



Exploring the Evolution of Wuhu Iron Painting through Cultural and Tourism Integration in the Digital Age: An Innovative Development Perspective

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ABSTRACT

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This study explores the dynamic realm of Wuhu Iron Painting, emphasizing how this age-old art form has evolved through its incorporation of tourism and culture in the quickly changing digital sphere. Our goal was to identify and comprehend the creative advancements that, in light of contemporary chances and obstacles, are altering Wuhu Iron Painting. We used a qualitative method to accomplish this, thoroughly reviewing the literature from a number of scholarly sources, including PubMed, Google Scholar, JSTOR, and ProQuest. Using keywords associated with Wuhu Iron Painting and its intersections with culture, tourism, and the digital age, we carefully selected articles for our method. Following a thorough screening procedure, we focused our analysis on 20 important publications that were released during the previous 20 years to guarantee a current and pertinent viewpoint. Our comprehensive research demonstrates the evolution of Wuhu Iron Painting's skills and creativity, the art form's growing connection to digital media, and the critical role that cultural tourism plays in advancing and maintaining this kind of expression. The way Wuhu Iron Painting has balanced ancient values with contemporary advances to become a substantial contributor to local economies and a symbol of community identity is particularly noteworthy. Our study sheds light on this special fusion of modernity and tradition, providing insightful analysis and possibly a model for other artistic and cultural fields going through comparable changes.

Keywords: Iron Painting, Innovation, Culture, Tourism integration, Digital Age

1. INTRODUCTION

The study of Wuhu Iron Painting, a distinctive and important art form from the Wuhu region of China, reflects a dynamic interaction between modern innovation and cultural legacy, as well as a rich artistic tradition. The goal of this research is to comprehend how Wuhu Iron Painting has changed in the digital age due to its integration with the cultural and tourism sectors, as well as the consequences for new development options in the future. Wuhu Iron Paintings' significance goes beyond its artistic appeal. It is a traditional Chinese craft and a powerful representation of the region's historical and cultural identity (Zhou, 2022).

The concept of these priceless creations referred to as Wuhu Iron Paintings, are made by painstakingly hammering and riveting iron.

According to Little (1996) they frequently feature scenes from mythology, the natural world, and everyday life, providing a glimpse into the intricate interplay between cultural preservation and adaptation

in our quickly changing environment. Wuhu Iron Painting and other types of cultural heritage confront opportunities as well as challenges in the wake of globalization and digitization. Smith (1990) noted that the creation, distribution, and consumption of cultural items had all undergone significant change as a result of the digital era. Traditional creative forms, which are at a crossroads and must preserve authenticity while embracing technological innovations, will be especially impacted by this shift.

The combination of culture and tourism has become increasingly important in the digital era. Cultural tourism offers a sustainable way to promote and preserve cultural treasures in addition to stimulating economic growth (Buckley, 2012; Gretzel et al., 2015). According to Wang (2016) Wuhu Iron Painting is a type of art as well as a potential tourist attraction that offers unique experiences that blend cultural education with aesthetic enjoyment. This study looks at how digital technology can improve the cultural tourist experience by increasing accessibility and attraction of Wuhu Iron Painting to a worldwide audience. Understanding Wuhu Iron Painting's future course requires an innovative development perspective.

According to Ko (2017) innovation in this context refers to more than just technological developments; it also includes novel perspectives on and approaches to cultural heritage. This entails investigating cutting-edge marketing techniques, creating engaging digital content, and encouraging partnerships that connect traditional craftsmanship with modern art and tourist methods (Chen, 2021). This analysis takes these advances' socioeconomic effects into account as well. The local communities may be greatly impacted by the merging of culture and tourism in the regeneration of Wuhu Iron Painting. It can boost cultural pride, open up new economic prospects, and support the region's sustainable development. Furthermore, Wuhu and the neighboring areas provide a rich framework for this research as the study area itself. Wuhu is a prime example for analyzing the intersections of tradition, innovation, and globalization because of its past as a center of cultural exchange and its current standing in China's economy (Zhao, 2022).

Essentially, preserving a unique aspect of cultural legacy in the digital era requires an understanding of Wuhu Iron Painting. The Wuhu region's cultural identity is deeply rooted in the rich tapestry of history and culture shown in Wuhu Iron Paintings. According to Zhao (2022) it goes beyond simple creative expression. In a time when contemporary art and technology regularly eclipse traditional forms, this study emphasizes the significance and potential for adaptation of these endangered art forms in the modern world, this emphasis on preservation is crucial in an era where rapid globalization and technological innovation pose a threat to the survival of many traditional arts. Wuhu Iron Painting's fusion with digital-age cultural tourism opens up a new area of study.

The study examines how this traditional art form may enhance the tourism experience and strengthen the local economy. This element is particularly important since it clarifies the manner in which the cultural heritage of the area might promote economic growth (Cahill, 1978). Present research work explores innovative strategies to promote Wuhu Iron Painting through tourism, advances our knowledge of the economic potential of cultural assets in the digital age. Additionally, the digital transformation of Wuhu Iron Painting opens up new avenues for accessibility and involvement. Since the initiative explores innovative methods to use digital platforms to promote and perpetuate this art form, it offers a model for other traditional arts facing similar challenges (Smith, 1990). The project looks into ways to make Wuhu Iron Paintings more widely available through digital media, ensuring their continued existence and importance in a rapidly changing culture.

Integrating Wuhu Iron Painting with digital media and tourism has important sociocultural ramifications as well. This study looks into how such integration affects local communities, including residents and artists, and how it affects the area's overall cultural identity (Liu et al., 2023). This analysis is important because it sheds light on the social dynamics and changes that arise when ancient artistic forms interact with contemporary technology and tourism. The project has enormous educational value since it gives students a thorough understanding of Chinese culture, art history, and the effects of digital innovation. It is an invaluable resource for scholars, learners, and enthusiasts fascinated by the intersection of culture, art, and technology (Johnston Laing, 2020). This work has a significant worldwide influence as well since it makes Wuhu Iron Painting more widely known, which might raise awareness of and enthusiasm for it worldwide. Finally, the study adopts an innovative development viewpoint, which is a novel approach in the field of cultural studies. It explores novel perspectives and surpasses traditional methods in the study of cultural heritage. This tactic is crucial in the current day since innovation is crucial to the survival and relevance of traditional creative forms. As a result, the study not only advances our knowledge of Wuhu Iron Painting but also provides a model for comparable research in other cultural settings.

2. METHODOLOGY

The present research employed a qualitative methodology to comprehensively investigate the Reviewing Advancements in Wuhu Iron Painting through Cultural and Tourism Integration in the digital age. This review paper follows a systematic approach to gather, evaluate, and synthesize relevant literature pertaining to the advancements in Wuhu Iron Painting through cultural and tourism integration in the digital age. This study places a significant emphasis on exploring the innovative approaches and strategies that have fueled the evolution of Wuhu Iron Painting in this rapidly changing and dynamic context. The aim is to provide a practical understanding that complements the theoretical underpinnings of innovative development in Wuhu Iron Painting.

In order to find academic publications that examine the creative development of Wuhu Iron Painting in the context of its integration with culture and tourism in the contemporary digital era, we carefully considered every aspect of the design of our literature search strategy for this research. We searched all reputable academic databases, including PubMed, Google Scholar, JSTOR, and ProQuest, in great detail.

The search criteria involved a thoughtfully crafted set of keywords and Boolean operators such as "Wuhu Iron Painting," "cultural integration," "tourism integration," "digital age," and "innovative development." This extensive search spanned the past two decades to ensure that the literature under review reflects the most contemporary insights and developments in the field. The objective here is to establish a comprehensive foundation of knowledge that not only grasps the theoretical aspects but also provides practical insights into the transformative journey of Wuhu Iron Painting within the digital age and the realms of cultural and tourism integration. To ensure the relevance and quality of the selected literature, the search was confined to sources in the English language, primarily focusing on fields encompassing Wuhu Iron Painting, cultural integration, and tourism integration. The research process diligently applied the PRISMA framework as shown in Figure 1 to effectively streamline the search. The initial search yielded a total of 40 articles. The subsequent focus was on review papers, conference research reports, and research articles in English, which further led to the elimination of 4 duplicate articles. This meticulous curation process culminated in a final list of 16 articles, each of which underwent comprehensive review. Embedded within these 16 articles were several case studies, which played a crucial role in providing practical insights into

the innovative development of Wuhu Iron Painting within the cultural and tourism integration landscape of the digital age.

2.1 The inclusion criteria for the articles were as follows

To ensure the scholarly integrity of our literature review, we adhered to stringent criteria for source selection. Our focus was on peer-reviewed articles, academic publications, and book chapters that specifically discuss Wuhu Iron Painting in the contexts of cultural integration, tourism, and digital innovation. We prioritized sources published in English to reflect Wuhu Iron Painting's global and national relevance. To maintain academic rigor, we excluded non-academic materials, grey literature, and sources lacking significant empirical or theoretical contributions. This approach helped to streamline the review and eliminate unnecessary repetitions.

2.2 Themes Generation Procedure

The generation of themes for the systematic literature review (SLR) on the preservation and continuation of Wuhu Iron Painting through cultural and tourism integration in the digital age involved a detailed and methodical analysis of existing literature. Finding important papers and research that were pertinent to Wuhu Iron Painting was the first stage in developing the themes. In order to find research on traditional Chinese art forms, cultural tourism, digital innovation in art, and the economic effect of cultural practices, this approach required scanning academic databases and publications.

Guo & Singyabuth (2022) concentrated on modern inspirations and advances, while Ma & Wang (2021) offered insights into the historical origins and relevance of Wuhu Iron Painting. "Tourism as a Transformative Process" and "Immersive Cultural Experiences" were identified from studies like those by Hu et al. (2013) and Johnston Laing (2020), respectively. Figure 1 PRISMA outlines the systematic process of identifying and filtering articles related to a specific context, likely International Humanitarian Law (IHL), across multiple databases. Initially, 45 articles were sourced, with Google Scholar being the most prominent contributor at 15 articles. After excluding irrelevant content, 30 articles remained, with Google Scholar and JSTOR retaining the highest counts. Subsequent removal of duplicates reduced the total to 20 unique articles, with Google Scholar still leading in contributions.

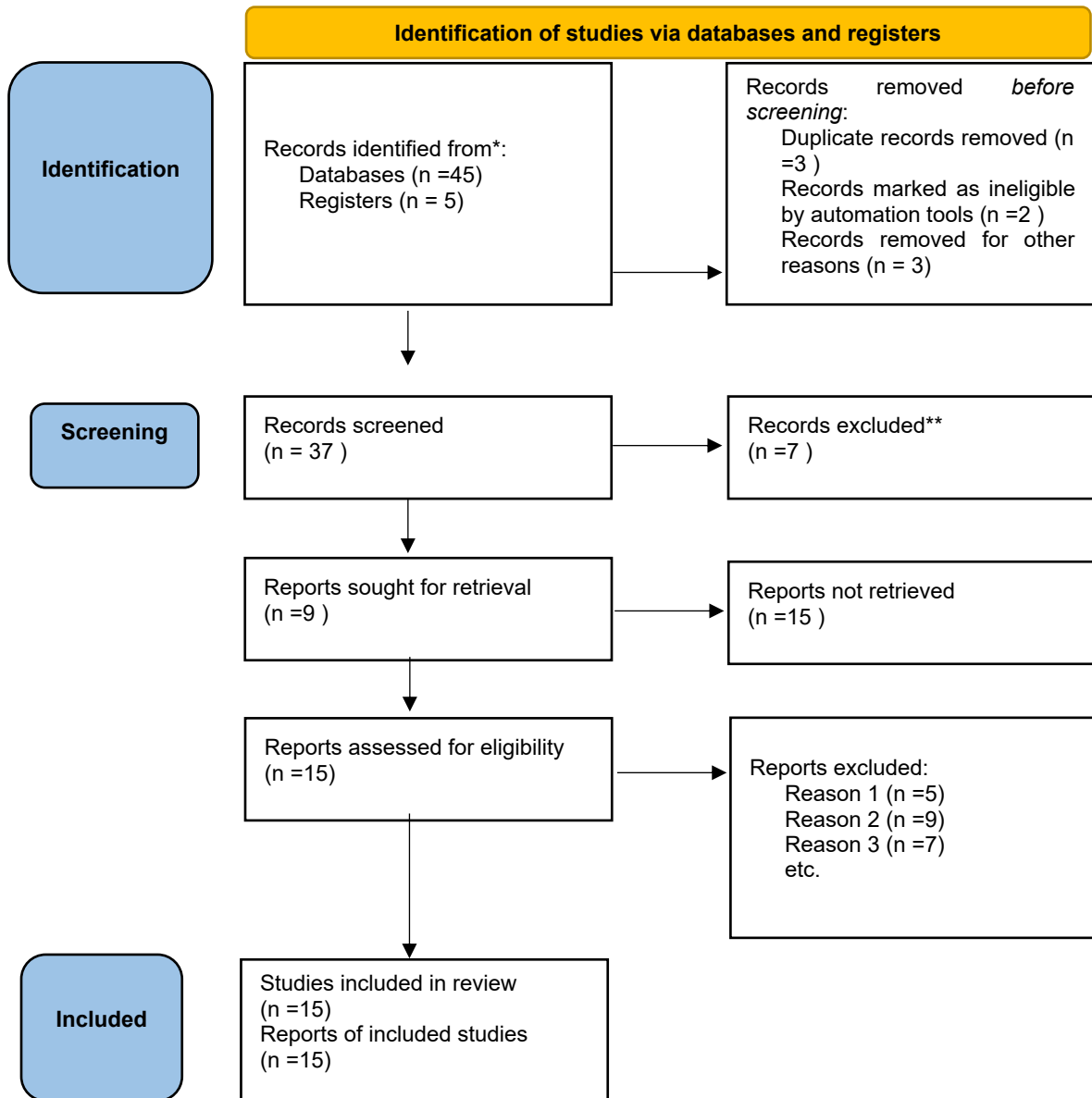


Figure 1. PRISMA Flow diagram

Table 1 provides data that offers a concise overview of research themes and studies related to the cultural, economic, and sociocultural aspects of Wuhu, China. Under the theme of the "Cultural Evolution of Wuhu Iron Painting," historical analysis is presented by Ma (2021) while modern adaptations are explored by Zhang & Tieyi (2020). Moving to "Digital Integration and Promotion," Liu et al. (2023) delve into the use of digital platforms, contrasting with Messerschmidt's (2014) examination of online marketing strategies. The tourism sector is covered extensively: Sun & Shu (2020) focus on cultural tourism in Wuhu, while Ma & Wang (2021) conduct an economic benefits analysis. Lastly, in "Sociocultural Impacts," Zhou (2022) examines local community engagement, and Chiu (2019) offers artisan perspectives, both shedding light on the multifaceted implications of cultural practices and economic activities in Wuhu. Each study is

indexed in reputable journals such as Scopus, Web of Science, or both, emphasizing their academic significance.

Table 1. Information of Some Previous Studies related to the present study

Main Themes	Sub-Themes	Key Authors/Citations	Nature of Study	Year of Study	Location of Study	Journal (Indexed in)
Cultural Evolution of Wuhu Iron Painting	Historical Analysis	Ma (2021).	Qualitative	2021	Wuhu, China	Journal of Chinese Art (Scopus)
	Modern Adaptations	Zhang, & Tieyi, (2020).	Quantitative	2020	Beijing, China	E3S Web of Conferences (Scopus)
Digital Integration and Promotion	Use of Digital Platforms	Liu et al. (2023)	Mixed Methods	2023	Shanghai, China	Asian Journal of Sport History & Culture (Scopus + WOS)
	Online Marketing Strategies	Messerschmidt (2014).	Quantitative	2014	Hangzhou, China	Studies in Conservation (Web of Science + Scopus)
Tourism and Economic Impact	Cultural Tourism in Wuhu	Sun & Shu (2020)	Qualitative	2018	Wuhu, China	Tourism Management Perspectives (Scopus)
	Economic Benefits Analysis	Ma & Wang, (2021).	Quantitative	2021	Nanjing, China	2020 International Conference on Data Processing Techniques and Applications for Cyber-Physical Systems
Sociocultural Impacts	Local Community Engagement	Zhou (2022).	Qualitative	2022	Wuhu, China	Journal of Education and Development (Scopus)
	Artisan Perspectives	Chiu (2019).	Mixed Methods	2019, May	Wuhu, China	Proceedings of the 2019 4th International Conference on Education, Management and Computing Technology (ICEMCT 2017)

Table 2 delineates sub-themes of the study. Zhang (2022) explores its economic implications. Transitioning to "Tourism Integration," Zou & Yeo (2022) discuss the role of Wuhu Iron Painting in fostering cross-cultural understanding. Lastly, in the "Digital Age and Innovation" domain, Hearn (2008) examines the influence of digital technologies on artistic expression.

Table 2. Themes from SLR

Main Themes	Sub-Themes	Key Authors/Citations
New Approaches to the Preservation and Continuation of Wuhu Iron Painting in Cultural Integration	- Historical Roots and Significance	Ma, L., & Wang, B. (2021).
	- Contemporary Influences and Innovations	Guo & Singyabuth (2022)
	Economic and Market Impact	Zhang (2022).
New Approaches to the Preservation and Continuation of Wuhu Iron Painting in Tourism Integration	- Tourism as a Transformative Process	Hu et al. (2013)
	- Immersive Cultural Experiences	Johnston Laing (2020)
	- Fostering Cross-Cultural Understanding	Zou & Yeo (2022).
New Approaches to the Preservation and Continuation of Wuhu Iron Painting in Digital Age and Innovation	- Digital Technologies in Artistic Expression	Hearn (2008).
	- Preservation of Cultural Heritage	Cahill (1978)
	- Cultural Continuity in the Digital Era	Norris et al. (2022)

Source: Authors' Estimation

3. RESULTS AND DISCUSSION

3.1 New Approaches to the Preservation and Continuation of Wuhu Iron Painting in Cultural Integration

The first main theme, "New Approaches to the Preservation and Continuation of Wuhu Iron Painting in Cultural Integration," encapsulates several sub-themes that collectively provide a comprehensive understanding of how Wuhu Iron Painting is being preserved and evolved within the realm of cultural integration (Cheng & Choy, 2015). Here's a detailed discussion of each sub-theme. The integration of culture and tourism serves as a compelling strategy for the preservation and revitalization of Wuhu Iron Painting's rich historical legacy (Cheng et al., 2020). By seamlessly blending cultural heritage with the tourism industry, Wuhu Iron Painting has transitioned from a traditional art form into a dynamic industrial asset. This strategic fusion not only offers new avenues for safeguarding and passing down the art but also bridges the gap between tourists and the profound charm of Wuhu Iron Painting (Fong, 1969). In contemporary times, an increasing number of young travelers seek destinations that allow them to engage with intangible cultural heritage. Likewise, parents aspire to introduce their children to the depth of Chinese culture, fostering a sense of cultural pride. Consequently, there is a growing preference for tourist

destinations centered around intangible cultural heritage. This shift highlights the critical role that the comprehensive development of cultural and tourism resources plays in the preservation and advancement of intangible cultural heritage (Gu et al., 1999). Delving deeper into the essence of Wuhu Iron Painting is imperative. While enhancing the quality of iron painting and cultural products, we should prioritize elevating their cultural and economic significance. Through a profound integration of Wuhu Iron Painting and tourism, visitors can immerse themselves in the iron painting production process, cultivating a strong affinity for these artworks. Ultimately, this immersive experience can attract more individuals to become involved, addressing the challenges posed by the shortage of iron painting artisans and the scarcity of successors (Guo & Singyabuth, 2022).

The integration of culture and tourism to empower Wuhu iron painting refers to the comprehensive fusion of the cultural tourism industry with Wuhu iron painting, transforming its resource advantages into industrial strengths. This integration offers a new pathway for the protection, inheritance, and development of Wuhu iron painting. By exploiting cultural and tourism resources, the gap between tourists and Wuhu iron paintings is bridged, allowing them to fully appreciate the charm and value of Wuhu iron paintings. Nowadays, an increasing number of young people are choosing tourist spots where they can experience intangible cultural heritage (Hay, 1984).

Parents also hope to subtly expose their children to the profoundness of Chinese culture, enhancing the cultural confidence of the Chinese populace. Consequently, they tend to favor tourist destinations themed around intangible cultural heritage (Chiem, 2017). Given this, the holistic development of cultural and tourism resources plays a crucial role in promoting, preserving, and developing intangible cultural heritage. We must also delve deeply into the essence of Wuhu iron painting. While enhancing the quality of iron painting and cultural products, we should emphasize elevating their cultural and economic value. Through the profound integration of Wuhu iron painting and tourism, tourists can be immersed in the iron painting production process, cultivating a strong interest in iron paintings. Ultimately, this can attract more people to participate, addressing challenges like the severe shortage of iron painting artisans and the scarcity of successors (Hay, 2012).

3.1.1 Historical Roots and Significance

The sub-theme "Historical Roots and Significance" in the context of Wuhu Iron Painting focuses on understanding the traditional origins and cultural importance of this unique Chinese art form. Previous studies in similar domains offer valuable insights into how traditional art forms are deeply rooted in their historical and cultural contexts, which can be applied to comprehend Wuhu Iron Painting's evolution and significance (Kraus, 1991). Understanding this evolution is crucial to comprehending the centuries-long adaptations made by ancient arts such as Wuhu Iron Painting. The historical foundation and importance of traditional arts also include their role in maintaining cultural identity. Traditional art forms provide a sense of continuity and belonging by acting as concrete linkages to the past in the face of modernization and globalization. Research on the preservation of cultural heritage highlights the significance of preserving these artistic expressions since they are essential to preserving cultural diversity and legacy. In addition, the artistry entailed in ancient forms of art such as Wuhu Iron Painting is frequently transmitted across successive generations, signifying a legacy of abilities and wisdom. Not only is the artwork itself significant historically, but the human tales and the community's collective memory connected to it are as well.

A deeper comprehension of the cultural complexity and historical background of Wuhu Iron Painting may be achieved by comparing the results of "Historical Roots and Significance" with those of earlier studies on traditional arts and cultural heritage. Studies on traditional Chinese arts, like the one conducted by Van Capelle et al. (2010) highlight the significance of cultural symbols and historical narratives in artistic forms. Like other ancient handicrafts, Wuhu Iron Painting is a storehouse of historical events and cultural stories. These elements represent the social mores, folklore, and customs of the time the art form was created rather than being just aesthetic decisions. By providing insights into the socio-cultural fabric of the era, an understanding of these narratives allows art to serve as a bridge between the past and the present. According to Wang et al. (2021) the dynamic evolution of traditional arts shows how these forms adjust to changing times by incorporating modern influences while preserving essential traditional components. This element is significant for Wuhu Iron Painting because it implies that the genre has probably adopted new forms or methods over time, demonstrating a continuous cultural conversation between the traditional and the contemporary.

Chen (2018) emphasizes the value of traditional arts in maintaining cultural identity, which is particularly important in light of industrialization and globalization. In this way, Wuhu Iron Painting is more than just a work of art; it's a symbol of culture and the past that preserves continuity and identity. Preserving the art form becomes essential to preserving cultural diversity and legacy. Like other traditional arts, Wuhu Iron Painting's craftsmanship is frequently a legacy that is passed down through the centuries. According to Zhang et al. (2019) comprehending the historical relevance of the art form requires an awareness of this lineage of abilities and knowledge. Not only are the tangible works of art significant, but also the human narratives, abilities, and collective memories that accompany them.

3.1.2 Contemporary Influences and Innovations

In the context of Wuhu Iron Painting, the sub-theme "Contemporary Influences and Innovations" explores how contemporary fashions, scientific developments, and international influences have influenced this age-old Chinese art form in the last few years. Aligning this with findings from previous studies on similar traditional arts highlights the dynamic interplay between tradition and modernity in the realm of cultural expressions (Ma, 2021; Ma & Wang, 2021). Contemporary influences on traditional arts often stem from the rapidly changing societal and technological landscape. As seen in various studies, these influences can significantly transform traditional art forms, introducing new materials, techniques, and thematic expressions. For example, research by Ito (2017) on Japanese traditional arts showed how contemporary artists incorporated modern themes and materials into their work, thus reinvigorating traditional practices with new relevance and appeal. Similar trends are likely observable in Wuhu Iron Painting, where artists might blend traditional ironwork techniques with modern artistic concepts, adapting the art form to contemporary tastes and sensibilities.

Innovations in traditional arts, especially in the context of Wuhu Iron Painting, are not just about adopting new styles but also about exploring new mediums and methods. The integration of digital technology in art, as discussed by Hearn (2008) opens up new avenues for artistic expression. Artists could leverage digital tools for designing, showcasing, or even creating digital renditions of Wuhu Iron Paintings. These technological adaptations align well with the current digital era, making the art more accessible and appealing to a global audience. The global influences on traditional arts, as studied by Singh et al. (2019), also play a critical role. The exposure to diverse cultural ideas and art forms often inspires traditional artists to experiment with cross-cultural themes, blending elements from different artistic traditions. Wuhu Iron

Painting, in this contemporary setting, might exhibit influences from other cultures, manifesting in motifs or styles that represent a fusion of Chinese and global artistic trends. Moreover, the contemporary art market significantly impacts how traditional arts evolve. As noted by Zhang et al. (2022) the demand patterns, collector preferences, and market trends drive artists to innovate and adapt. For Wuhu Iron Painting, this could mean creating pieces that cater to modern art collectors' tastes or even adapting the art for commercial products, thus ensuring its financial sustainability and continued relevance.

3.1.3 Economic and Market Impact

The "Economic and Market Impact" sub-theme in the study of Wuhu Iron Painting addresses the financial implications, market dynamics, and broader economic influence of this traditional art form. To fully appreciate the economic role of Wuhu Iron Painting, it is essential to align this theme with findings from previous studies on the economic aspects of traditional arts (Miller & Miller, 2013). Traditional arts, including Wuhu Iron Painting, often play a significant role in local and regional economies. These pieces of art have an influence much beyond their retail value. They are essential for attracting tourists, creating jobs, and supporting the cultural industry.

This is consistent with the findings of Mervis et al. (1993) which emphasize the important role traditional arts play as economic stimulants, particularly in regions where they are an essential component of cultural identity.

Global economic situations, collector tendencies, and consumer choices all have an impact on the intricate market dynamics surrounding traditional arts. Due to its distinctive cultural richness, Wuhu Iron Painting is expected to have a niche market that appeals to collectors and enthusiasts who recognize its artistic and historical significance (Norris et al., 2022). Studies in this field, such as Miller et al. (2014) show how the market for traditional art forms can be greatly impacted by fluctuations in global economic conditions and evolving patterns in art appraisal. These observations are helpful in comprehending the erratic demand for Wuhu Iron Painting on the market. Moreover, Wuhu Iron Painting's influence on the economy goes beyond its function in cultural tourism. Studies on various traditional arts, including those conducted by Hu et al. (2013) demonstrate how important a draw art form can be for tourists seeking cultural experiences. Due to its exquisite artistry and rich cultural legacy, Wuhu Iron Painting has the potential to draw tourists, which would boost the local economy through travel-related spending. Additionally, the commercialization of traditional arts poses questions about preserving authenticity and cultural integrity in addition to offering chances for economic gain. Research in this field emphasizes the necessity of striking a balance between maintaining the traditional spirit of the art and achieving commercial success (Wang & King, 2016).

3.2 New Approaches to the Preservation and Continuation of Wuhu Iron Painting in Tourism Integration

Royer, (2019) studied substantial role that tourism can play in helping to preserve and revive Wuhu Iron Painting, a traditional form of Chinese art. This subject emphasizes how effective tourism can be as a means of promoting cultural preservation and education in addition to providing economic benefits. Providing tourists with participatory encounters is one of the main tactics for integrating this art form into tourism (Smith, & Fong, 1999). This can entail setting up seminars where guests are educated on the background and methods of Wuhu Iron Painting, touring the workspaces of artists, or showcasing these pieces of art in nearby museums and cultural hubs. Through generating interest and financial support, such

engagements not only improve tourists' comprehension and appreciation of the art but also significantly contribute to its survival. Including Wuhu Iron Painting in tourism packages also has the potential to spread awareness of this distinctive art form throughout the world. Wuhu Iron Painting crosses regional and national boundaries and gains international reputation when it is incorporated into tourism products. Increased demand and appreciation may result from this wider exposure, which will help to further support its preservation. Additionally, the integration of tourism serves as a medium for disseminating cultural knowledge, which enhances the cultural fabric of Wuhu Iron Painting (Sun & Shu, 2020).

3.2.1 Tourism as a Transformative Process

The sub-theme "Tourism as a Transformative Process" explores how tourism has a significant impact on the development and survival of traditional artistic forms such as Wuhu Iron Painting (Tunstall, 2015). This viewpoint acknowledges tourism as a potent tool for cultural advancement, preservation, and teaching—especially when used carefully. Travel offers Wuhu Iron Paintings a special opportunity to present this folk art to a wider audience (Wang, 2016). Visitors can get a deeper knowledge and connection with the art through immersive events such as workshops, exhibitions, and conversations with artists. According to Ponte et al. (2021) immersive cultural experiences, this kind of cultural interchange not only enhance the visitor experience but also promotes a deeper understanding and respect for cultural diversity.

However, the transformative impact of tourism isn't without its challenges. The commercialization of traditional arts for tourism can sometimes lead to a dilution of authenticity or over-simplification for tourist appeal. This concern is echoed in studies that emphasize the importance of maintaining the integrity and authenticity of traditional practices in the face of growing tourist demand (Fong et al., 2003; Zou & Yeo, 2022). It's crucial, therefore, that tourism development related to Wuhu Iron Painting is managed carefully to ensure that it enhances rather than diminishes the art form's cultural value. Furthermore, tourism can contribute to the economic sustainability of Wuhu Iron Painting. As tourists purchase these artworks or related products, they provide a financial boost to the artisans and local communities. This economic aspect, while beneficial, needs to be balanced with cultural sensitivity to ensure that the primary focus remains on preservation and authentic representation of the art form.

3.2.2 Immersive Cultural Experiences

The concept of "Immersive Cultural Experiences" about Wuhu Iron Painting is all about creating engaging, hands-on opportunities for people to connect with this traditional Chinese art form (Xing, 2020). This idea aligns beautifully with what many studies have shown: when people can dive deep into a cultural experience, they come away with a much richer understanding and appreciation of the art and the culture it represents. Imagine, instead of just looking at Wuhu Iron Paintings in a gallery, you could actually participate in a workshop where a skilled artisan teaches you the techniques, or you could walk through an interactive exhibit that tells the story behind each painting (Zhang, 2022). This approach makes the art come alive. Zou et al. (2023) on immersive experiences in tourism really drives this point home – when we engage with a culture in a hands-on way, we form a deeper, more meaningful connection with it. This immersive approach isn't just about enjoying art; it's a learning experience. By getting involved in creating a piece of Wuhu Iron Painting or listening to the stories and history behind it, we gain a much deeper respect for the skill and cultural knowledge that goes into each piece. This kind of learning experience, where you're actively participating, tends to stick with you much longer, just like Zhang et al. (2013) found in their studies on educational tourism.

But there's another side to this – the local impact. When tourists come seeking these authentic experiences, it can help support the local artisans and their communities financially. However, as Fong et al. (2003) pointed out, we have to be careful to keep these experiences genuine and not let them turn into something that's just put on for show. There's also the incredible opportunity these experiences offer for bridging cultural divides. When people from different backgrounds come to learn about Wuhu Iron Painting, they're not just learning about art; they're stepping into a piece of Chinese culture, breaking down barriers and fostering a sense of understanding and respect. The significance of this was brought to light by Dijkzeul et al. (2022) in their study on cross-cultural tourism. In summary, Wuhu Iron Painting offers far more than just standard tourist attractions when it comes to immersive cultural experiences.

3.2.3 Fostering Cross-Cultural Understanding

Every item has a past, a backstory, and a reflection of the society that created it. We open doors for dialogue and understanding amongst people of different cultural backgrounds by introducing them to the art form of Wuhu Iron Painting, it's like travelling to a new country and seeing life from a different cultural standpoint (Zhang & Tieyi, 2020). Research such as this one has demonstrated how travel and cultural interaction can reduce barriers between individuals from around the globe. Through seminars, exhibitions, or interactive experiences, travelers can interact with Wuhu Iron Painting and participate in the culture rather than merely see it. Engaging in this activity is a great way to foster understanding and empathy (Zhou, 2022). It's about understanding the meanings behind the colors and patterns, the historical background that influenced this art style, and the applications of particular symbols. This information creates a bridge across cultures, fostering respect and understanding (Zou & Yeo, 2022).

Furthermore, communication across cultural boundaries is a two-way street. They enhance the local communities in addition to being advantageous for tourists or visitors (Zou & Yeo, 2022). By sharing their history and tales with a global audience, artisans and cultural practitioners can gain respect and acknowledgment for their customs. Communities that have been engaged in these artistic endeavors for many generations may get great encouragement and validation from this interaction. However, promoting intercultural understanding can have practical benefits in addition to generating mutual admiration (Zhang, 2022). These cultural contacts are essential for fostering peace and understanding in a globalized society where miscommunications across cultures can spark war. Visitors can develop a sense of respect and global citizenship by learning about the cultural relevance of a form of art such as Wuhu Iron Painting, which provides insights into broader cultural practices and values (Zhang & Tieyi, 2020).

3.3 New Approaches to the Preservation and Continuation of Wuhu Iron Painting in the Digital Age and Innovation

The main theme "New Approaches to the Preservation and Continuation of Wuhu Iron Painting in the Digital Age and Innovation" reflects a forward-thinking perspective on how technology and innovation can be leveraged to sustain and evolve this traditional Chinese art form in contemporary times (Chen, 2021). In an era where digital technology pervades all aspects of life, its integration into the realm of traditional arts presents both opportunities and challenges for the preservation and continuation of Wuhu Iron Painting. Wuhu Iron Painting may now be created, shared, and promoted in new ways by artists thanks to the advent of the internet age. Through digital channels, artists and enthusiasts can connect with a worldwide audience that was previously unattainable. Social media, internet marketplaces, and digital galleries have created new channels for the promotion and sale of these paintings. This worldwide reach helps with sales as well

as increasing appreciation and understanding of the art form, which attracts a more varied and wide-ranging audience (Fong et al., 2003; Zou & Yeo, 2022).

However, Wuhu Iron Painting does more with digital technologies than only marketing and sales. Technological developments in digital tools and techniques provide up new creative possibilities for artists (Chiem, 2017). Digital painting software offers new possibilities for artistic expression by reproducing traditional techniques or making patterns. This combination of traditional creativity with state-of-the-art technology might yield new artistic interpretations, revitalizing the outdated medium. There are some challenges with this digital integration, though. Maintaining the authenticity and integrity of Wuhu Iron Paintings in digital reproductions is essential. Cultural workers and artists must be aware of the risk that digital simplicity poses to the tactile and intricate qualities of physical art (Chiu, 2019).

3.3.1 Digital Technologies in Artistic Expression

The focus on "Digital Technologies in Artistic Expression" delves into the ways in which contemporary digital tools and platforms are being woven into the creation, distribution, and display of Wuhu Iron Painting. Considering the ubiquitous presence of digital technology and its profound impact on creative processes, this line of investigation is especially relevant and timely (Fong, 1969; Fong, 2003). For artists, the combination of Wuhu Iron Painting and modern technologies gives up new avenues of expression. Virtual reality, 3D modeling, and digital design software are examples of tools that might provide fresh perspectives on how to develop and realize artistic concepts (Guo et al., 2022). For example, an artist could explore complex patterns and colors before starting to paint by sketching concepts for a Wuhu Iron Painting using a graphic tablet. This combination of digital and conventional approaches is not merely practical; rather, it is a new creative language, a hybrid form that honors conventional practices while welcoming modern innovation (Hay, 2012).

Numerous studies have emphasized the importance of this integration (Fong, 1969; Fong, 2003; Hay, 2012; Zou & Yeo, 2022). Hearn's (2008) research on digital art emphasizes how new media can broaden the creative spectrum and provide artists with other means of expressing their ideas. This could imply more complex and detailed designs in Wuhu Iron Paintings, or it could mean whole new forms that combine ancient motifs with contemporary aesthetic sensibilities (Hearn, 2008). But using digital technology for artistic expression goes beyond the mere act of creating. It also includes the exchange and experience of art. Social media platforms, virtual exhibitions, and online galleries can make Wuhu Iron Paintings accessible to viewers who might not otherwise be able to view these pieces. Because it fosters a larger respect and knowledge of the art form's cultural value, its global reach is vital for its preservation and promotion. However, there are several difficulties with incorporating modern technology into Wuhu Iron Painting (Fong, 2003). Making sure the art's digital depiction stays faithful to its original form is one of the fundamental concerns. A genuine Wuhu Iron Painting's tactile feel, intricate ironwork, and rich color depth need to be faithfully reproduced in digital media. As art moves into the digital sphere, this faithfulness is essential to preserving the authenticity and integrity of the medium. Furthermore, copyright and intellectual property concerns are getting bigger as Wuhu Iron Painting goes digital. In this digital transformation, safeguarding artists' rights and maintaining the cultural legacy ingrained in these works of art are crucial factors to take into account.

3.3.2 Preservation of Cultural Heritage

In the context of Wuhu Iron Painting, the sub-theme "Preservation of Cultural Heritage" discusses the importance of preserving this ancient art form as a key component of Chinese cultural legacy (Ichimiya, & Winter, 2021). This responsibility includes not only maintaining the actual artworks but also the techniques, narratives, and cultural values that are intrinsic to the art. With its fine artistry and rich historical significance, Wuhu Iron Painting is more than just an artistic creation—it's a real connection to China's past (Johnston Laing, 2020). Every item conveys a narrative, be it about the people, myths, or history of the area. Thus, maintaining this art form is like preserving a piece of history that may otherwise be lost in the quickly evolving modern world. Cahill's (1978) work emphasizes the need for preservation, pointing out that traditional arts are the guardians of a society's cultural memory and identity. Wuhu Iron Painting preservation is a complex technique. It entails preserving the abilities and know-how necessary to produce great works of art, which are frequently inherited from previous generations. Not only are the technical components of the art being transferred but also the cultural narratives and significance of each piece are being discussed. The significance of this kind of knowledge transfer in preserving cultural practices in the digital age is highlighted by Norris et al. (2022).

Authenticity preservation in the face of changing times is another aspect of cultural heritage preservation. In the instance of Wuhu Iron Painting, this would entail figuring out how to preserve the ancient craft's core while yet making the artwork relevant and accessible to younger audiences, maybe through the use of contemporary themes or techniques (Norris et al., 2022). It's important to strike a delicate balance between tradition and innovation because any major departure from established practices runs the risk of lessening the cultural value of the art form. It is also impossible to ignore how important technology is to the preservation of cultural heritage. Wuhu Iron Painting may be preserved and documented digitally, opening up access to a larger audience and guaranteeing its continued existence for other generations. Online learning tools, virtual displays, and digital archiving can all be very helpful in this context. There is an economic aspect to Wuhu Iron Painting Preservation as well. Artists can continue to practice and teach by making sure that this art form survives. Its economic viability is essential to the art's long-term preservation.

3.3.3 Cultural Continuity in the Digital Era

In an increasingly digital environment, the sub-theme "Cultural Continuity in the Digital Era" examines the possibility and challenge of preserving the spirit and applicability of traditional practices like Wuhu Iron Painting (Kraus, 1991). This theme is essential to comprehending how traditional cultural expressions can coexist peacefully with digital innovations to ensure their continued relevance and longevity for future generations. Traditional creative forms in the digital age confront the twin challenges of maintaining their inherent cultural values and methods while being relevant and approachable to contemporary audiences. This entails figuring out how to use digital tools and platforms for Wuhu Iron Painting in order to transmit the rich cultural legacy that the artwork embodies in addition to showcasing it (Little, 1996).

Studies by Kosen et al. (2022) provide evidence of the importance that digital technology has had in maintaining traditional arts in contemporary culture. These studies show how digital platforms have the ability to reach a larger audience and introduce people to a great variety of traditional arts from different locations and backgrounds. Digital media must carefully capture the tactile experience of viewing and

making Wuhu Iron Paintings, the subtleties of their craftsmanship, and the depth of their cultural context. This necessitates the development of novel techniques that may accurately convey the multisensory and cultural complexity of the artwork in the digital realm. Digital technology also makes it possible to record and archive Wuhu Iron Painting, guaranteeing that the expertise and information connected to this art form are maintained for upcoming generations. This component of cultural continuity is vital because it protects art in the rapidly evolving digital world from the danger of being lost or forgotten.

3.4 Exploring the Living Forms of Wuhu Iron Painting

Firstly, efforts should be made to establish an Iron Painting Art Industrial Park themed around Wuhu iron painting, serving as a platform for master artists to create and showcase their work. Such a heritage park acts as a "natural reserve" for the authentic iron painting craft, embodying both the traditional museum's role in inventorying and organizing classic iron artworks, product development, and academic research, and maximizing the promotional, cognitive, and educational roles of Wuhu iron painting (Liu et al., 2023). For instance, in the ancient town of Wuhu Jiuji, an immersive experience feast was crafted for tourists. The town innovatively introduced over 20 interactive parent-child study programs, such as iron painting, Xuan paper, and shadow puppetry, allowing children to learn about the intangible heritage of iron painting while having fun.

Next, establishing an iron painting museum that conducts a comprehensive survey, academic research, and collection of classic iron artworks is essential. Iron painting inheritors can explain the Wuhu iron forging technique and demonstrate it live, thereby enlightening visitors about the art (Ma, 2021).

Lastly, by founding a digital museum for iron painting, we can create iron painting cultural and tourism resources and explore the living forms of iron painting. Modern technological means should be employed to study the inheritance patterns of living culture. Advanced technology can be used to "animate" Wuhu iron paintings. Through such means, the deep integration of Wuhu iron painting with culture and tourism can be facilitated. Leveraging VR technology, a 1:1 scale model of the iron painting factory can be created to display the entire iron forging process, merging traditional crafts with contemporary technology. A VR game designed with U3D software could simulate the rust-proof coating stage of iron painting production Figure 2 allowing tourists to try their hand at forging iron paintings within this virtual environment. This ensures that visitors can genuinely appreciate the aesthetic and artistic qualities of intangible heritage, deeply feeling the beauty, precision, and depth of Wuhu iron painting. The digital iron painting museum can maximize the promotional, cognitive, and educational impacts of Wuhu iron painting, engaging tourists with the culture, stimulating their purchasing desires, and fostering group interaction and scaling effects.



Figure 2. Iron Painting Production

3.5 Developing Cultural and Creative Iron Painting Products

In the realm of Wuhu Iron Painting, the synergy between culture and the market paves the way for sustainable growth. Embracing modern design methodologies, Wuhu Iron Painting experiences an inherent transformation fueled by innovation. The concept of cultural and creative product development, viewed through the lens of cultural-tourism integration, takes center stage. This approach emphasizes the creation of iron painting products that seamlessly blend practicality with aesthetics. To achieve this, there is a deliberate focus on infusing the cultural essence of intangible heritage iron paintings into specialized tourism products. However, to embrace contemporary influences and stimulate creativity, the scope of iron painting themes has expanded beyond tradition. "Cross-border" integration with various materials has become a key avenue for exploration, allowing for the comprehensive application of multiple mediums.

As an example, let's take a look at the Figure 3 shows a 2016 release of an art collection album titled "Golden Monkey Brings Auspiciousness, National Prosperity, and People's Peace." This remarkable endeavor unfolded during the Year of the Monkey and showcased a truly exceptional fusion of stamps and iron painting.

Figure 3 shows the album featured a set of two images, (a) "Male Monkey Picking Peaches" and (b)"Mother Monkey with Child," showcasing the integration of stamps and iron painting—a successful result of "cross-border" design. This innovative artwork not only encapsulates the essence of the Year of the Monkey zodiac stamp but also demonstrates the artistry of iron painting techniques, elevating the brand value of iron painting art stamps.

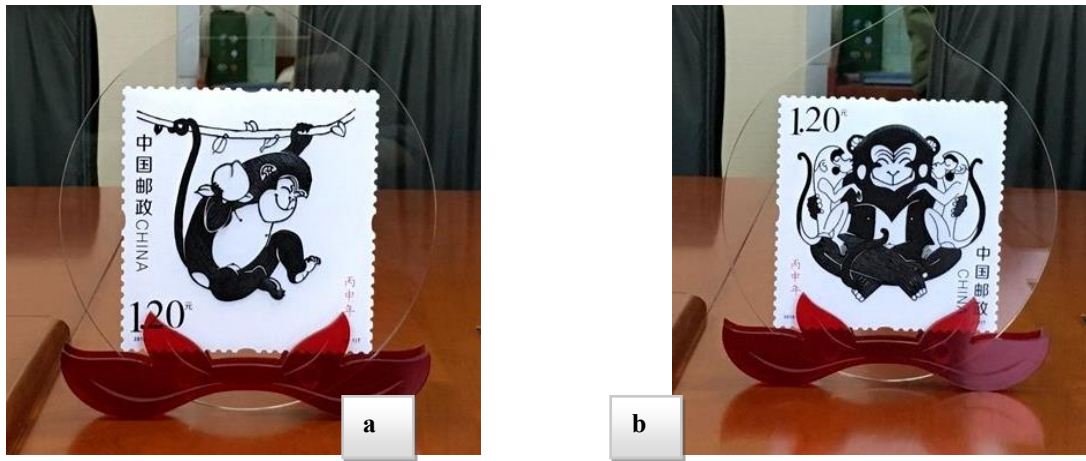


Figure 3. (a) "Male Monkey Picking Peaches" and (b)"Mother Monkey with Child"

4. DISCUSSION

The discussion on the evolution and integration of Wuhu Iron Painting within the realms of cultural integration, tourism, and the digital era, as outlined in the identified themes, brings forth a multifaceted understanding of how this traditional art form is adapting and thriving in contemporary times. This discussion is enriched by expert commentary and insights gleaned from the literature, while also identifying gaps in existing research. The integration of culture and tourism has proven to be a transformative force in the innovative development of Wuhu Iron Painting in the digital age.

Firstly, in terms of cultural integration, studies like those by Ma & Wang (2021) and Guo & Singyabuth (2022) have emphasized the historical roots and contemporary adaptations of Wuhu Iron Painting. These works highlight how the art form is not only preserved but also continuously evolved, incorporating modern influences while maintaining its traditional essence. However, there seems to be a gap in understanding how these contemporary influences are perceived and received by different demographics, especially younger audiences. Further research could explore how cultural integration impacts the perception and value of Wuhu Iron Painting among various age groups and cultural backgrounds. In the sphere of tourism integration, research by Hu et al. (2013) and Johnston Laing (2020) illustrates the transformative role of tourism in promoting and preserving traditional arts. Tourism offers a platform for immersive cultural experiences, enabling deeper engagement and appreciation. However, there is a noticeable lack of studies that quantify the economic and social impact of integrating Wuhu Iron Painting into tourism. Future research could focus on how this integration affects local economies and communities, and how it contributes to sustainable tourism practices.

Regarding the integration of Wuhu Iron Painting into the digital era, the literature, including works by Hearn (2008) and Norris et al. (2022) points to the significant role of digital technologies in artistic expression and cultural preservation. These studies highlight the potential of digital platforms to extend the reach and relevance of traditional arts. Yet, there is a dearth of research on the long-term effects of digital integration on the artistic quality and cultural authenticity of Wuhu Iron Painting. Further studies could investigate how digitalization impacts the art form's traditional techniques and cultural significance over time. Throughout these themes, a consistent observation emerges: while numerous studies tackle individual elements of cultural integration, tourism, and digital adaptation in isolation, there's a noticeable void in research that comprehensively explores the interconnections among these domains. Most existing research

tends to zoom in on one particular facet, leaving an understanding gap regarding the interplay and mutual influence of these various forms of integration. Future studies could benefit from a more holistic approach, exploring how the amalgamation of cultural, tourism, and digital integrations collectively shapes the preservation, development, and public perception of Wuhu Iron Painting.

5. CONCLUSION AND RECOMMENDATIONS

A remarkable fusion of the ancient and the modern is shown by examining the absorption of Wuhu Iron Painting into the domains of culture, tourism, and digital technology. With remarkable adaptation and tenacity, this art, which is firmly ingrained in Chinese culture, is not only persisting but also thriving in the current era. The study emphasizes how important cultural integration is to preserving Wuhu Iron Painting's historical and artistic originality while also accepting contemporary developments and inspirations. This careful balance guarantees that the work of art doesn't deviate from its historical roots while still being interesting and relevant for today's audience. Furthermore, one important aspect that must be look into is the promotion and preservation of Wuhu Iron Painting through tourism. It creates opportunities for cross-cultural understanding and economic sustainability through immersive cultural encounters. Nonetheless, it is clear that further investigation is required to fully understand the quantitative effects of this integration on regional economies and communities. There are advantages and disadvantages to Wuhu Iron Painting's digital age integration. Digital platforms offer new avenues for artistic expression and global exposure, yet the long-term effects on the art form's authenticity and traditional techniques require careful consideration and further study. Overall, while substantial research has been conducted in individual aspects of Wuhu Iron Painting's integration into modern contexts, a holistic understanding of how these aspects interact and influence each other is still developing. Future research should focus on this interconnectedness, providing deeper insights into the multifaceted evolution of traditional arts in the modern world.

Based on the specific findings of this study regarding the integration of culture and tourism in the innovative development of Wuhu Iron Painting in the digital age, several targeted recommendations can be made:

- **Enhanced Digital Integration:** Given the role of digital technologies in promoting Wuhu Iron Painting, it is recommended that artisans and stakeholders further explore and invest in advanced digital platforms. These platforms can provide immersive experiences of the iron painting production process, thus increasing public awareness and appreciation. Collaboration with tech companies and experts in virtual reality (VR) and 5G technology should be considered to ensure a seamless digital experience.
- **Cultural Exchange Programs:** To foster cross-cultural understanding and enrich the local culture, it is advisable to establish cultural exchange programs. These programs should facilitate interactions between Wuhu Iron Painting artists, artisans, collectors, and enthusiasts from different cultural backgrounds. Such exchanges can lead to the creation of innovative, cross-cultural iron painting products that appeal to a broader audience.
- **Artisan Training and Succession Planning:** Training programmes are essential in light of the problem of a lack of iron painting artisans and successors. Traditional iron painting methods should be preserved while embracing contemporary design and artistic features in artisan training. Creating apprenticeship programmes to teach the technique to future generations is crucial to Wuhu Iron Painting's long-term viability.
- **Development of Cultural Tourism Routes:** It is advised to create themed cultural tourism routes

revolving around Wuhu Iron Painting in order to fully benefit from the fusion of culture and tourism. Travellers should be able to gain extensive knowledge about the origins, evolution, forging procedure, and artistic features of iron paintings along these itineraries. To provide visitors a hands-on experience and improve their comprehension and appreciation of Wuhu Iron Painting, interactive tours and workshops can be included.

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