

Perceptions of Landscape Installation Art on the Emotional Experience of the Elderly: A Comprehensive Literature Review

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Abstract

Population aging has become a global trend. As an important place for daily interaction and leisure for the elderly, the quality of the environmental space of urban parks profoundly impacts the life experience and well-being of the elderly. In recent years, installation art, as an important element in landscape design, has gradually become a key means to enhance the attractiveness of park space due to its interactivity and immersion. However, current research mainly focuses on the functionality and ecological benefits of urban parks, and research on how landscape installation art can meet the needs of the elderly and promote their emotional experience and social interaction is still relatively limited. Therefore, this study systematically combs through the relevant literature on urban parks, landscape art installations, and the needs of the elderly, constructs a comprehensive conceptual framework to fill the existing research gaps, and provides theoretical support for the planning, design, and management of parks. The study aims to enhance the elderly's experience of using landscape installation art in urban parks, thereby improving their quality of life and happiness and providing a reference for future related research.

Keywords: Elderly, Landscape Installation Art, Emotional Experience, Perception

Introduction

The global population is aging accelerated, with the number and proportion of people aged 60 and above increasing significantly. In 2019, the global elderly population reached 1 billion and is expected to grow to 1.4 billion by 2030 and 2.1 billion by 2050 (WHO, 2019). This trend has posed new challenges to social structure, public space design, and the well-being of the elderly. It has aroused the attention of various countries on how to improve the physical health, mental state, and social participation of the elderly (Chodzko et al., 2009). Against this background, the World Health Organization (WHO) proposed the concept of "active aging" in the 1990s. It published the research results of "Active Aging: From Argumentation to Action" in the early 21st century, which promoted the transformation from theory to practice and provided important guidance for the global response to aging issues.

Among the various strategies to improve the quality of life of the elderly, the design and optimization of public spaces are considered key factors. In recent years, landscape art installations have gradually attracted attention as a public space element combining functionality and artistry. These installations enrich the urban landscape and are regarded as important media for promoting social interaction and stimulating emotional resonance. Studies have shown that the art environment has a positive effect on individual mental health and social interaction (Kaplan & Kaplan, 1989; Ulrich, 1991), but existing research mainly focuses on the aesthetic value, urban cultural expression, and spatial experience of landscape art installations (Thompson, 2011; Cartwright, 2018). There is still a lack of systematic discussion on how it affects the emotional experience of the elderly, especially how to meet the specific emotional needs of the elderly.

With the increasing diversification of the emotional needs of the elderly, it is of great theoretical and practical significance to explore how landscape art installations affect the emotional experience of the elderly through design characteristics (such as interactivity, dynamism, immersion) and usage methods (such as personal immersion, social sharing). Therefore, this paper systematically sorts out the emotional needs of the elderly, the design characteristics of landscape art installations, and their interrelationships through a comprehensive literature review to make up for the shortcomings of current research and provide theoretical support and practical reference for future park planning, landscape design and construction of age-friendly public spaces.

Literature Review (Theoretical Framework)

Definition of Elderly People

Age is an important indicator for defining the elderly. The World Health Organization (WHO) defines the elderly as 60 and above. According to the WHO's overview of aging, the number and proportion of people aged 60 and above in the global population are increasing rapidly. Age is an important indicator for studying the characteristics of the elderly population. In China, the Law on the Protection of Rights and Interests of the Elderly stipulates that the starting age standard for the elderly is 60 years old (Pang et al., 2023); that is, all citizens of the People's Republic of China who are 60 years old or older are considered elderly.

Most importantly, the definition of old age and the elderly should be considered based on the specific context of the times. Due to the vast differences in the economic and technological development levels of different eras, the definition of the elderly and social norms in different eras will never be static (Lou, 2017).

Factors Affecting the Use of Landscape Installation Art by the Elderly

Environmental Factors

Promoting physical activity and mental health of the elderly is related to good natural environmental factors (Li & Lian, 2020). Landscape installations are a good way to provide a safe space for the elderly to engage in leisure activities, such as walking, exercise, and social activities (Zhong & Huang, 2019; Zhao et al., 2021). Safety issues in the environment are the most concern for the elderly. Insufficient light and some unsafe infrastructure in the area will prevent the elderly from using installation art for entertainment (Kimic et al., 2023; Petrunoff et al., 2021). Therefore, the maintenance and cleaning of the space and the leisure activity space are crucial to creating an attractive environment for the elderly (Levinger et al., 2021).

Landscape installation art needs to fully consider the safety and entertainment of the elderly in the space.

Social Factors

Social interaction, community service, and social cohesion all have an impact on the leisure activities of the elderly. For example, social activities, including religious activities, fellowship, and leisure activities, have been identified as control factors that reduce suicidal ideation in the elderly (Jeong & Chun, 2019). Participation in social, emotional, active, and productive activities also positively impacts depression and quality of life in community-dwelling elderly (Jeong & Park, 2020).

According to the English Longitudinal Study of Ageing, for instance, people who were socially isolated were more likely to be sedentary and spend less time exercising (Schrempft et al., 2019); other research indicates that older people who live alone experience less social support and engage in less physical activity than those who live with others (Yu et al., 2018). Physical activity is increased by social connection, ensuring the physical capacity required to continue social activities. Therefore, emphasizing the social component may promote physical activity (Kosteli et al., 2016).

Therefore, landscape installation art features social factors such as social interaction, community participation, and social cohesion, which can increase social communication and physical exercise in the elderly.

Personal Factors

The leisure activities of older individuals are influenced by a range of environmental factors, including age, gender, income, education level, health status, residence status, and health self-assessment" (Zhang et al., 2017). Additionally, "psychological aspects such as personality, needs, motivation, attitudes, The personality, needs, motivations, attitudes, and psychological characteristics of the elderly all have an impact on their leisure activities (Zarinejhad et al., 2024). The loneliness, social interaction, physical exercise, mental health, and essential demographic characteristics of the elderly also affect their life satisfaction and leisure activities (Ra, 2013). Therefore, landscape installation art needs to improve the emotional experience of the elderly by understanding the influence of different aspects of characteristics, thereby having a significant positive impact on the psychological and physical health of the elderly.

Landscape Installation Art

The Concept of Landscape Installation Art

The concept of installation art originated from "The Art of Assemblage." Its core idea is to reconstruct ready-made objects and give them new meanings through dislocation, suspension, segmentation, collection, and superposition. This art form was first called "assembly art" and gradually became an important form of postmodern Art in the late 1950s (He Wanli, 2008; Arnason, 1988).

The core concept of installation art is "concept first," starting from the subjective concept of the creator, with "site, emotion, and material" as the primary expression content, aiming to explore the emotional dialogue and collision between people, objects, and space. Installation

art usually breaks through the limitations of traditional art forms and integrates various forms of expression, such as film, drama, sculpture, and painting. Its material selection is diverse, and any insignificant object in daily life may become the protagonist of the creation. Through the innovation of form and material, installation art brings visual impact to the audience and strives to mobilize multi-sensory experience and stimulate the audience's feelings and thinking.

In recent years, installation art has gradually changed from its early site-specific roots to become more project-based, collaborative, and discursive. A perspective that transcends traditional art forms can be provided by using other senses, such as vision, touch, hearing, and scent, to engage the audience. The audience's connection to the artwork during the entire creative process is crucial in installation art. This conversation becomes a valuable source of knowledge construction and enhances the experience process. Petersen (2015). As Ilya Kabakov said, installation art is an art form that transforms from objective knowledge to subjective experience. This transformation is the key to its difference from traditional Art.

Public Art is the specific application of installation art in public space. Its forms include sculptures, murals, landscape sketches, urban furniture, and sign design, emphasizing the relationship between Art and public space and the public (Kelly, 2010; Zhang Qingfang, 2007). Against this background, landscape installation art came into being as a product of the combination of installation art and landscape design. Landscape installation art combines the creative techniques of installation art with landscape design characteristics. It has the conceptual and expressive nature of installation art and public and outdoor characteristics because it is placed in outdoor public spaces. This form emphasizes the integration of Art and the natural environment, providing the audience with a rich sensory experience through creative design while meeting the functional needs of the public (Petersen, 2015; Kelly, 2010).

Characteristics of Landscape Installation Art

According to the time dimension, landscape installation art can be divided into temporary and long-term categories (Walt et al., 2024). At present, temporary landscape installation art is more widely used. Temporary means short-term and informal, and at the same time, reflects the characteristics of flexibility. Such works are more expressive in space shaping and visual expression. Designers can use ready-made materials with poor durability to fully stimulate creativity and form works full of personal emotions and unique styles.

Interactivity

For example, many installation artworks use sensors and digital technology (VR) to allow viewers to experience the visual or auditory effects of the work through movement or sound, thereby enhancing the audience's sense of participation and immersion (Wang & Wu 2023). Additionally, most participants think physical exploration will improve the audience's aesthetic involvement in multimodal interactive exhibitions. Jacucci et al. (2009) found that art installations promote social connections and improve emotional and physical experiences by integrating physical exploration. These interactive characteristics combined suggest that landscape installation art can inject more vitality and appeal into outdoor environments at the visual, auditory, and physical levels through multi-dimensional sensory engagement.

Dynamic

Dynamism is an important feature of landscape installation art, reflected in the significant improvement of audience experience through the deep integration of technology and Art. Yuan Zhijun (2023) pointed out that "the multimodal interactive design of intelligent landscape equipment can significantly improve the experience of the elderly in seaside parks." Hanna and Parvaresh(2022) emphasized that "the application of digital technology, especially multi-sensor fusion technology, in public art design has promoted the construction of modern urban landscapes."

The addition of technology has injected new dynamic expressiveness into landscape installation art. For example, Wang & Cai (2022) mentioned that "the combination of artificial intelligence and wireless communication technology enhances the interactivity of art installations through real-time adjustment of equipment according to audience interaction." According to Kim et al. (2018), "interactive lighting installations play an important role in promoting community awareness and belonging."

The dynamic interaction of light and shadow is equally crucial for creating mood in landscape paintings. Participants' spatial perception is influenced by the relationship between light and darkness (Edensor, 2017), and the contrast between light and darkness can enhance people's enjoyment of nocturnal landscape installation art by offering a rich sensory experience (Sumartojo, 2022). Using modern LED technology to produce dynamic lighting effects and color changes can enhance the aesthetic appeal of landscape installation art (Zhang & Huadong, 2024).

Immersive

Immersion is the most experiential feature of landscape installation art, which is important for social participation. Well-designed outdoor play facilities can help children socialize while enhancing their sense of immersion and exploration (White, 2013). Designs that meet the needs of children can also meet the needs of the elderly. Outdoor play areas can improve mental health and strengthen interpersonal relationships. Landscape facilities can promote social cohesion and community participation and can serve as a link between mental health and artistic expression.

Landscape installation art design needs to meet the needs of different users and ensure inclusiveness. In addition, combining indoor and outdoor positioning systems to improve personal navigation skills (Liu & Chen, 2018)) can improve the accessibility and practicality of landscape installations while meeting the needs of various users. Landscape installation art can be combined with positioning systems (Liu Zhijun & Chen Wenjing, 2018) to improve the accessibility and practicality of the installation, meet the needs of different users, and incorporate inclusive design, thereby enhancing the social influence of landscape installation art.

Mallette et al. (2024) also underlined that one of the main ways to achieve environmental sustainability is through outdoor recreation's role in fostering a bond between humans and nature. It can be seen that landscape installation design incorporating sustainable practices is interactive and supports ecological protection and environmental responsibility.

Emotional Feeling

The situated experience approach views the brain as a coordinated system that flexibly interprets and infers events in the current context using information captured in previous contexts and stored in memory. This process dynamically shapes immediate responses through perception, coordinated action, regulation of the body, and organization of thoughts (Glenberg, 1997; Barsalou, 2003, 2009; Aydede & Robbins, 2009; Mesquita et al., 2010; Barrett, 2013). In recent years, cognitive research (such as episodic memory, semantic memory, visual object recognition, and language comprehension) has increasingly adopted a context-oriented perspective to explore the operating mechanisms of the human mind (Zwaan & Radvansky, 1998; Barsalou, 2003; Bar, 2004; Yeh & Barsalou, 2006; Mesquita et al., 2010). In contrast, traditional emotion research tends to view brain function as a "stimulus-response" reflex mechanism. This approach assumes that the brain responds to environmental demands simply, stereotyped (Raichle, 2010). Basic emotion theory holds that specific events (i.e., stimuli) trigger stereotyped responses in the brain and body, such as emotions such as fear, disgust, anger, sadness, and happiness (Tracy & Randles, 2011). Nonetheless, studies have revealed notable variations in the behavioral, physiological, and brain patterns linked to different emotion categories (Barrett, 2006; Lindquist et al., 2012). Alternative theories (like psychological constructivism) support a contextualized approach to explain the variety of emotional experiences and the shifts in emotion categories like fear, disgust, anger, sadness, and happiness as opposed to identifying core instances of these emotions (Barrett, 2009b, 2013).

Susan Langer, an American semiotic aesthetician, proposed that "art is a form of emotion, a form in which inner emotions are systematically presented for people to understand." Landscape installation art has become an important carrier of emotional expression and experience through the innovation of space and materials. By erasing the distinction between Art and life, this kind of Art enhances the interaction and communication within the area and fortifies the bond between humans and the natural world. Along with encouraging behavioral interaction and a feeling of place, this communication allows people to develop a stronger emotional bond with the terrain.

Emotional Needs

Emotional support, primarily from family and social networks, is one of the elderly's most significant emotional requirements. Intergenerational care for the elderly depends heavily on this support, which is defined by strong ties to the community and intimate relationships (Nawi et al., 2017). Elderly people require emotional assistance in order to lessen loneliness and increase emotional resilience. According to Wang et al., emotional support from family members is an important means of meeting the emotional needs of Chinese elderly (Chen & Zhu, 2020). It significantly improves the overall well-being of the elderly (Wang et al., 2020). Suggests that strong family relationships play a positive role in addressing the emotional challenges faced by the elderly.

Meeting the emotional needs of older persons requires the help of the family but also the involvement of the community. A study by Erez et al. showed that emotional states are closely related to social activities, and active participation in social activities can give the elderly a sense of belonging and purpose (Erez et al., 2016). Community involvement not only helps to

reduce loneliness but also enhances the emotional well-being of the elderly through social interactions and opportunities for fulfillment.

Among the various factors that go into addressing the emotional needs of the elderly are family support, community involvement, emotional intelligence, and technological integration. Improving older people's overall well-being requires a methodical approach to meeting their demands. As society evolves, creating a comprehensive support system to identify and manage the unique emotional challenges faced by the aged has become a more crucial responsibility.

Framework Summary

In the theoretical framework of this study, the elderly' perception is one of the core components, which is directly related to their responses to the artistic features of landscape installations and the fulfillment of their emotional needs. As they age, the elderly's perceptual capacities undergo significant changes that impact their perception of and reaction to their surroundings, as well as their emotional experience and sense of involvement with the landscape. The foundation for creating landscape installation art that is appropriate for the elderly is an awareness of the perceptual traits of the elderly (See Figure 3-1)

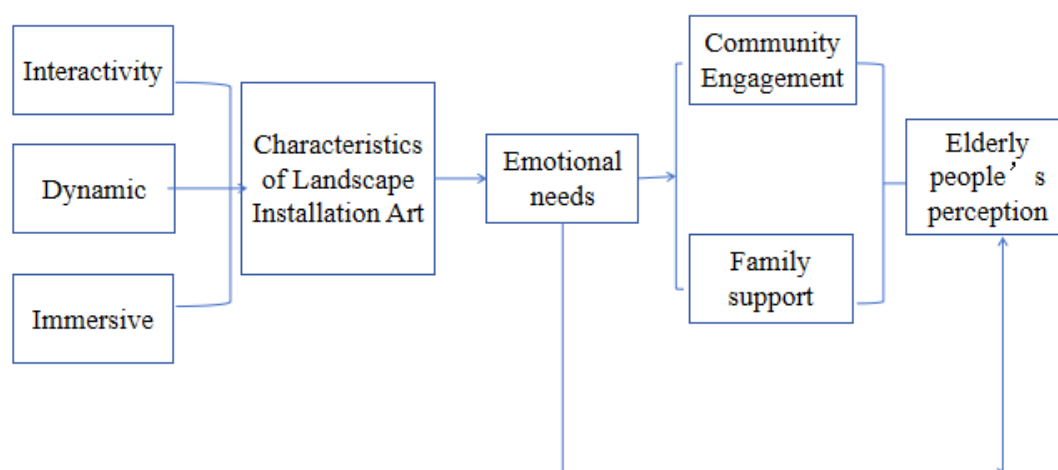


Figure 3-1 conceptual framework

Perceptual Degradation and the Experience of the Elderly

Deterioration of visual perception is one of the most noticeable features of perceptual impairment in the aged. According to Song (2015), age-related vision alterations can seriously affect perceptual abilities, resulting in diminished spatial awareness, trouble differentiating between figures and ground, and decreased visual discrimination. Impaired vision can make it difficult for the elderly to navigate their environment, which increases the likelihood of accidents and falls. Furthermore, the link between manual dexterity and visual perception means that if visual processing abilities decline, the ability to perform activities that involve fine motor skills will also decline (Song, 2015).

Visual Perception

Elderly people react more slowly and with less accuracy while doing perceptual tasks, especially when processing visual inputs. For example, Schmitz et al. (2010) found that older

persons' perceptions are affected by their slower processing of visual stimuli. The decline in visual reaction speed affects everyday tasks such as driving and crossing the street, and it also affects the elderly's understanding and interaction with the landscape around. When designing landscape installations, it is important to take into account the visual perception qualities of the old. High contrast colors, clear signage, and proper lighting design can all improve the elderly's cognitive abilities and engagement with the environment, which in turn can improve their emotional experience.

Auditory Perception

As people age, the deterioration of auditory perception makes it more difficult for the elderly to recognize and understand speech information in a noisy environment. Studies have shown that the elderly often have difficulty filtering out irrelevant background noise, which increases their cognitive burden, especially in complex social environments such as parks and communities, which may cause communication difficulties (Passow et al., 2012). From the above, it can be concluded that in landscape installation art, reducing noise interference and introducing peaceful sound elements (such as flowing water bird singing.) can help the elderly better integrate into the environment and enhance their emotional connection and physical and mental pleasure.

Tactile Perception

The deterioration of tactile perception is one of the important aspects of perceptual changes in the elderly. As people age, the density of receptors in the skin decreases, which weakens the elderly's ability to perceive subtle touch and texture (Khandre et al., 2023). In addition, the deterioration of tactile perception makes it difficult for the elderly to complete fine movements, such as grasping small objects. Although the sense of touch has deteriorated, it is still essential. There is a clear correlation between touch and emotional health. Related studies have shown that stimulating the sense of touch, such as massage and light touch, can improve the mood of the elderly and reduce their anxiety levels (Zhang et al., 2020)

In summary, incorporating tactile stimulation elements into landscape installation art design—such as materials with different textures and plush seats—can improve the emotional experience and physical and mental health of the elderly.

Comprehensive Perception

According to research, the elderly often show compensatory activities in multi-sensory perception and rely on the situation to make perceptual decisions (Küçük et al., 2023). Therefore, the design of landscape installation art needs to start from the comprehensive multi-sensory experience of the elderly, combining multiple sensory stimuli such as vision, hearing, and touch to form an overall emotional experience. The landscape installation art design, for instance, expresses and incorporates both visual and aural elements. The elderly can benefit from this in a number of ways, including improved perception, increased identity, and an improved emotional bond with their surroundings.

Elderly People's Emotional Experience and Landscape Installation Art

The elderly's emotional experience and impression of decline must be taken into account when designing landscape installation art. Through the interaction of multiple senses, such as vision, hearing, and touch, the emotional experience of the elderly can be more stimulated,

and the richness and diversity of the elderly's emotions can be promoted. Therefore, landscape installation art design needs to fully consider the perceptual characteristics of the elderly, especially the need to combine vision, hearing, touch, and multi-sensory integration to better and more effectively improve the emotional health and social participation of the elderly, enhance the emotional belonging of the elderly, and thus improve the quality of life of the elderly.

Contribution at the Theoretical Level

This study deepens the theoretical framework between landscape installation design and the emotional needs of the elderly by exploring the impact of landscape art installations on the perception and emotional experience. In the field of public space design, a large number of studies have focused on the aesthetic value, social function, and spatial experience of landscape art installations (Kaplan & Kaplan, 1989; Carr et al., 1992; Thompson, 2011), and emphasized its role in improving the urban environment and enhancing social interaction. However, there are still some gaps in the current research on the elderly population, especially in the systematic exploration of how the multisensory perception (vision, hearing, touch) of the elderly affects their emotional experience of landscape art installations. The research is still relatively limited.

The necessity of this study lies in the fact that the perception ability of the elderly gradually deteriorates with age, which not only affects their cognition of the external environment but also directly relates to their emotional experience and social interaction (Ulrich, 1991; Pallasmaa, 2005). However, most existing studies focus on the interactive experience of the elderly with landscape installations and less on how the perceptual degradation affects the emotional connection of the elderly with landscape art installations and how to compensate for this impact through design strategies. Therefore, this study further clarifies the relationship between the emotional needs and perceptual traits of the elderly, combines perceptual degradation with emotional needs, and provides a new theoretical perspective for creating landscape art installations suitable for the elderly.

By reviewing the existing literature, this study fills the following research gaps: First, it systematically explores the role of multisensory experience in the emotional cognition of the elderly, providing more targeted theoretical guidance for the design of landscape installation art. Second, it emphasizes the key role of perceptual degradation in the emotional experience of the elderly, providing a new research direction for future research on optimizing the design of landscape art installations to enhance the emotional well-being of the elderly. Finally, this study provides empirical evidence for age-friendly landscape design, which helps promote the construction of more inclusive and emotionally valuable public spaces.

Contribution at the Practical Level

In order to give designers useful direction, this study suggests a theoretical framework for landscape installation art design that considers the emotional perception of the elderly. It is possible to enhance the emotional experience and engagement of senior citizens using landscape installation art by integrating tactile, visual, and acoustic design aspects. It provides specific design references for landscape designers and urban planners, such as high-contrast visual design, noise management, and tactile stimulation, to encourage the elderly to better integrate into and enjoy public spaces. In addition, this study also provides practical design

solutions for improving the social interaction and emotional health of the elderly, helping society to pay attention to and solve the problem of aging.

Contribution at the Social Level

The significance of this study is to promote society's attention to the needs of the elderly, especially how to promote the emotional health and quality of life of the elderly through public space design. With the advent of an aging society, how to create an environment full of emotional support and social participation for the elderly has become a social problem that needs to be solved urgently. Through an in-depth analysis of the perception and emotional experience of the elderly, this study provides a practical framework for improving the quality of life through landscape installation art, promotes the integration of public space design and aging issues, and has important social significance.

Inspiration for Future Research

Finally, the framework and conclusions of this study provide new ideas and methods for future related research. In the study of the elderly group, how to combine perceptual degradation, emotional needs, and social participation is still a topic worthy of in-depth exploration. Future research can further refine the interactive relationship between perception and emotional experience and explore how more environmental factors affect the emotional connection of the elderly to public space. At the same time, considering the diversity of individual differences among the elderly, future research can focus on elderly groups with different cultural backgrounds, lifestyles, and health conditions to provide more universal design solutions.

References

- Li, L., and Lian, Z. (2020). Better sleeping thermal environment, better sleep quality. *Chinese Science Bulletin*, 65(7), 533-534. <https://doi.org/10.1360/tb-2019-0730>
- Levinger, P., & Hill, K. D. (2021). Are the recommended physical activity guidelines practical and realistic for older people with complex medical issues?. *Journal of Geriatric Physical Therapy*, 44(1), 2-8.
- Petrunoff, N., Yao, J., Sia, A., Ng, A., Ramiah, A., Wong, M., ... & Müller-Riemenschneider, F. (2021). Activity in nature mediates a park prescription intervention's effects on physical activity, park use and quality of life: a mixed-methods process evaluation. *BMC public health*, 21, 1-14.
- Polko, P., & Kimic, K. (2022). Gender as a factor differentiating the perceptions of safety in urban parks. *Ain Shams Engineering Journal*, 13(3), 101608.
- Zhao, M., Cheng, C., Zhou, Y., Li, X., Shen, S., & Song, C. (2021). A global dataset of annual urban extents (1992–2020) from harmonized nighttime lights. *Earth System Science Data Discussions*, 2021, 1-25.
- Zhong, C., Huang, R., Duan, Y., Sunguo, T., & Dello Strologo, A. (2024). Exploring the impacts of knowledge recombination on firms' breakthrough innovation: the moderating effect of environmental dynamism. *Journal of Knowledge Management*, 28(3), 698-723.
- Wan, Q. (2024). *Cultural Exchange in Landscape Architecture: A Study of Chinese Comprehensive Parks to Improve Toronto's Public Space for Immigrants* (Doctoral dissertation, University of Guelph).
- Douglas H, Georgiou A, Westbrook J. 2017. Social participation as an indicator of

- successful aging: an overview of concepts and their associations with health. *Aust. Health Rev.* 41:455–62
- Kosteli, M-C., Williams, S. E., Cumming, J. (2016). Investigating the psychosocial determinants of physical activity in older adults: a qualitative approach. *Psychol. Health* 31:730–49
- Schrempft S, Jackowska M, Hamer M, Steptoe A. 2019. Associations between social isolation, loneliness, and objective physical activity in older men and women. *BMC Public Health* 19:74
- Yu C-Y, Hou S-I, Miller J. 2018. Health for older adults: the role of social capital and leisure-time physical activity by living arrangements. *J. Phys. Act. Health* 15:150–58
- Jeong, S. H., & Chun, B. C. (2019). Individual and regional factors associated with suicidal ideation among Korean elderly: a multilevel analysis of the Korea Community Health Survey. *Epidemiology and health*, 41.
- Jeong, E. H., & Park, J. H. (2020). The relationship among leisure activities, depression and quality of life in community-dwelling elderly Koreans. *Gerontology and Geriatric Medicine*, 6, 2333721420923449.
- Zhang, W., Feng, Q., Lacanienta, J., & Zhen, Z. (2017). Leisure participation and subjective well-being: Exploring gender differences among elderly in Shanghai, China. *Archives of Gerontology and Geriatrics*, 69, 45-54.
- Zarinejhad, B., Ghorbani, S., & Dana, A. (2024). Investigating Social and Psychological Factors Affecting Elderly Participation in Physical Activity and Well-being. *International Journal of Education and Cognitive Sciences*, 5(4), 131-139.
- Ra, J., An, S., & Rhee, K. J. (2013). The relationship between psychosocial effects and life satisfaction of the Korean elderly: Moderating and mediating effects of leisure activity. *Journal of Arts and Humanities*, 2(11), 21-35.
- Deying, W., & Wenzhi, W. (2023). Research on the application of interactive design in landscape space. *Design*, 8, 2616.
- Tang, Y. and Ren, H. (2024). Interactive mechanism between new media art and cultural exchange - centering on suzhou bay digital art exhibition. *Academic Frontiers Publishing Group*, 1(3), 52-61. <https://doi.org/10.62989/jss.2024.1.3.52>
- Yuan, J., Zhang, L., & Kim, C. S. (2023). Multimodal interaction evaluation and optimization design of smart landscape devices for elderly people in seaside parks. *Electronics*, 12(18), 3822.
- Hanna, I., & Parvaresh, P. (2024). Investigating AI's Role in Enhancing Multi-Sensory Experiences in Public Spaces. *ARCHIVE-SR*, 8 (2), 12-30.
- Wang, X., & Cai, L. (2022). Application of artificial intelligence in 6G internet of things communication in interactive installation art. *International Journal of Grid and Utility Computing*, 13(2-3), 195-203.
- Hanna & Parvaresh. (2022) emphasized that "the application of digital technology, especially multi-sensor fusion technology, in public art design has promoted the construction of modern urban landscapes."
- Kim, H., Kang, H., Choi, H., Jung, D., & Hong, T. (2023). Human-building interaction for indoor environmental control: Evolution of technology and future prospects. *Automation in Construction*, 152, 104938.
- Edensor, T. (2017). *From light to dark: Daylight, illumination, and gloom*. U of Minnesota Press.

- Zhongshu, W., & Huadong, L. (2024). Research on the application of public art design based on digital technology in urban landscape construction. *Signal, Image and Video Processing*, 1-18.
- Sumartojo, S. (2022). Light, dark and lighting design for shared public spaces: New perspectives on experiences of the lit world. In *Lighting Design in Shared Public Spaces* (pp. 1-16). Routledge.
- White, J. (2013). *Playing and learning outdoors: Making provision for high quality experiences in the outdoor environment with children 3–7*. Routledge.
- Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of health and social behavior*, 52(2), 145-161.
- Lin, J., Lin, X., Chen, Q., Li, Y., Chen, W. T., & Huang, F. (2024). The effects of art-making intervention on mind–body and quality of life in adults with cancer: a systematic review and meta-analysis. *Supportive Care in Cancer*, 32(3), 186.
- Kawther, K. K., & Hassan, R. H. (2021). The Sustainable Design Rules of Landscape. In *E3S Web of Conferences* (Vol. 318, p. 04011). EDP Sciences.
- Malette, A., Heaney, S., McGlynn, B., Stuart, S., Witkowski, S., & Plummer, R. (2024). Outdoor education, environmental perceptions, and sustainability: Exploring relationships and opportunities. *Journal of Outdoor and Environmental Education*, 1-16.
- Zhao, J., Yin, H., Wang, X., Zhang, G., Jia, Y., Shang, B., ... & Chen, L. (2020). Effect of humour intervention programme on depression, anxiety, subjective well-being, cognitive function and sleep quality in Chinese nursing home residents. *Journal of advanced nursing*, 76(10), 2709-2718.