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Li Zhang
PhD
Loughborough University
L.Zhang@lboro.ac.uk

Cees de Bont
Professor
Loughborough University
c.j.de-bont@lboro.ac.uk

Exploring the Sustainability of Huizhou Bamboo Carving in the Perspective of Heritage Craft

ABSTRACT
Huizhou bamboo carving was produced in the Huizhou region of China and is one of the representative carvings of the Huizhou region. As an essential local intangible cultural heritage, the carving techniques, cultural connotations, and historical and artistic values of Huizhou bamboo carving have contributed to its own high craft research value. However, this local heritage craft is facing many problems, such as the difficulty of spreading skills, selling craft products, and separating products from market demand. Therefore, how help Huizhou bamboo carving to get out of these difficulties and develop sustainability is a problem that needs to be solved urgently. Based on the perspective of heritage craft, this study proposes ways of digital multi-dimensional transformation of Huizhou bamboo carving products, collaborative and cooperative training of bamboo carving skills, and market innovation of bamboo carving products. Thus, this paper proposed some practical approaches for the sustainability of Huizhou bamboo carving research.

Keywords:
Heritage Crafts, Collaborative and Cooperative training Skills, Innovation, Digital Transformation, Sustainability.

INTRODUCTION

Crafts are a component of the intangible heritage, according to UNESCO's 2003 declaration (UNESCO, 2003). Furthermore, heritage crafts are a practice based on communities and groups in response to their surroundings, including their relationship with nature and the continuation and adaption of practices and methods passed down from past generations. Heritage craft, according to Jennings, is "using manual dexterity and skill, as well as an understanding of traditional materials, designs, and techniques, to make or repair useful things" (Jenning, 2012, p. 4). Heritage crafts exhibit both tangible and intangible dimensions. Tangible aspects include crafts, materials, tools, natural resources, and places where crafts are practiced. These tangible aspects are evident in craft, where tangible materials

are transformed through tools. On the other hand, the intangible aspects include craft skills and knowledge. Importantly, heritage crafts can give us a sense of place, belonging, and identity and contribute to cultural distinctiveness (Jung & Walker, 2018).

However, the large number of inexpensive products brought about by mass production has resulted in some heritage crafts being considered obsolete and not commercially competitive. These artisans engaged in their production consider this traditional production method meaningful and contradictory to contemporary production. As a result, many of them still need to recycle the production methods of these traditional crafts. That has also resulted in a "dwindling number of practitioners and apprentices", in addition to the fact that few organizations are responsible for preserving heritage crafts, as highlighted by Barrère (2016). Because legacy crafts encompass our traditional craft skills, which play an essential and inherent role in the preservation of our cultural heritage, these skills, once lost, are complicated to regain. In response to this phenomenon, some cultural heritage experts have also emphasized the need to preserve heritage crafts (UNESCO, 2017). Therefore, with many heritage crafts on the verge of extinction, there is an urgent need for the relevant authorities to pay attention to preserving the skills and knowledge inherited from these crafts. At the same time, it is essential to consider how to move heritage crafts towards sustainability in the context of the many difficulties they face today.

RESEARCH DESIGN FOR THIS STUDY

According to Saunders and Tosey (2013), the study's overall design can help the researcher make well-informed decisions about synthesizing and interpreting information and collecting and analyzing data. The research is planned in stages to address the research questions and accomplish the project's goals, taking into account the exploratory nature of the project and the methodologies used for it.

The four phases of the research design established for this project are the literature review, methodology, scoping study, participatory case studies, and research evaluation. Each phase informs the subsequent phase and helps to meet the overall goal of the research. Below is Figure 1, the Research Design of this study.

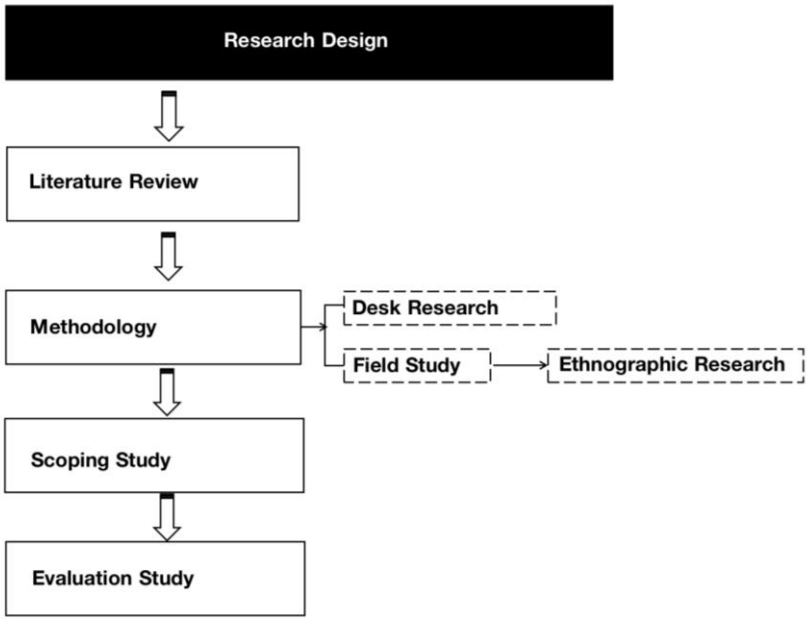

FIGURE 1. Research design of this study.

However, for this project, there is still a need to do follow-up research investigations, such as through specific case studies, to validate and evaluate.

METHODOLOGY

Literature review

The literature evaluation is an integral component of the investigation. This study examines the concept of sustainable craft by reviewing the relevant academic literature. Depending on the research objective, various methods exist to compose a literature review, ranging from a summary to a meta-analysis (Broome, 1993). This study employed a literature review (Paré & Kitsiou, 2017; Thomas & Harden, 2008) to compile literature from Google Scholar and Google databases.

This phase's objective was to conduct a critical literature review on sustainable crafts and anthropology to meet the research objective.

Sustainability development

Initially, the notion of sustainability originated from an environmental viewpoint. The notion of long-term development dates back to the early 1970s and aims to safeguard the environment and guarantee that environmental degradation does not threaten development (Nguyen et al., 2010). The World Commission on Environment and Development (WCED) defined sustainable development as "meeting current needs without jeopardizing future generations' ability to meet their own needs" in 1987. The United Nations' Agenda 21 acknowledged adding a 1992 social and economic dimension to this framework. The Swiss effort "Monitoring of Sustainable Development (MONET)" was launched the same year and proposed a sustainable development paradigm with three pillars: environmental protection, economic progress, and social fairness (Keiner 2005a, 2005b). The United Nations issued Transforming Our World: The 2030 Agenda for Sustainable Development in September 2015, approving the Sustainable Development Goals (SDGs). This policy outlines 17 SDGs (United Nations, 2021).

Sustainable craft

Sustainable craft is a relatively novel concept (Väänänen & Pöllänen, 2020). In the 1970s, it evolved from sustainable design (Bamford, 2011). Stahel, W. R. published the first article on sustainable craftsmanship in 1986, focusing on maximizing the durability of handmade items (Stahel, 1986). There are three primary stages in the evolution of sustainable process science outputs. The first period endured before the break of the 2008 global financial crisis and was characterized by a virtual cessation of scientific production, while the second quarter began after the economic recession. Finally, the third stage has a surge from 2015. It could be because, according to the United Nations, the 2030 Agenda and the 17 Sustainable Development Goals (United Nations, 2015) are essential to achieving sustainable development. Based on that background, it promotes researchers to be more receptive to adopting and applying the international community's guidelines and applying them to the crafts field. In the twenty-first century, the literature about this concept has increased increasingly (Väänänen & Pöllänen, 2020). Below is a summary of the three phases of sustainable process development in Figure 2. Sustainable processes are a broad concept whose information is dispersed across numerous studies. The contextual concepts of process (design) and sustainability are comprehensive and have varying meanings based on perspective.

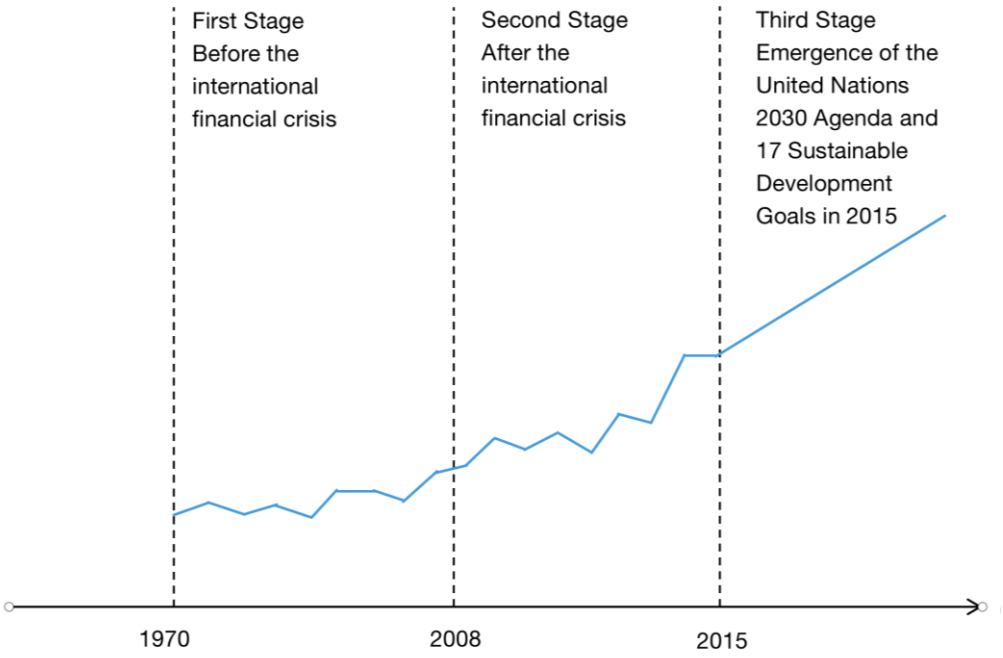

FIGURE 2. Three stages of sustainable craft development.

Bamford (2011) says that sustainable craft is based on adding sustainable design into the field. That responds to the effects of "throwaway" consumerism and super-efficient production. Sung and Cooper (2015) and Yair (2010) have pushed for craft practices that are good for the environment and can last for a long time. Craftspeople can add to sustainability by what they do and how they run their businesses. For example, they can sell crafts directly to consumers to shorten the product's life cycle and teach consumers about materials and maintenance that are good for the environment (Yair, 2010). Burns et al. (2012) say craft practitioners think about sustainability mainly regarding the world, such as materials or production. Koskennurmi-Sivonen and Anttila (2007) argue that the quality of materials, design, and craftsmanship can make craft products sustainable technology.
According to Väänänen and Pöllänen (2020), sustainable craft is now a broad notion with two key elements: craft (design) and sustainability. They conclude that craft can aid in the shift to a society that is more sustainable.

On a cultural level, sustainable crafts include local traditions, exchanges, and craft activities (e.g., Carman, 2004; Garber, 2013; Kokka & Kaipainen, 2012). We must adhere to these customs to protect local culture and cultural knowledge. Thus, Sustainable crafts are tangible communication tools through the craft product symbolic language: cultural symbols, forms, patterns, and colors appeal to creators, consumers, and producers (e.g., Divalakala and Muthian, 2017). The foundation of sustainable craft is on a social level. Education and policy formulation are essential. Tertiary education, professional development programs, and apprenticeships are used to educate materials and manufacturing procedures and instill skills and knowledge (Vartiainen & Kaipainen, 2012).

DESK RESEARCH

It is preparation before starting actual research or fieldwork.

Prerarатory research

Frequently, preparatory research (also known as "prep research") comprises diving further into the client's understanding of the study topic, their surroundings, attitudes, personal tensions and so on, or interrelationships that may arise throughout the project. Internal preliminary inquiries within a company constantly shed light and establish a firm foundation. Digging deeper also helps determine

whether stakeholders share the same perception and grasp of the study's problem or requirement aims to answer.

The purpose of preliminary research is to learn more about an industry, a company, competitors, comparable products, services, or experiences. Hashtags or social media posts can be screened for a research project subject, term, or technology industry as a component of exploratory research. Reading materials may include industry-specific scientific or specialist publications, newspapers, general-interest magazines, webinars, internet videos, or conference speeches. It may also involve a brief brainstorming session with team members, coworkers, users, consumers, or stakeholders to establish which viewpoints you must address in your research. Meanwhile, prospective leads to additional preparation and who could be an excellent addition to your research team.

Compiling text extracts and grouping photographs, images, or videos displayed as a mind map or mood board can result from preparatory research.

Secondary research

Secondary research (sometimes known as "desk research"), in contrast to primary research, uses solely secondary data previously acquired for other projects or objectives. Secondary data sources include market research reports, trend analysis, customer data, university research, and other sources, which can be either qualitative or quantitative. Secondary data sources might be external (reports, white papers, and scholarly publications), internal, or external (if your company has made research data available). Secondary research may be conducted by searching for a particular subject or question utilizing the internet, Google Scholar. Moreover, other search engine platforms and consulting scientific databases, journals, libraries, seminars, and expert consultation presentations.

The primary goal of desk research is to ascertain whether or not a previous study on a specific topic or question exists. It was based on that to construct a more specific research question and to suggest potential data gathering, visualization, and synthesis tools. To avoid recreating the wheel and to build on the work of others while undertaking primary research, desk research should always come first.

ETHNOGRAPHIC RESEARCH APPROACH

The definitions of ethnographic investigation Ethnography is also referred to as field research or participant-observation research. Thus, it is an inquiry describing/writing about persons (Neuman, 2012, p.290). Not only did anthropologists adopt ethnography in the early 20th century, but so did sociologists, as exemplified by the Chicago School of Sociology's research on Gray (2018), p.434, describes urban social dynamics in the 1920s and 1930s. There has been an increase in recent years. There has been a rise in interest in ethnography and numerous methodologies that are being employed in sectors. Such as communication studies, criminology, economics, education, and geography emerged as the most widely used qualitative investigation strategy research Neuman (2012), p.290; Zaharlick (1992).

The findings of ethnographic investigations are typically described and interpreted. That is because narrative descriptions can provide a high level of detail. Interpretations can determine the significance of what researchers acquire from the field (Gray, 2018, pp. 432-433). To investigate in order to "learn from insiders, gain native perspective, and comprehend culture or community" in-depth" Atkinson and Hammersley (2013); Neuman (2012), p.290. Ethnographers immerse themselves in the natural "field." Researchers can present the accurate tale from an insider's perspective (1990, Hammersley). However, ethnography remains a very complicated and challenging science, and ethnographers must be skilled in an exceptional capacity to comprehend precise information obtained from the current situational environment and the larger social-cultural milieu. Insiders, in many circumstances, may have various interpretations of an incident or circumstance, making it more challenging to comprehend Neuman (2012), p.291.

Anthropology is an exploring rather than an evaluative field, according to Mattelmaki (2006), a practice that occurs in a natural setting and is liable to modification. Furthermore, improvement all along the way as fresh knowledge informs subsequent observations. In the design process, ethno-

graphy is utilized to uncover the native or indigenous perspective. To conduct a long-term study of all elements of life, the designer must engage in participant observation and context immersion while speaking the same language as the research participants (Malinowski, 1987).

Research background

Bamboo carving, also known as bamboo carving, is making objects from bamboo as raw material and carving patterns or words. Bamboo carving craft is one of the heritage crafts in China, with a long history and strong local cultural characteristics. In November 2014, Huizhou bamboo carving was selected to comprise the roster of representative items of China's national intangible cultural heritage, an essential part of Huizhou culture.

Huizhou bamboo carving crafts are divided into three categories in general. The first category is functional everyday items, such as containers or stationery. The second is handmade high-value-added crafts. Moreover, the third is traditional Huizhou bamboo carving handicrafts. Figure 3 below summarizes the classification of Huizhou bamboo carving handicrafts.

Practical daily items	Bamboo carving plate	Bamboo carving ornaments (indoor decoration)	Carved Bamboo Pen Holder	Bamboo carving shelf
				
Hand-made, high-value crafts	Bamboo carving ornaments (Exhibition at the Museum)	Bamboo caving building (Exhibition at the Museum)	Bamboo caving cabbage	Bamboo caving frog
				
Traditional Huizhou bamboo carving handicrafts	Traditional bamboo carving pen holder	Traditional bamboo carving decoration	Traditional bamboo carving decoration	Traditional bamboo carving pen holder
				

FIGURE 3. Classification of Huizhou bamboo carving products.

Jianhua Hong is one of the National Intangible Cultural Heritage inheritors of the China-recognized Huizhou bamboo carving style. He has been dedicated to specializing in this craft since he was 16 years old and has been engaged in Huizhou bamboo carving for more than thirty years. Huizhou bamboo carving has gained new vitality thanks to his efforts to innovate technical methods, especially his innovative high-relief carving technique. His work bamboo carving brush holder, "Seven Sages of the Bamboo Forest," has been permanently collected by the National Palace Museum of China. His work on a bamboo root carving brush holder, "Sage Boating," has been collected by the National Museum of China.

As an inheritor of the heritage craft, Jianhua Hong invested in the construction of the Huizhou Bamboo Carving Museum in 2013 with the support of the local government of China to spread the Huizhou bamboo carving. It is a museum in the front and a bamboo carving workshop in the back, with both works on display and a place to learn how to make bamboo carvings.

FIGURE 4. Huizhou Carving Museum.

FIGURE 5 AND 6. Jianhua Hong is making Huizhou bamboo carvings.

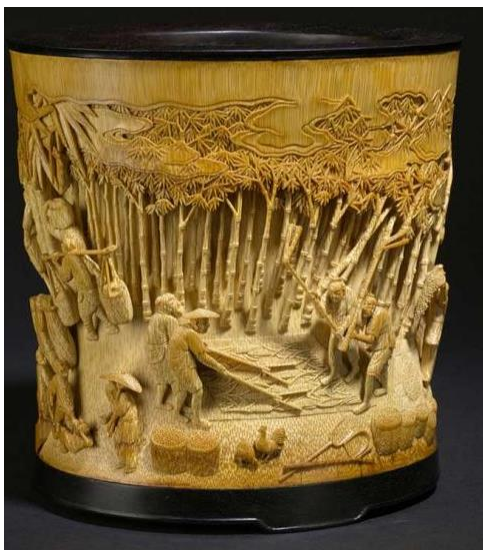

FIGURE 7 AND 8. Carved bamboo brush pot by Jianhua Hong, 'The Seven Sages of the Bamboo Forest (figure 7). Carved bamboo pen holder by Jianhua Hong, 'Farmers' Home' (figure 8).

FIELD STUDY

Field notes were created during the ethnographic scope of this study to chronicle the researcher's observations, insights, and feelings while engaging with participants and paying great attention to environmental aspects.

Field study results

There are few Huizhou bamboo carving production and management of large-scale enterprises. Most of the folk artisans are still purely hand-carved in small workshops. This mode of production of enterprises is more than just small scale, small output, low output value, and less contact between the producers, the lack of collaboration, and innovative awareness. On the other hand, the mechanization-based production model diluted the value of cultural connotations of handicrafts, severely impacting the Huizhou bamboo carving process, resulting in the loss of traditional craft characteristics into a new dilemma.

Secondly, for the conservation of heritage crafts, the first step is to ensure that there are people to continue to work on the heritage. However, the learning time for bamboo carving requires three to five years, and this extended training period and the difficulty of the craft have led to young people losing interest in practicing this craft and considering it an unstable occupation (Holroyd, 2018). At the same time, young people in today's society pursue more modern products and techniques and pay little attention to the traditional craft of Huizhou bamboo carving. As a result, most of the current Huizhou bamboo carving craft practitioners are middle-aged and older people or people with a family background in the craft, making it difficult to attract new practitioners. These middle-aged and older adults will not be able to continue to shoulder the burden of the heritage and development of Huizhou bamboo carving in the future. During the field trip, in the dialogue with Jianhua Hong, the inheritor of Huizhou Bamboo Sculpture, he mentioned that "there are too few people who can calmly learn such a skill," and Huizhou Bamboo Sculpture is facing a severe shortage of inheritors.

Importantly, it was found during the study tour that the main inheritance methods of bamboo carving crafts remain in the traditional master-disciple teaching and family inheritance, which is limited by time and space and cannot be known by a broader range of people. These traditional oral and demonstrative methods of passing on the craft while preserving the original core technical content and spiritual connotations could be a low-efficient way of passing on the craft.

During the fieldwork, the bamboo carving crafts in Huizhou were somewhat outdated and lacked innovation. These crafts were still the same as in the past, with almost no significant difference. This lack of innovation caused the bamboo carving crafts to be challenging to meet modern society's requirements and the development's sustainability.

At the same time, Huizhou local government began to provide some policies and measures to help Huizhou bamboo carving craft. Such as through vocational and technical schools to carry out skills education to the inheritance of skills. However, the inheritance of Huizhou bamboo carving technology is still just in the beginning stage because, at present, only Huangshan City, Anhui Province, China, and Hsingzhi are a school in the attempt. So, both the teaching organization and professional teaching staff need to strengthen the construction to solve the dilemma of the inheritance of bamboo carving in Huizhou. Therefore, both the form of teaching organization and professional teachers need to be significantly strengthened in order to solve the predicament of Huizhou bamboo carving inheritance.

Therefore, an issue worth considering is how to help the healthy and sustainable development of bamboo carving in Huizhou through innovation and the perspective of inheritance. The following are some suggestions and directions for reflection provided according to the findings of the preliminary fieldwork:

ANALYSIS AND DISCUSSION

Technological innovations

Crafting has acquired new and exciting dimensions with the development of digital technologies. Examples include 3D printers, laser cutting machines, e-textiles, intelligent crafts, and wearable technology. These new trends open up new possibilities for craft production and innovation and reduce the costs and resources consumed in production (Karppinen, 2017; Andersson et al., 2017; McGlashan, 2018). Meanwhile, these new technologies facilitate the storage of some dynamic heritage craft skills. Therefore, in the current context, the bamboo carving craft of Huizhou should pay due attention to the new technologies and consider how they can be applied to this heritage craft to produce evolution and achieve sustainable development.

Digital technology makes crafts to keep a competitive advantage and improve the quality of the client experience and the worth of the final product. Craftspeople may utilize technology to save expenses and boost their revenue simultaneously. It enhances the process of adding value and increases flexibility, which benefits crafts that improve the client experience. That highlights sustainable craft models with a customer-centric strategy made possible by digital transformation technology. Due to the digital revolution, emblematic bamboo carving may use various technologies to engage with consumers and provide goods or services, as well as to develop new goods or alter service methods in response to client demands. In order to provide value and get access to a range of data, it is essential to develop partnerships with partners.

Using digital technologies to do crafts to understand digital processes from a craft perspective can simplify the usage of digital technology (Campbell 2016, p.xxi). In this case, Huizhou bamboo carving extends to virtual software, and artisans' hand extends to digital tools, which is a new method for transferring bamboo craving into digital manufacturing.

Focus on training and education

Education and training are essential for promoting heritage craft construction and can facilitate the transmission of artisanal expertise from generation to generation (UNESCO, 2017). For instance, Abisuga-Oyekunle and Fillis (2017) suggest that craft education programs could be incorporated into the formal education system to resolve heritage crafts' preservation and sustainability. In many European countries, for instance, arts and crafts are included in the curriculum from an early age. 1866, Finland incorporated craft into its national curriculum, according to Mika and Manne (2014). In addition, approximately three-quarters of European nations require craft as part of their arts curriculum, according to Eurydice (2018). Meanwhile, there is an Artist Teacher Programme in the UK, a continuing professional development course for craft, design, and visual arts specialist teachers.

In addition, Norasingh and Southammavong (2017) suggest that establishing vocational training schools is essential for developing skilled professionals, and this vocational training is relevant and highly practical. Therefore this kind of vocational training can efficiently train the relevant craft skills.

Therefore, one of the essential means to develop the heritage of bamboo carving in Huizhou is to provide relevant education and training to expand the scope of educational dissemination of this heritage craft, which will help more young people to come into contact with and understand this craft. Therefore, the local government of Huizhou can solve the problem of the need for inheritors of the bamboo carving craft and lead to better development by opening a vocational training school for bamboo carving. Moreover, it offers relevant courses or degree programs so that more people can have the opportunity to learn about this craft and pass it on to others through training in skills and techniques.

The apprenticeship program of the traditional workshop has been an effective form of education for centuries Amin (1987), Bas (1988), and Sennett (2013). Therefore, examining the traditional workshop's role in transmitting crafts is essential. The most important benefit of the conventional makers is the workshop education system. The artisan can impart profoundly tacit knowledge and experiences that the apprentice cannot articulate in words. Sennett (2013) highlights the traditional master-apprentice connection as necessary for applying tacit craft knowledge when he

discusses the idea of craftsmanship. He views it as a methodology of action, mainly when the information transmitted from the master to the learning artisan is vivid and enduring. That way, deepens and transforms this tacit craft knowledge through the production and production of the internal traditional workshops that transmit the craft to the relevant practitioners in their daily lives.

On the other hand, according to Bennett (2015), making crafts is a good approach for assimilating abstract ideas due to its tactile nature. This tactility can aid in comprehending the practical skills and knowledge associated with craft, thereby influencing the maker's values and attitudes (Dormer, 1994; Ihatsu, 2002), indicating that craft becomes tangible through a material medium. That aligns with Bennett's (2015) view that craft effectively concretizes abstract concepts. It also further confirms Tarrant and Thiele's (2016) suggestion that 'learning by doing' is considered effective in the context of ESD to gain fulfillment and well-being from craft-making experiences (Pöllänen, 2015). Therefore, Huizhou bamboo carving can be combined with the workshop operation model prevalent in the current society to carry out the teaching method of learning by doing. Thus, the knowledge of this craft can be transferred to the relevant people interested in this technology through the material medium of learning. So that the skill training can gain a sense of fulfillment from the learning, thus firming up the idea of learning this craft skill and providing a pathway to solve the dilemma of the inheritance of Huizhou bamboo carving. Figure 9 below depicts learning by doing.

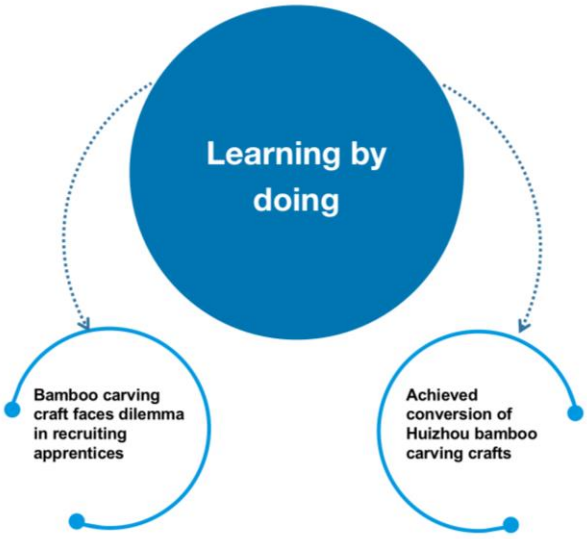

FIGURE 9. Depicts learning by doing.

CONCLUSION

This study draws on the perspectives of heritage and sustainability crafts to illustrate how they can help achieve the sustainable development of bamboo carving crafts in Huizhou. As the first phase of the following research project, the theoretical aspect of the initiative's goal is to explain the current research direction and progress of heritage crafts. The development process of sustainability crafts strengthens the concrete understanding of the current sustainable and heritage crafts. At the practical level, it lists what problems exist in Huizhou bamboo carving, the subject in the field research. It also puts forward some suggestions to solve the problems around these existing dilemmas. Examples include technological innovation and an emphasis on craft education to achieve sustainability of the Huizhou bamboo carving craft.

Although this study was conducted on the Huizhou bamboo carving craft, the findings are hoped to increase the craft's potential for sustainable development. They provide a new perspective on sustainable crafts development and facilitate the application of sustainability theories in other fields. However, additional case studies and in-depth analyses are required to provide a more compre-

hensive perspective. That will also result in a greater understanding of the unique challenges encountered by heritage crafts and the sustainable development of those crafts.

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