You, 2006).

A case in point is the figure of the model worker Wang Jinxi,³ who illustrates how the 'worker' is used as a tool for ideological guidance and control. The flag, helmet, and tools of his team highlight his group identity and producer role (see Figure 5). The introduction in the audio guide only mentions his famous propaganda quote: "I'd rather sacrifice twenty years of my life to secure the oil field." Without mentioning the hardships he endured, including harsh working conditions and unfair treatment during the Cultural Revolution. The same choice is reflected in the multi-screen installation of interviews with model workers without a voice. Visitors can only see the identities and achievements of the workers' representatives (see Figure 6). This design choice reduces workers' personal stories to silent, symbolic images, ultimately failing to address the exhibition's narrative deficiencies.

We can speculate that the exhibition supports and reinforces a symbolic narrative aligned with the state's positive image ideology by the observed exclusion of workers' individuality and actual experiences. This glorifies the idealized image of self-sacrificing commitment and corporate spirit while overlooking the emotional and social aspects of workers' lives. This selective approach not only prevents the audience from forming meaningful emotional connections but also limits the exhibition's ability to foster mutual trust between the state and the public.

³ Wang Jinxi (1923-1970) was a famous Chinese oil worker known as the "Iron Man". He is one of China's petroleum industry pioneers and has made outstanding contributions to the development and construction of the Daqing oilfield. Wang Jinxi led the drilling team to Daqing Oilfield in the 1950s, overcoming difficult conditions and technical challenges. His famous words, such as "I would rather live twenty years less to fight for the oil field!" and "When the oil workers roar, the earth shakes three feet," sum up the ethos of that era.

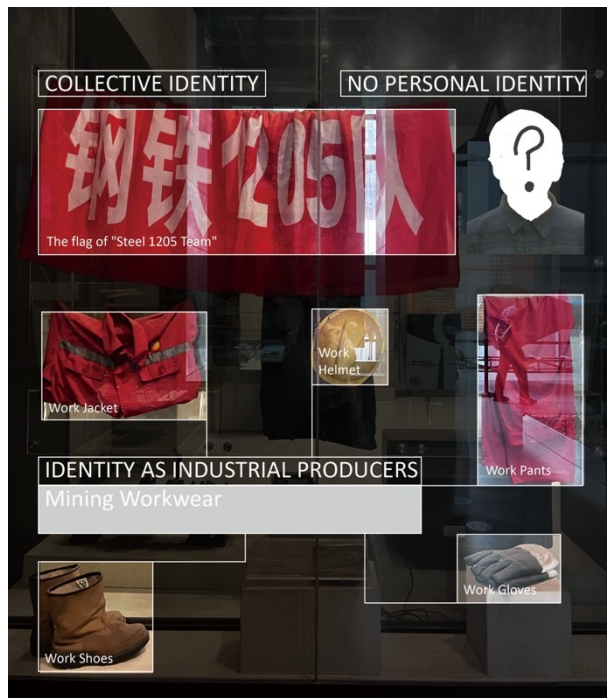


Figure 5 Diagram of the exhibits in the Wang Jinxi display cabinet. The exhibits consist only of the team flag, mining work uniforms, and tools, and there is no content related to individual work outside of the team's identity. Diagram developed by the Authors.

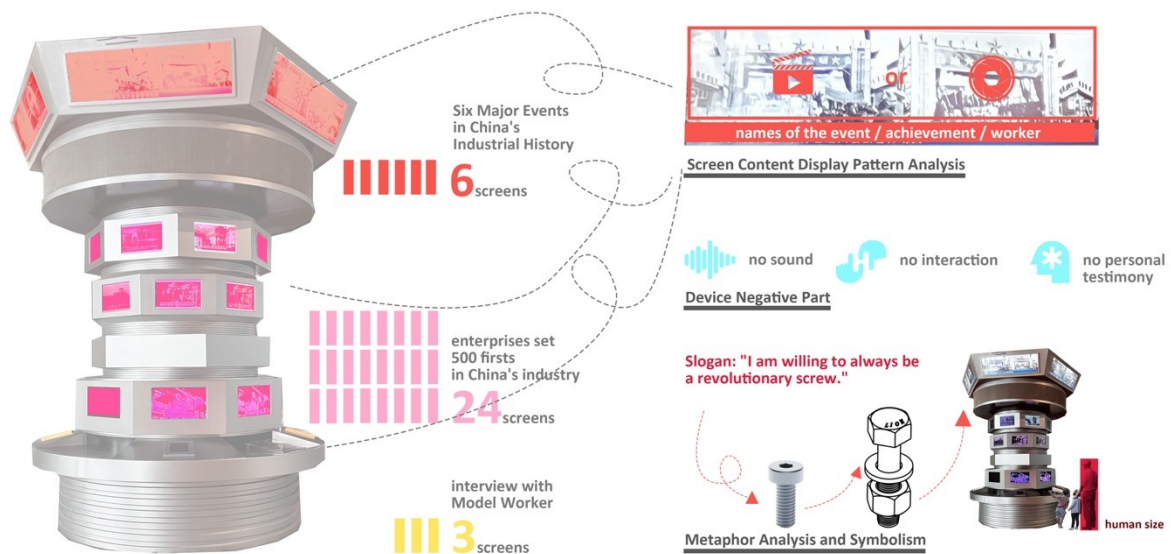


Figure 6 The model worker's installation content and form analysis. In China, the common "screw," which holds significant symbolic meaning, is the source of its form. This metaphor is widely used in factories, schools, and military units, encouraging people to be like screws, remaining stable, solid, and dedicated in their respective positions. As an interview device, most of its screens display major events in China's industrial history and the enterprises involved, rather than showing the workers themselves. The video itself has no sound. All screens maintain the same pattern. Videos or pictures are combined with events, the names of the enterprises or labor models, without audio, subtitles, or interaction. Diagram developed by the Authors.

4.3.2 Humanizing workers and emotional connections in Steel Home Still exhibition

The exhibition presents the multiple identities of workers as ordinary people—laborers, family members, and independent individuals—using spatial and scene design (see Figure 4). Working areas are depicted in scenes such as the furnace preparation room and the drawing room, whereas family life and entertainment are emphasized in the living space and the workers' club. This composition takes advantage of everyday life settings to demonstrate their numerous roles in production, family life, and personal life. This reveals that they are individuals with emotions and lives far more than gears in the industrial system. Thus, the exhibition avoids simplifying and stereotyping workers as seen in conventional national discourse.

The exhibition unveils the evolution and transformation of workers' ideas and lives by focusing on two generations. It places scenes from different eras to highlight these changes. Items such as the son's diary and the chessboard render the workers' images concrete and real. The sound design emphasizes generational contrast and emotional conflict. Dialogue and quarrels between father and son in the living room reveal their clashes of thought, shaped by different social, cultural, and economic contexts. The exhibition makes clear that the image of workers is never static, and these moments suggest that social change influences individual thought.

The individuals' emotions and memories are recorded and conveyed through multimedia technology. This photo wall documents and reflects the passage of time and the continuity of family memories through a dynamic display design of family photos spanning over 20 years. The son's diary is projected with the ongoing recording process video, providing a real-time depiction of his emotional fluctuations and personal experiences. Images of the father and son playing chess together, the shared entertainment, and audio of their quarrels, capture the complex emotions behind generational conflicts. Through common experiences like generational conflict, father-son quarrels, and shared items, it evokes the audience's memories of their own lives and families. Thus, the exhibition leads the audience to connect personally with the narrative and feel a deeper resonance.

The design team adopts delicate scenes and emotional narrative arrangements to restore workers from symbols of national industrial achievements to living individuals with flesh and blood. By emphasizing workers' real lives and emotions, the exhibition reflects on the subjectivity of individuals in the industrialization process. We can glimpse this from the interview with the designers: "The history of Shougang is composed of each Shougang person" (IDEAT, 2018). This can also be seen as a non-direct expression of the exhibition team's reflection on the neglect of individual experiences in previous national narratives.

4.4 Case analysis: Technology narratives and human engagement

4.4.1 Overshadowed by technological triumphs in the Shenyang China Industrial Museum

The exhibition showcases the breadth and achievements of China's industrial technology by covering a wide range of products, from tools and mechanical equipment to industrial products. Military-related items such as rifles, cannons, and missiles dominate the industrial products category (see Figure 3). Although objects such as bicycles and tape recorders aim to bridge the gap between technology and everyday life, they do not explore how these technologies influence workers, consumers, or other social aspects. The exhibit labels for

industrial equipment provide solely technical parameters. The exhibition of foreign tools indicates that China is adopting and adapting industrial technology. However, it is not shown how the tools and equipment improve or challenge workers' operations. Some cultural signs strive to render the story more human, such as flags and badges, but their number and scope are limited. Thus, it fails to address the broader social dimensions of industrialization.

The narrative remains centered on industrial items and intentionally neglects how technological advancements interact with workers' roles and production processes. Their complicated social and cultural background is overshadowed by the name of technological victory, which is the story behind these materialized archives and their multi-perspective significance. And these choices will further weaken the audience's understanding of technology through the role of humans. This narrative choice also avoids critical reflection on the technological progress's ethical, social, and environmental impacts. Thereby, it fails to provide a comprehensive insight into how industrial development reshapes society and human values, and reduces the narrative to a one-sided celebration of industrial progress.

4.4.2 Humanizing the technology in Steel Home Still exhibition

In the exhibition, the technical narrative is skillfully integrated into the story, serving as an auxiliary tool for human and emotional expression. The exhibition demonstrated how technical narratives can be brought into the embodied audience experience through scene design. It avoided emphasizing technical achievements and abstract statements. Through juxtaposing scenes from two periods in a functional space: one with 1990s manual drawing and mechanical operation, and another with current computer drawing and automated machinery (see Figure 7). This design integrates technological progress into an intuitive presentation for the audience. The furnishings are very well detailed, including both manual drawing materials and computer devices, as well as traditional mechanical tools and automated machines, reflecting the useful contribution that technology makes to the everyday life and work of common people. Technology transforms workplace conditions and equipment, thereby influencing workers' lives and work experiences.

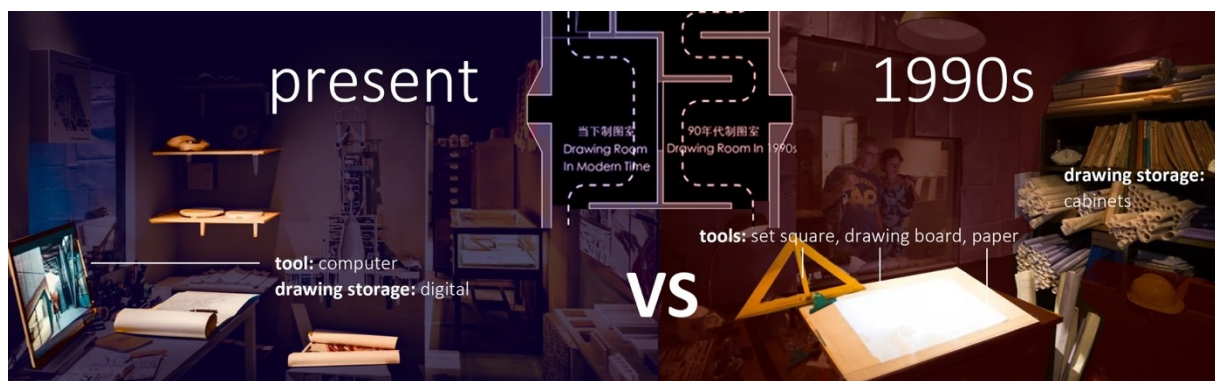


Figure 7 comparative analysis diagram of the drawing room. Juxtaposed scenes of the drawing room from two different periods show the changes in tools used for drawing over time, which also lead to spatial changes—storage space is reduced, and the space becomes more open. Diagram developed by the Authors.

The core of the strategy lies in its concrete, detailed scene creation. Technological changes are no longer abstract; they will be seen and experienced in the development of working conditions and work tools. The designs of both scenes display technological progress while

also showing how technology serves workers' needs. Thus, the exhibition makes clear that technology exists to serve humans and avoids the abstraction and dehumanization of the technical narrative. This narrative approach helps the audience intuitively understand technological progress and its impact on humanity. It also guides them to rethink technology's role in human activities. The design reinforces the social value of technology and reflects on the tendency in traditional technical narratives to ignore human subjectivity, giving technological development a humanized meaning.

5. Findings and discussion

A comparison of the two selected case studies reveals some strategies that are of both theoretical and practical value: the use of person-centered daily narratives and emotional cues as a bridge across generations and cultures; the realization of emotional healing by presenting workers' multiple identities; and the humanization of technological narratives through integrating technology into the design of daily life scenarios. These methods clarify how narrative design can strengthen inclusiveness and emotional resonance in industrial exhibitions, and offer specific guidance for future exhibition design.

5.1 Human-centered daily and emotional narratives as bridges across cultures and generations

Using daily-life scenarios and emotional cues in exhibition narrative design can help close content understanding gaps among audiences of different generations and cultures. This approach also breaks down the grand, abstract issues of traditional industrial narratives and triggers emotional resonance. For example, the case Steel Home Still centers on ordinary family scenes and objects, so, in the international context of Venice, it showcases the workers and industrial memories of Beijing's Shougang to global audiences, verifying the viewpoint that the exhibition creates a sense of participation through spatial design and interactive technology (Kossmann & de Jong, 2010).

Emotional and everyday content is easier to perceive and transfer due to its commonality and can serve as a medium and bond for exhibition narrative, thus transcending cultural and ideological boundaries and exploring core issues. As Brückner (2010) stated, exhibition design stimulates critical thinking and multiple perspectives through scenes. The narrative strategy of Steel Home Still combines scene design with emotional cues to establish a more intimate connection, potentially breaking the constraints of ideological and cultural boundaries for visitors. This method can attract a wider audience in the future, especially young and cross-cultural audiences, enhance emotional connection, and enrich narrative diversity. Furthermore, the exhibition provides international audiences with an entry point into understanding Chinese workers and industrial memories.

5.2 Reconciliation people by actively presenting workers' multiple identities

Exhibition can concretely present the multiple identities, rich relationships, and emotions of workers by conducting initial interviews, recreating the activity scenarios of workers as laborers, family members, and social individuals, and combining daily items with multimedia technology to present the plot, and coordinating with sound design to perfect the entire

immersive narrative and experience environment. This method could enhance the authenticity of the exhibition content, narrowing the distance between the audience and former industrial workers and effectively laying the groundwork for easy emotional resonance that can facilitate the effectiveness of subsequent narratives. Thereby, it helps re-establish a deep understanding and a new emotional connection between the audience and those in history who shaped the new country.

Moreover, it transforms the exhibition into a tool for social intervention, extending its role beyond communication to provide participants with opportunities for emotional healing and identity recognition. Workers gain respect and a renewed sense of value when they are treated as independent individuals and actively involved in the process, such as by listening to their stories, sharing their memories, and displaying their personal items (Silverman, 2003). This process also helps repair the collective trauma caused by institutional reforms, layoffs, and other changes (Li, 2009; You, 2006; Guo, 2008; Huang & Ma, 2010).

Thus, this narrative strategy gives industrial heritage a role in healing social relationships. This is a responsibility towards history and a commitment to the future, making the audience believe that individual contributions and experiences are recognized.

5.3 Humanizing technology and industrial narratives with everyday lives scene design

The experience of technological development can be achieved through the selection of functional activity scenarios that directly indicate technological development, by placing technological exhibits in scene designs in relation to everyday life and work, and by simultaneously presenting scenes of various times. Thus, the technological narrative can be separated from abstract achievement displays and transformed into specific narratives closer to human experience. Such a strategy also breaks the linear perception of time and may enable the audience to construct personal narratives. The audience takes a proactive role by reflecting on the impact of technology on life and identity as they travel through the experience.

This critical study focuses on just two case studies – which are, however, paradigmatic – to present an in-depth comparative analysis; yet it bases its considerations on the study of a broader sample of museums and exhibitions, which it intends to expand in the future to capture more narrative strategies across different cultural contexts. Furthermore, the closure of the Steel Home Still exhibition prevents the study from collecting data on audience behavior, thereby limiting its ability to directly assess the effects of its narrative strategies. Future research should explore presentation and design methods from a multidimensional perspective of collective industrial memory to construct a narrative increasingly capable of promoting social dialogue and reconciliation regarding unresolved issues linked to traditional industrial development, by broadening the diversity of case studies, integrating audience research data, and applying interdisciplinary approaches.

6. Conclusion

This study focuses on establishing emotional connections and telling inclusive stories of workers and industries through human-centered exhibition narratives. The research found that although a national-centered narrative can strengthen national identity, it neglects workers' individual identities and emotional dimensions, resulting in an imbalance in the narrative. In contrast, Steel Home Still adopted a more inclusive, emotionally profound narrative approach through the restoration of daily life scenes, multimedia technology, and sound design. The study also summarized human-centered narrative strategies. These strategies include daily narratives, emotional bonds, reenactment of workers' multiple identities, and humanization of technical narratives. Together, they provide specific references for future exhibition design. At the theoretical level, this study expanded the emotional connection and audience meaning-construction capabilities of exhibition narratives. It achieved this by incorporating daily narratives, emotional threads, and the juxtaposition of time and space. It endowed the industrial heritage narratives with the function of repairing social relationships. To some extent, it broke through the limitations imposed by ideology and cultural background on the transmission of content, expanding the discussion of exhibition design as a communication tool.

7. References

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