

Intergenerational interaction product and service design for the public space of the Dong elderly from a pragmatic perspective

1 Research Overview

With the development of society and the aging of the population, intergenerational interaction has become a key factor in social harmony and sustainable development. As a minority with a rich cultural heritage, the interaction between the elderly and the younger generation of the Dong ethnic group is not only related to the well-being of individuals, but also to the inheritance of Dong culture. However, in the process of modernization, the elderly of the Dong ethnic group may face communication barriers and cultural gaps with the younger generation.

research topic focuses on the intergenerational interaction between the elderly and the younger generation of the Dong nationality in public spaces, and explores how to promote communication and exchanges between the two generations through product design and service design, enhance their social connections, and maintain the inheritance of Dong culture. This design research and practice can provide an interactive platform for the elderly and the younger generation of the Dong nationality, promote intergenerational communication, enhance social cohesion, and protect and inherit Dong culture. Through pragmatic ontology and mixed research methods, we can have a deeper understanding of the needs and preferences of the elderly and the younger generation of the Dong nationality, so as to design public space products and services that better meet their actual needs. At the same time, symbolic interactionism provides a framework for understanding human behavior and social interaction, which helps us design public spaces that can promote interaction between the elderly of the Dong nationality and other cultural groups.

In the research of this topic, the pragmatic ontology is adopted. Ontology is the study of existence and entity nature. The design of public space products and services should be based on actual social needs and usage effects, that is, the design should be a manifestation of functionality and practicality. This means that design is not just a formal creation, but it is necessary to go deep into the actual lives of the elderly and younger generations of the Dong nationality, understand their needs, and create products and services that can actually solve the problem of intergenerational interaction. From an epistemological standpoint, this topic adopts a mixed research method. Epistemology focuses on the nature and limitations of knowledge, and studies how we know, prove beliefs, and distinguish true and false propositions, which means that we will use a combination of quantitative and qualitative research methods to obtain and verify knowledge. This includes using qualitative methods such as field research, in-depth interviews, and participatory observation to understand the interaction patterns and needs of the elderly and younger generations of the Dong nationality, while using quantitative methods such as questionnaires and data analysis to verify the effectiveness of the design plan.

The study aims to enhance social cohesion, reduce intergenerational conflicts and build a harmonious society by promoting intergenerational interaction between the elderly and the

younger generation of the Dong nationality. It also aims to improve the mental health of the elderly, reduce loneliness and enhance happiness. At the same time, it aims to protect and inherit the culture of the Dong nationality so that the traditional culture of the Dong nationality can survive and develop in modern society. In addition, by optimizing the product design of public spaces, community vitality can be enhanced, which may drive the development of related industries, such as tourism and cultural industries.

2 Product and service design for intergenerational interaction in public spaces for the elderly of the Dong nationality from a pragmatic perspective

of this study integrates the framework of multiple disciplines to deal with the complex relationship between cultural protection, intergenerational interaction and public space design in the Dong ethnic community. Symbolic interactionism emphasizes that people construct social meanings through shared cultural symbols. As cultural symbols, drum towers and wind and rain bridges are not only physical structures, but also carriers for promoting community interaction. The study will explore how to promote cultural dialogue between generations through the use of these symbols.

2.1 Overview of Pragmatist Ontology

Pragmatist ontology emphasizes the close connection between knowledge and action, and believes that truth is instrumental, and its value lies in its guiding effect on action. Pragmatist ontology originated in the United States in the late 19th century. As an empiricist philosophical school, its core view is to put action and practice at the center of philosophical thinking, emphasizing the core role of experience in understanding the world and forming knowledge. Pragmatism is mainly divided into classical pragmatism, neo-pragmatism and social constructivism, and there is also corresponding interaction in cognitive scienceⁱ. Classical pragmatism is represented by CS Peirce, William James and John Dewey, who laid the foundation of pragmatism, emphasized the close connection between knowledge and action, and believed that truth is instrumental, and its value lies in its guiding effect on action. Neo-pragmatism developed in the mid-to-late 20th century. Representative figures include Richard Rorty and Robert Brandom, who combined pragmatism with linguistic philosophy and analytical philosophy, and explored the relationship between language, meaning and practice. Social constructivism has a natural affinity with pragmatism, emphasizing that social reality is a social product constructed in interaction and cooperation. Social constructivism attempts to advance epistemological constructivism into the social dimension, arguing that social reality is not a super-individual structure, but the result of construction in interaction.

The concept of pragmatism encompasses a variety of approaches and methodologies that integrate qualitative and quantitative research, as well as the contextualization of concepts within a specific framework. As described by Vos (2021)ⁱⁱ, Pragmatic Phenomenological Analysis (SPPA) is a method that integrates qualitative and quantitative research and aims to systematically, sensitively and concretely develop a reflective understanding of individual experiences and meanings. The SPPA method is based on a pragmatic ontology and a critical realist epistemology. Its overall goal is to systematically examine individuals' lived experiences

and meanings of a phenomenon. The research objectives of SPPA can be concretized through specific research objectives, such as the ontological status of the phenomenon, types of meaning, methods of meaning, relationship to individuals/society, development over time, individual history, sense of freedom, existence and daily life experience. Brodaric (2007)ⁱⁱⁱ proposed Geo-Pragmatics, an enhanced ontological representation method that not only defines geospatial, geographical and earth science concepts, but also captures and reasoning about their pragmatic context. The Geo-Pragmatics framework represents this context through three core aspects: dimensions, agency and roles. These dimensions include the origin, use, and effects of concepts, which are generated by the interaction of humans, machines, and natural agents, and involve entities that develop roles from method-driven perspectives and knowledge-driven versions. Ruytenbeek (2019)^{iv} explored the ontology and form of directive speech acts. He pointed out that cognitive linguistics (CL) defines directive speech acts as the exertion of force by the speaker on the listener to perform an action. He experimentally supported the view of speech acts as hierarchical categories and showed how these methods enable us to adopt empirically sufficient distinctions to distinguish the levels of pragmatic and semantic meaning.

2.2 Application of Pragmatist Ontology in Relevant Design

Dong culture is known for its unique social organization and cultural traditions, which emphasize mutual cooperation and intergenerational interaction among community members. In Dong society, the elderly are regarded as the inheritors of knowledge and experience, and their wisdom and experience are essential for the growth of the younger generation. This intergenerational interaction not only helps maintain the cohesion of the community, but also promotes the continuation and development of culture. In the existing literature, there are relatively few studies on Dong culture, intergenerational interaction, and public space design. However, some studies have explored the organizational structure and cultural traditions of Dong society and how these factors affect the interaction between community members. For example, some studies have pointed out that the drum tower and wind and rain bridge of the Dong people are not only physical spaces, but also places for communication and interaction among community members. The design and use of these spaces are essential to maintaining community cohesion and cultural inheritance (Balzacq, 2002)^v.

In terms of public space design, some studies have proposed design principles and methods to promote communication and interaction among community members. These principles include providing a comfortable environment, encouraging community participation, and considering the needs of different age groups. In the context of Dong culture, these principles can be further developed and applied to design public spaces suitable for the elderly and young people of the Dong ethnic group (Lewis, 1976)^{vi}.

In terms of product and service design, some studies have explored how to promote communication between the elderly and young people by designing products and services. These studies emphasize the practicality and ease of use of products and services, and how they can meet the needs of different age groups. In the Dong culture, product and service design should take into account the traditional values and lifestyle of the Dong people, while incorporating modern design concepts to improve the quality of life of the elderly and young people (Balzacq, 2002)^{vii}.

The application of pragmatism in the design of intergenerational interaction products for the elderly can be observed through various studies that emphasize user-centered design and co-design methods. One study emphasized the importance of involving the elderly in the design process, showing that the user-centered design (UCD) method can effectively elicit requirements from this population. This approach was demonstrated in a case study in which the elderly participated in the design and evaluation of a virtual garden prototype, demonstrating the potential of empathy-driven design that resonates with their experiences and needs. Select a source to view detailed information and availability options. The design of intergenerational interaction products and services in public spaces for the elderly of the Dong ethnic group based on a pragmatist perspective is a multidimensional topic that requires comprehensive consideration of multiple aspects such as Dong culture, intergenerational interaction, public space design, and product and service design. By deeply studying these aspects, products and services that can promote communication and interaction between the elderly and young people of the Dong ethnic group can be designed to improve their quality of life, while also helping to maintain the inheritance and development of Dong culture. Future research can further explore the specific practices and applications of these aspects to provide support for the development of the Dong community.

3 Research methods of symbolic interactionism from the perspective of pragmatism and constructivism

3.1 Overview of Symbolic Interactionism

Symbolic interactionism, also known as symbolic interaction theory, is a basic theory of communication that is closely related to the Chicago School in the United States. The core idea of this theory is that social meaning is created and maintained in the process of interaction between individuals. The founder of symbolic interactionism is George Herbert Mead, an American social psychologist in the early 20th century. Mead's theory was influenced by pragmatism, functional psychology, behaviorism, self-theory and John Dewey's social interaction ideas^{viii}.

The development of symbolic interactionism can be roughly divided into three stages: the first stage was from the 19th century to the 1920s, originating from the tradition of British social psychology research, and combined with the ideas of American psychologists and philosophers such as William James and John Dewey, laying the foundation for the formation of symbolic interactionism. The second stage was from the 1920s to the 1940s, represented by Mead, who was hailed as the "founder" of symbolic interactionism, and his ideas are latent in almost all contemporary symbolic interaction theories. Mead believed that humans are creators and users of symbols and have the ability to create and use symbols. The third stage was from the 1950s to the 1960s, and representatives such as Erving Goffman's "Dramaturgy Theory" was a continuation of Mead's symbolic interaction theory, while Randall Collins proposed the "Interaction Ritual Chain" based on Goffman's research, viewing social phenomena as social relations and networks formed by individuals in micro-situations . The specific research and development family tree is shown in Figure 1.

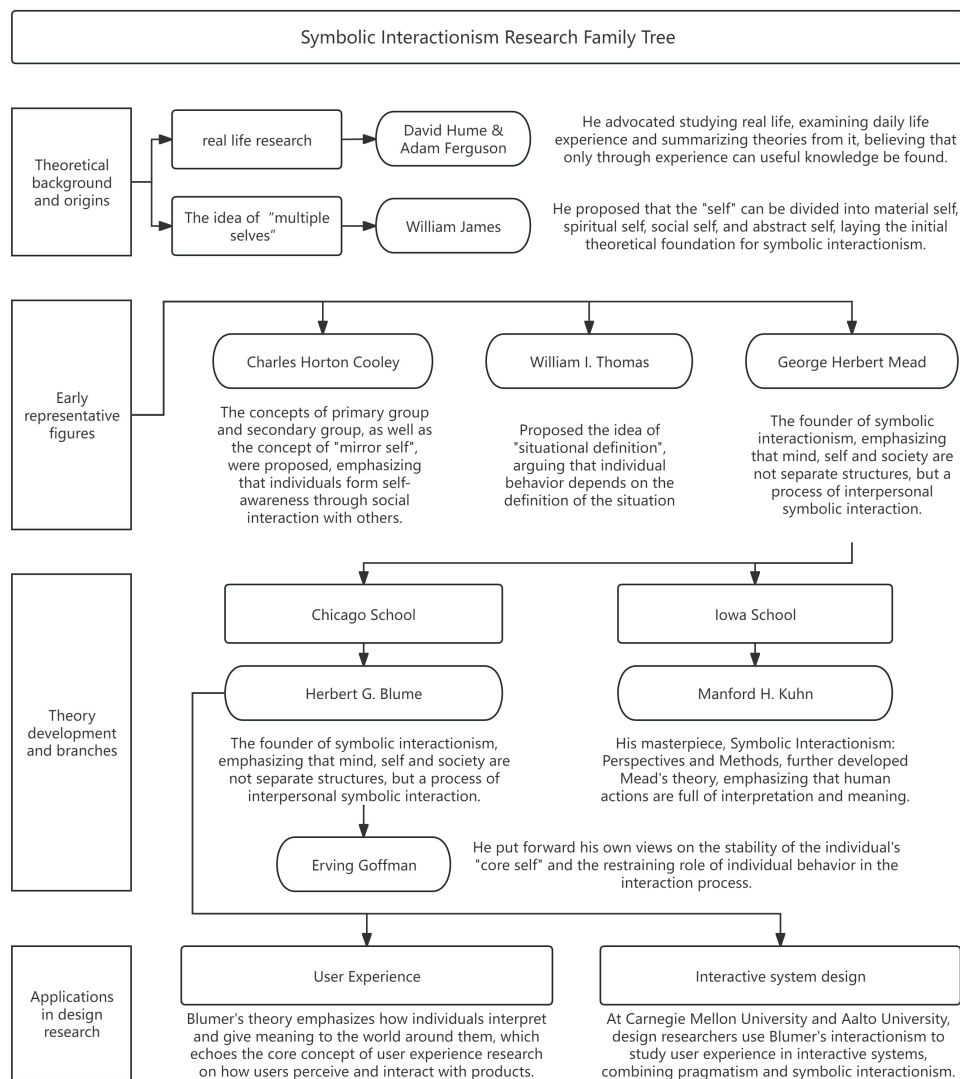


Figure 1 Family tree of symbolic interactionism research (drawn by the author)

Pragmatism and symbolic interactionism both originated in the United States and have had a profound impact in the fields of philosophy and sociology. Pragmatism emphasizes the close connection between knowledge and action, and believes that knowledge is formed in social practice, while symbolic interactionism focuses on how individuals interact and understand social reality through symbols and language. The two are closely related in terms of methodology and theoretical basis. In the research related to symbolic interactionism, symbolic interactionism inherits the tradition of pragmatism in philosophical thought, emphasizing the interactive behavior and meaning construction between individuals. Representative figures of pragmatism include Charles Peirce, William James and John Dewey. Peirce is the founder of pragmatism. He proposed the logic of symbols and the basic principles of pragmatism. James further developed pragmatism and emphasized the interaction between thought and action. Dewey applied pragmatism to education and social reform and proposed the educational concept of "learning by doing" (Dewey, J., 1934)^{ix}.

3.2 Semiotics from the perspective of pragmatic ontology

Symbolic interactionism, as a sociological theory focusing on individual behavior, was born in the 1930s. It inherits the relevant views of pragmatism philosophy, especially the view on how individuals construct social reality through symbolic communication. The combination of pragmatism and symbolic interactionism has made symbolic interactionism inherit the tradition of pragmatism in philosophical thought. It applies Mead's view that self-identity is established through social roles and Dewey's view that theory is a tool for solving life problems to social research. Individuals interact through symbols and language, which are the construction of social reality. Individuals understand themselves and others through symbols and language, thus forming social reality. This interaction is dynamic, and individuals constantly adjust their behavior and understanding in the interaction (Mead, GH, 1934)^x.

Pragmatism and symbolic interactionism are widely used in design research, emphasizing that society is a synthesis of symbols created and used by people. The premise of social interaction is the existence of a system of meaning symbols that are commonly recognized and objectively shareable by people. People use this symbol system to express their "postures", complete social interactions, and regulate their behaviors. This theory is widely used in the fields of education, psychology, communication, marketing, etc., especially in design, such as curriculum design, public space design, marketing strategy design, etc. , especially in the fields of user experience (UX) and interaction design. User experience research emphasizes how users interact with products through symbols and language, so as to form an understanding and evaluation of products. Symbolic interactionism provides a theoretical basis for user experience research, helping researchers understand how users interact with products through symbols and language (Forlizzi, J., & Ford, S., 2000)^{xi} . Interaction design research emphasizes how users interact with products through symbols and language, so as to form an understanding and evaluation of products. Symbolic interactionism provides a theoretical basis for interaction design research, helping researchers understand how users interact with products through symbols and language (Battarbee, K., 2003) ^{xii}. Although pragmatism and symbolic interactionism have been widely used in sociology and design research, they have also faced some criticism. Pragmatism and symbolic interactionism have been criticized for overemphasizing individual subjectivity and the use of symbols, while ignoring the impact of social structure and institutions on individual behavior. In addition, pragmatism and symbolic interactionism have been criticized for overemphasizing the interaction between individuals, while ignoring the impact of social structure and institutions on individual behavior (Habermas, J., 1987)^{xiii} . Supporters of pragmatism and symbolic interactionism responded that pragmatism and symbolic interactionism emphasize individual subjectivity and the use of symbols in order to better understand how individuals interact with society through symbols and language. In addition, pragmatism and symbolic interactionism emphasize the interaction between individuals in order to better understand the impact of social structure and institutions on individual behavior (Barbalet, J. 2008) . Pragmatism and symbolic interactionism have been widely used in sociology and design research, especially in the study of user experience and interaction design . Despite some criticism, pragmatism and symbolic interactionism provide important theoretical foundations for understanding how individuals interact with society through symbols and language.

3.3 Symbolic Interactionism and Constructivist Ontology

As a methodology, symbolic interactionism can not only be combined with pragmatic ontology in the research related to product and service design , but also adopt constructivist ontology as the research basis in many studies . From the perspective of constructivist ontology, symbolic interactionism provides a unique framework for understanding and analyzing social interaction, identity construction and meaning generation. Based on constructivist ontology , symbolic interactionism emphasizes that social phenomena are formed by individuals through symbolic communication and meaning construction in social interaction. This view holds that social reality is a process of continuous construction and reconstruction by individuals through language and symbolic interaction . The research method tends to be qualitative research, such as in-depth interviews and participant observation, to reveal how individuals give meaning to social phenomena and form consensus in interaction. The advantage lies in the ability to deeply understand the subjective experience of individuals and the complexity of social interaction, emphasizing the subjectivity and creativity of individuals. Symbolic interactionism under constructivist ontology can deeply explore how individuals understand and construct social phenomena, provide a deep insight into the complexity of social phenomena, and attach importance to the subjective meaning and creativity of individuals, which helps to reveal the diversity and dynamics of social phenomena. Thierry Balzacq (2002)^{xiv} believes that constructivism is an important application of symbolic interactionism in the field of international relations. By analyzing Alexander Wendt's theory, he explored how symbolic interactionism can be combined with system theory, especially in international politics. Symbolic interactionism is not only an explanation of individual behavior, but also a dynamic understanding of social structure and meaning generation. He believes that Wendt's constructivist theory is actually a multi-faceted interactionism, including multiple dimensions such as anarchy, identity and interests, and security. Although constructivism is regarded as an anti-essentialist approach, it may also be a degenerate social theory because it relies too much on structural realism. However, this degeneracy also provides clues to understand the connection between symbolic interactionism and Kenneth Waltz's theory. Matei Şimandan (2014)^{xv} started from the controversy between qualitative and quantitative methods and tried to restore the role of interpretive methodology in social constructivism. He analyzed the theoretical aspects of the explanation and understanding of social phenomena, especially the "ideal type" and its cognitive role. The premise of symbolic interactionism and how it contributes to the establishment of rules, norms, regulations or practices for knowledge and action. The impact of social constructionism is discussed, including the consensus and disagreement in this field and the possibility of exploiting this interpretive option in social sciences. Paola Di Nicola and Giuseppina Cersosimo (2019)^{xvi} emphasize that symbolic interactionism relies on a simple premise that human behavior is based on the meanings that things have for them, and these meanings are produced in the process of interpretation through social interaction. They point out that the power of symbolic interactionism lies in forcing researchers to understand how language and concepts become social facts, and how social facts become language and concepts from the perspective of social actors. Dean Barker, Mikael Quennerstedt and Claes Annerstedt (2015)^{xvii} proposed a framework for considering the multimodal ways in which students interact in physical education through the theory of symbolic interactionism. They emphasized that learning does not only occur in verbal

communication, but also includes physical movements, posture adjustments and interactions with the material objects around them. They proposed concepts such as "cognitive ecology", "cognitive position" and "learning trajectory" to analyze students' interactions and learning processes in physical education. Together, these papers highlight the importance of symbolic interactionism in understanding social interaction, identity construction, and meaning generation. Symbolic interactionism not only provides a way to explain social phenomena, but also emphasizes the agency of individuals in social construction. Through multimodal interaction analysis, researchers can gain a deeper understanding of learning processes and social dynamics, which is of great significance to research in fields such as education, sociology, and international relations.

3.4 Comparison and advantages of symbolic interactionism under the guidance of pragmatism and constructivism

Pragmatist ontology emphasizes the practicality and effectiveness of knowledge and social phenomena, and believes that truth is a judgment that is consistent with actual effects. From this perspective, symbolic interactionism focuses not only on the construction of meaning, but also on how these meanings affect the actual behavior of individuals and social changes. Research methods can combine quantitative and qualitative methods to evaluate the actual effects and social impacts of symbolic interaction, emphasizing practice and application. The advantage is that it can closely combine theory and practice, promote the combination of academic research and practical application, and is practical and operational. Symbolic interactionism under the guidance of pragmatic ontology emphasizes the practical application of research and the ability to solve problems, making the research results more realistic and operational. In addition, pragmatism encourages interdisciplinary cooperation, which can promote the integration of knowledge and methods in different fields and improve the breadth and depth of research.

Symbolic interactionism under constructivist ontology focuses more on the subjective experience and meaning construction process of individuals, while symbolic interactionism under pragmatic ontology emphasizes the effects and applications of these meanings and interactions in practice. The two have different focuses in the research process, providing different perspectives and methods for understanding social phenomena. However, for the research of this topic, pragmatic ontology emphasizes that the value and meaning of things lie in their practical application and practicality, while symbolic interactionism focuses on how individuals give meaning to things in social interaction and act accordingly. When studying the design of public space products and services for intergenerational interaction among Dong elderly people, pragmatic ontology helps us focus on actual needs and problems, ensuring that the design can solve actual problems and meet the actual needs of Dong elderly people and the younger generation. For example, through field research and interviews, we can understand the specific needs of Dong elderly people and the younger generation in public spaces, such as rest facilities, entertainment facilities, communication places, etc., so as to design practical products and services that meet their needs. Symbolic interactionism believes that individuals have subjective initiative in social interaction and can act according to their own understanding and interpretation of things. Pragmatism ontology also emphasizes the subjective experience and actual actions of individuals, which enables the study to gain a deep understanding of the

behaviors and needs of the elderly and younger generations of the Dong nationality in public spaces, rather than relying solely on objective data or external observations. Through observation and interviews, we can understand their expectations and needs for public spaces and how they achieve these needs through interaction. Moreover, symbolic interactionism emphasizes interaction and communication between individuals, while pragmatic ontology emphasizes solving problems through practical actions. When studying the design of public space products and services for intergenerational interaction among the elderly of the Dong nationality, the combination of these two theories helps to promote interaction and integration between the elderly and younger generations of the Dong nationality. By designing public space products and services that can promote their interaction and communication, we can help them better understand and respect each other's needs and expectations, thereby promoting intergenerational integration. The combination of pragmatic ontology and symbolic interactionism provides a theoretical basis for mixed research methods. Mixed research methods combine quantitative and qualitative research methods to provide a more comprehensive understanding of the design of public space products and services for intergenerational interaction among the elderly of the Dong nationality. Through quantitative research, we can understand the general trends of the behavior and needs of the elderly and younger generations of the Dong nationality in public spaces; through qualitative research, we can gain in-depth understanding of their specific needs and expectations. This combination can provide more comprehensive and in-depth research results, helping us design products and services that better meet their needs. In addition, symbolic interactionism emphasizes how individuals understand and interpret the world through symbols and meanings in social interactions, while pragmatic ontology emphasizes solving problems through practical actions. When studying the design of public space products and services for intergenerational interaction among the elderly of the Dong nationality, the combination of these two theories helps to better understand and respect the culture and values of the Dong nationality. By understanding the behavior and needs of the elderly and younger generations of the Dong nationality in public spaces, we can guide the design of products and services that are more in line with their cultural background and values, thereby promoting the inheritance and development of the Dong nationality culture. The combination of symbolic interactionism and pragmatic ontology makes the design process more flexible and adaptable. By observing and understanding the behavior and needs of the elderly and younger generations of the Dong nationality in public spaces, we can flexibly adjust the design strategies and plans according to actual conditions. Therefore, in the research of this topic, the symbolic interactionism based on pragmatic ontology to study the design of public space products and services for intergenerational interaction among the elderly of the Dong nationality has many advantages. It can help us better understand the needs and expectations of the elderly and younger generations of the Dong nationality, design products and services that better meet their needs, and promote intergenerational integration and cultural inheritance.

4 Axiology and Moral Values

4.1 Value Theory from a Pragmatist Perspective

The pragmatic ethics emphasizes the characteristics of individuality, relativity and

utilitarianism. In this project, respecting and embracing the culture and values of the elderly Dong people are ethical principles that must be followed in the design process. The design takes into account the needs and preferences of the elderly and ensures that their interests and dignity are respected. Ethical actions should be based on their actual consequences and the impact on all relevant stakeholders. When designing public space products and services, Dong people of different ages, genders and social backgrounds will be taken into account to ensure the fairness and justice of the design and avoid any form of discrimination and exclusion. Dewey's pragmatic ethics emphasizes the responsibility and care of individuals in society. In this project, it is necessary to ensure that their design can promote harmonious coexistence between the elderly and the younger generation of the Dong people, care for the well-being of the elderly, and promote the inheritance of the Dong culture. Through the research and practice of this project, it is possible to promote the sustainable development of the Dong society, enhance the vitality of the Dong culture, and improve the quality of life of the elderly Dong people. Jordan, JEG (2014)^{xviii} proposed the objectivity and transcendence of moral reality. When designing products and services, we can draw on this objectivity and transcendence to ensure that products and services not only meet superficial needs, but also promote deep-level moral and value realization. Jordan DeCoste, J., & Boyd, D. (2009)^{xix} also explored the ethics of care, emphasizing the importance of relationships and care. In design practice, we can ensure that product services can promote relationships and care between the elderly and the young.

When designing products and services, the pragmatism perspective focuses on how to meet the specific needs of users and improve their quality of life (James, W., 1898)^{xx}. For the design of intergenerational interaction products and services in public spaces for Dong elderly people, pragmatism can provide corresponding guidance, for example: the designed products and services should directly address the actual needs of the elderly and young people, such as health, social interaction and cultural heritage; by designing products and services that promote intergenerational interaction, the quality of life of the elderly and young people can be improved and community cohesion can be enhanced; products and services should be adaptable and can be adjusted and improved according to the needs and feedback of different users.

4.2 Moral Values from the Perspective of Symbolic Interactionism

Moral values refer to the moral principles and codes of conduct that society and individuals consider important. When designing products and services, moral values can guide designers on how to ensure that products and services meet the moral standards of society. For the intergenerational interaction product service design of the public space for the elderly of the Dong nationality, the designed products and services should respect the differences and needs of the elderly and young people and promote inclusion and understanding. Moreover, the designed products and services should consider the impact on society and the environment and promote sustainable development. For example, designing an environmentally friendly community center that uses renewable energy and environmentally friendly materials can reduce the impact on the environment and promote sustainable development. In addition, the designed products and services should ensure that the elderly and young people can participate and benefit fairly and promote social equity and justice.

As a social psychology theory, symbolic interactionism emphasizes the meaning of things

and the role of symbols in social processes and in social psychology and social behavior. This project applies symbolic interactionism to the study of intergenerational interaction between the elderly and the younger generation of the Dong nationality from a pragmatic perspective, which helps to deepen the understanding of symbolic interactionism theory, especially in the application of intergenerational communication and cultural inheritance. The results of research and practice can provide practical guidance for the design of public spaces for the elderly and the younger generation of the Dong nationality, promote communication and exchanges between the two generations, enhance social connections, and maintain the inheritance of Dong culture. This design practice can directly improve the quality of life and social participation of the elderly of the Dong nationality, and has important social significance. Through the research of this project, the Dong culture can be protected and inherited, so that the traditional culture of the Dong nationality can survive and develop in modern society, which is of great value for maintaining cultural diversity and promoting cultural exchanges (Blumer, H., 1969)^{xxi}. Symbolic interactionism can provide corresponding guidance for the design of intergenerational interactive products and services in public spaces for Dong elderly people. For example, symbols in Dong culture, such as traditional costumes, architectural styles, and music, can be used to design products and services to enhance cultural identity. Designed products and services should promote communication and understanding between the elderly and young people, and enhance intergenerational relationships through joint participation in activities and experiences. The value and significance of the product can be conveyed through design, so that the elderly and young people can understand and accept the purpose and function of the product service.

of pragmatism and symbolic interactionism, we can design products and services that are both practical and culturally meaningful, and promote intergenerational interaction between the elderly and young people of the Dong ethnic group. These theories and concepts can help us ensure that products and services not only meet superficial needs, but also promote deep-level moral and value realization, and enhance community cohesion and cultural identity.

5 Summary and discussion

This study focuses on the intergenerational interaction between the elderly and the younger generation of the Dong ethnic group in public spaces, aiming to promote communication and exchanges between the two generations through product design and service design, enhance social connections, and maintain the inheritance of Dong culture. The study adopts pragmatic ontology and mixed research methods, combined with symbolic interactionism, to deeply understand the needs and preferences of the elderly and the younger generation of the Dong ethnic group, and design public space products and services that meet actual needs. The theoretical basis of the study integrates multiple disciplinary frameworks, especially symbolic interactionism, which emphasizes the construction of social meaning through shared cultural symbols. As cultural symbols, the drum tower and the wind and rain bridge are not only physical structures, but also carriers for promoting community interaction. Through the use of these symbols, the study explores how to promote cultural dialogue between generations.

The results of this study have important social significance. They can not only improve the quality of life and social participation of the elderly Dong people, but also protect and inherit the Dong culture, so that the traditional culture of the Dong people can survive and develop in

modern society. However, the research also faces some challenges, such as how to ensure the sustainability of the design, how to promote and apply these design results in different communities, and how to further deepen the understanding of the Dong culture and social structure.

Future research can further explore the specific practices and applications of these aspects to provide stronger support for the development of the Dong ethnic community. In addition, the research can also be extended to other ethnic minority communities to explore intergenerational interactions and public space design in different cultural contexts to promote social harmony and sustainable development.

Through this study, not only can an interactive platform be provided for the elderly and the younger generation of the Dong ethnic group, but also new ideas and methods can be provided for the inheritance and development of the Dong ethnic culture. This will not only help to enhance social cohesion, reduce intergenerational conflicts, and build a harmonious society, but also enhance community vitality and drive the development of related industries, such as tourism and cultural industries.

References

- ⁱ Hookway, C. (2012) *The Pragmatic Maxim: Essays on Peirce and pragmatism*. 1st edn. Oxford: Oxford University Press. Available at:
<https://doi.org/10.1093/acprof:oso/9780199588381.001.0001>.
- ⁱⁱ Vos, J. (2021) ‘Systematic Pragmatic Phenomenological Analysis: Step - wise guidance for mixed methods research’ , *Counselling and psychotherapy research*, 21(1), pp. 77 – 97. Available at: <https://doi.org/10.1002/capr.12366>.
- ⁱⁱⁱ Brodaric, B. (2007) ‘Geo-Pragmatics for the Geospatial Semantic Web’ , *Transactions in GIS*, 11(3), pp. 453 – 477. Available at: <https://doi.org/10.1111/j.1467-9671.2007.01055.x>.
- ^{iv} Ruytenbeek, N. (2019) ‘Current issues in the ontology and form of directive speech acts’ , *International review of pragmatics*, 11(2), pp. 200 – 221. Available at:
<https://doi.org/10.1163/18773109-01102101>.
- ^v Balzacq, T. (2002) ‘Security, identity, and symbolic interactionism’ , *International review of sociology*, 12(3), pp. 469 – 506. Available at: <https://doi.org/10.1080/0390670022000041439>.
- ^{vi} Lewis, J.D. (1976) ‘The Classic American Pragmatists As Forerunners To Symbolic Interactionism’ , *Sociological quarterly*, 17(3), pp. 347 – 359. Available at:
<https://doi.org/10.1111/j.1533-8525.1976.tb00988.x>.
- ^{vii} Balzacq, T. (2002) ‘Security, identity, and symbolic interactionism’ , *International review of sociology*, 12(3), pp. 469 – 506. Available at: <https://doi.org/10.1080/0390670022000041439>.
- ^{viii} *Symbolic interaction*. (1977). Berkeley, CA: University of California Press.
- ^{ix} Dewey, John (1987). *Art as Experience. The Later Works of John Dewey, 1925-1953. Volume 10: 1934*, Edited by Jo Ann Boydston Carbondale and Edwardsville: Southern Illinois University Press.

- ^x Mead, G.H. (1934). *Mind, Self, and Society: From the Standpoint of a Social Behaviorist* (Works of George Herbert Mead, Vol. 1).
- ^{xi} Forlizzi, J. et al. (2000) ‘The building blocks of experience: an early framework for interaction designers’ , in *Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques*. New York, NY, USA: ACM, pp. 419 – 423. Available at: <https://doi.org/10.1145/347642.347800>.
- ^{xii} Battarbee, K. (2003) ‘Co-experience: the social user experience’ , in *CHI ’ 03 : Extended Abstracts on Human Factors in Computing Systems*. New York, NY, USA: ACM, pp. 730 – 731. Available at: <https://doi.org/10.1145/765891.765956>.
- ^{xiii} Habermas, J. (1987). **The Theory of Communicative Action: Life World and System: A Critique of Functionalist Reason**. Vol. 2. Boston: Beacon.
- ^{xiv} Balzacq, T. (2002) ‘Security, identity, and symbolic interactionism’ , *International review of sociology*, 12(3), pp. 469 – 506. Available at: <https://doi.org/10.1080/0390670022000041439>.
- ^{xv} Şimandan, M. (2014) ‘Interpretative methodology and social constructivism’ , *Journal of humanistic and social studies*, 5(1), pp. 145 – 158.
- ^{xvi} Di Nicola, P. and Cersosimo, G. (2019) ‘Introduction. Our Interactionism’ , *Italian Sociological Review*, 9(2), pp. 161 – 163. Available at: <https://doi.org/10.13136/isr.v9i2.272>.
- ^{xvii} Barker, D., Quennerstedt, M. and Annerstedt, C. (2015) ‘Learning through group work in physical education: a symbolic interactionist approach’ , *Sport, education and society*, 20(5), pp. 604 – 623. Available at: <https://doi.org/10.1080/13573322.2014.962493>.
- ^{xviii} Jordan, J.E.G. (2014) ‘Reconsidering Iris Murdoch’ s Moral Realism’ , *The Journal of value inquiry*, 48(3), pp. 371 – 385. Available at: <https://doi.org/10.1007/s10790-014-9416-2>.
- ^{xix} Decoste, J. and Boyd, D. (2009) ‘An “Ideal” Home for Care: Nel Noddings, Thomas Hill Green, and an Ontological Support for a Phenomenology of Care’ , *Interchange* (Toronto. 1984), 40(3), pp. 309 – 334. Available at: <https://doi.org/10.1007/s10780-009-9094-3>.
- ^{xx} James, W. (1898). *The Principles of Psychology*. Henry Holt and Co.
- ^{xxi} Blumer, H. (1969). *Symbolic Interactionism: Perspective and Method*. Prentice-Hall.