Research on Innovation and Application of Rattan Weaving Products in Rural Construction Landscape Aided by Artificial Intelligence

Hailu Wan[1], Chao Wang[1], Yaning Wang[1]

[1]*Guangxi Technological College of Machinery and Electricity, Nanning, 530007, China*

Abstract: *This research aims to explore the innovative application value of Artificial Intelligence (AI) technology in rattan weaving products and analyze its role in enhancing landscape creation. Combining relevant literature and field research, this paper thoroughly analyzes the specific application methods of AI technology in rattan weaving design, production, and market promotion. Based on field investigation data from Du'an Yao Autonomous County and Huanjiang Maonan Autonomous County in Hechi City, Guangxi Province, this study verifies the positive impact of AI technology on rattan weaving products and landscape creation. The research findings reveal that AI technology can effectively promote design innovation, improve production efficiency and quality, and enhance the aesthetic appeal and quality of the environment in rattan weaving. It further contributes to the growth of economic benefits in the local rattan weaving industry. Based on the data analysis from the two locations, this study proposes a feasible pathway for AI technology to support rattan weaving products and provides a forward-looking perspective on its future development prospects. This approach aims to empower the rural rattan weaving industry's economic development and achieve rural revitalization.*

Keywords: *Artificial Intelligence, Traditional Rattan Weaving, Landscape Creation, Rural Revitalization*

1. Introduction

Rattan weaving, a significant traditional handicraft product in China's rural areas, boasts a rich history and unique artistic value, embodying a wealth of cultural connotations and rural memories. In recent years, due to the declining interest of younger generations in traditional handicrafts, the market share of traditional rattan weaving products has gradually shrunk, leading to several challenges: succession gaps, market loss, and limited development. Meanwhile, the rapid development of modern industrialization, characterized by mechanized and mass production, has imposed pressure on traditional rattan weaving artisans to undergo technical transformation and upgrading. The rapid advancement of AI technology presents a new opportunity for revolutionizing traditional rattan weaving production. Its application in rattan weaving can promote the transformation and upgrading of the rattan weaving industry, address the challenges faced by rattan weaving products, empower the economic development of rural rattan weaving industries, and contribute to rural revitalization.

2. Research Status

2.1 Rattan Weaving

As an intangible cultural heritage in China, rattan weaving possesses unique materials, exquisite craftsmanship, and rich cultural connotations. Through the interplay of history and regional culture over long periods, it has evolved into distinct manufacturing processes and artistic styles. Rattan weaving, due to its natural materials, environmentally friendly nature, and simple style, has gained widespread popularity and plays a significant role in daily life, home decoration, and artistic creation.

As modernization accelerates, various issues related to rattan weaving have surfaced. The lack of interest among young people in traditional rattan weaving has led to a drastic reduction in the number of heritage bearers, jeopardizing the legacy of rattan weaving. Additionally, the influx of products made from industrialized materials and processes has significantly reduced the market share of traditional rattan weaving products. Currently, mechanized and mass production techniques have forced traditional rattan weaving artisans to confront the challenges of low production efficiency and inconsistent product

quality, hindering them from meeting market demands. A technological update and transformation is urgently needed to promote the sustainable development of the rural rattan weaving industry [1].

2.2 Landscape Creation in Rural Construction Using Rattan Weaving

The combination of rattan weaving with rural landscape space creation imbues a strong sense of local atmosphere and regional cultural characteristics, contributing to enhancing the ecological environment, cultural connotations, and economic benefits of rural areas. It effectively emphasizes the protection and inheritance of local rattan weaving culture and incorporates rattan elements into landscape design, fostering the creation of landscapes with distinct regional cultural features, showcasing the charm of rural culture. Moreover, rattan, as a green and ecological material, aligns with the current concept of energy conservation and environmental protection, promoting the establishment of an eco-friendly landscape concept. This also fosters the harmonious development of economic, social, and ecological benefits.

2.3 Artificial Intelligence Technology (AI)

Artificial Intelligence (AI) refers to the scientific and technological discipline that utilizes computer science to simulate, extend, and expand human intelligence through theories, methods, techniques, and application systems. In recent years, AI technology has made significant breakthroughs in image recognition, natural language processing, and machine learning, opening up new opportunities for various industries. The rapid development of AI technology has also provided new ideas and methods for the transformation and upgrading of traditional cultural industries. For example, the emergence of artificial intelligence sales systems and artificial intelligence customer service has greatly promoted the sales of traditional rattan weaving products [2]. Currently, the development of AI technology can be categorized into three stages (as shown in Table 1).

Table 1: Evolutionary Stages of Artificial Intelligence

Type	Distinguishing Features
Symbolic Stage	Based on logical reasoning and knowledge representation, it attempts to achieve AI by simulating human thinking processes.
Connectionist Stage	Based on artificial neural networks, it aims to achieve AI by simulating the connections between neurons in the human brain.
Deep Learning Stage	Based on deep neural networks, it attempts to achieve AI through extensive data training, overcoming the limitations of traditional AI methods and achieving significant breakthroughs in image recognition, natural language processing, speech recognition, etc.

Intelligence, humanization, and diversification are the future development trends of AI technology, and its application scope will become even broader. In the future, AI technology will integrate more deeply into our lives, work, and learning, bringing about even greater technological revolution for social development.

3. Technological Support for AI-Powered Rattan Weaving Products

3.1 Application of AI Technology in Rattan Weaving Production

AI technology can provide multiple technical assistance, including image generation-design innovation, parametric design-intelligent production, and virtual reality-digital marketing, to enhance design efficiency and innovation, achieve personalized customization and diversified development of rattan weaving products, thereby injecting new vitality into the inheritance and development of rattan weaving and providing a new development path [3].

AI Image Generation Technology: Utilizing image generation technology, such as Midjourney, can develop rattan product design generators to provide users with personalized design solutions, inspire design ideas, and enhance the aesthetic value of products, as illustrated in Figure 1. By inputting keywords or images, the AI system can quickly generate various rattan patterns and shapes, offering designers more inspiration and choices.

AI Parametric Design: Establish a parametric model of rattan products that includes parameters like dimensions, shapes, and materials. Based on this parametric model, personalized customization and

production of rattan products can be achieved. Designers can adjust the parameters of the model quickly according to user needs, generating design solutions that meet the requirements, enabling rapid design iteration and precise customized production.

Source: Internet

Figure 1: Digital Rattan Public Space Design by Enter Projects Asia in Thailand

AI Virtual Reality Technology: Using VR technology to create a fully immersive experience allows designers and clients to have an immersive understanding of the space and application scenarios of rattan products [4]. Designers can use VR technology to create virtual sample display spaces, enabling clients to visually experience the size, proportion, materials, and style of rattan products, thereby improving design communication efficiency and increasing customer satisfaction.

AI technology can optimize the production process of rattan weaving products, enhancing production efficiency and product quality, and enabling the modernization of rattan weaving products.

Robot-Assisted Weaving: Utilizing robots to assist in weaving and assembling rattan products. By pre-programming or machine learning technology, robots can simulate human weaving actions and techniques, reducing errors and inconsistencies caused by human factors, thereby improving production efficiency. Robot-assisted weaving can reduce the intensity of manual labor, increase production speed and product consistency, and provide technical support for the large-scale production of rattan weaving products.

3D Printing Technology: Convert rattan patterns and shapes into 3D models and use 3D printing technology to produce rattan products. 3D printing technology can enhance the design freedom and production precision of products, enabling mass production and customized production, quickly producing rattan products that meet customer requirements. 3D printing technology can break the limitations of traditional rattan weaving products, allowing for the production of more complex and intricate rattan products, opening up new possibilities for innovative design of rattan products.

Intelligent Control System: Design an intelligent control system to optimize the production process of rattan weaving products, achieving automated management and control, improving production efficiency, and enhancing product quality. The intelligent control system can monitor the production process in real-time, automatically adjust production parameters, effectively reduce production costs, improve product quality, and provide technical support for the intelligent production of rattan weaving products.

3.2 Application of AI Technology in Rattan Weaving Market Promotion

AI technology can provide precise market marketing and sales promotion services for rattan weaving products, enhance product competitiveness, and promote the transformation and upgrading of the rattan weaving industry.

Intelligent Recommendation System: Utilizing intelligent recommendation systems and data analysis techniques, based on user preferences and needs, provides precise market marketing services for rattan product makers, expanding sales channels. The intelligent recommendation system can analyze user browsing records, purchase history, search behavior, and other data to recommend rattan products that align with their interests and needs, increasing product exposure and conversion rates.

Data Analysis and Optimization: By collecting and analyzing user behavior data, sales data, and other information, it optimizes the design scheme, material selection, and manufacturing process of rattan products, enhancing product quality and competitiveness. Data analysis can help rattan product manufacturers understand market trends, adjust product design and production strategies in a timely manner, improve product competitiveness, and explore new market areas [5].

3.3 AI-Powered Rattan Landscape Space Creation

AI technology can provide new ideas and methods for rattan landscape space creation, enhancing the aesthetic value and appeal of the landscape, and achieving the modernization of the landscape.

Biomimicry: Using AI technology to simulate the forms and structures of nature, designing biomimetic rattan-based soft landscape elements to enhance the natural beauty and ecology of the landscape [6]. For example, the artwork depicted in Figure 2 leverages AI technology to simulate the growth pattern of tree branches, designing natural and flowing rattan shapes to create a more natural and harmonious landscape environment.

Environmental Integration: Through analysis and simulation of the rural environment, designing rattan-based soft landscape elements that harmonize with the surrounding environment, enhancing the integrity and harmony of the landscape. For example, using AI technology to analyze information such as rural architectural styles, plant species, and topography, designing rattan landscapes that harmonize with the surrounding environment, avoiding a sense of incongruity and enhancing the overall aesthetic appeal of the landscape.

Technological Integration: Using AI technology to integrate technological elements into rattan-based soft landscape design, such as intelligent lighting, intelligent sensors, etc., to enhance the technological feel and interactivity of the landscape [7]. For example, combining intelligent lighting systems with rattan landscapes to create night-time landscape effects, enhancing the viewability and interest of the landscape; utilizing intelligent sensors to collect environmental data, achieving intelligent management and control of the landscape, enhancing landscape safety, comfort, and energy efficiency.

Source: Internet

Figure 2: "With Fish" Rattan Artwork by Ziluzhi Emong Design and Production

4. Experimental Design on the Correlation between AI and Rattan Weaving Products

To assess the impact of the integration of AI and rattan weaving products on landscape value more accurately, researchers designed two experiments, A and B, which explored the impact from design, production, promotion, and landscape aesthetics perspectives.

The dataset used in Experiment A possesses hierarchical and evaluative characteristics, such as data on the specific impact of AI technology on consumer groups.

The dataset used in Experiment B possesses universal and extensive characteristics, such as data on the impact of AI technology on the survey population.

Data Collection: Researchers employed multi-source data collection methods, including:

• **Questionnaire Survey:** Conducting surveys among tourists and experts to assess landscape aesthetic value, tourist satisfaction/expert scores, etc.

• **Tourist Behavior Monitoring:** Utilizing GPS positioning, mobile signal tracking, and other technologies to record tourist tour routes, dwell time, and other behavioral data.

• **Economic Data Statistics:** Collecting economic data such as tourist numbers, tourism revenue, rattan product sales, and resident income for each village.

• **Social Media Data:** Collecting comment data from social media about each village, analyzing tourist sentiment.

Indicator System: Researchers constructed the following indicator system to assess the effectiveness of AI intervention:

• **Landscape Aesthetic Value:** Including indicators such as landscape attractiveness, artistry, cultural connotations, and overall coordination.

• **Economic Benefits:** Including indicators such as tourist numbers, average tourist dwell time, tourism revenue growth rate, rattan product sales growth rate, and resident per capita income growth rate.

• **Social Benefits:** Including indicators such as villager employment, villager income, and cultural heritage.

• **Environmental Benefits:** Including indicators such as resource utilization efficiency and environmental pollution levels.

Based on these methods, this paper obtains the dataset, stored in a database, which is used for subsequent experimental results' descriptive statistical analysis/multiple regression analysis and other experimental methods.

4.1 Experiment A

Theme of Experiment A: Determining the advantages and disadvantages of AI technology application through exploration.

Grouping for Experiment A: Researchers selected 4 villages and production workshops in Du'an County and Huanjiang County, Guangxi, with similar geographical environments, cultural backgrounds, and rattan product levels, and divided them into four groups: A1, A2, A3, and A4.

• **A1 Group (Control Group):** Rattan products maintain the original production and sales layout, without any intervention, basically remaining in the original production state.

• **A2 Group (AI-Assisted Design Group):** This production group utilizes AI algorithms to analyze landscape features, cultural elements, and tourist preferences, using tools such as Taobao traffic delivery to generate optimal rattan-based soft product solutions, which are then produced by local artisans.

• **A3 Group (AI Production Group):** Utilizing automated control robotic arms to assist in rattan product production, improving efficiency and precision.

• **A4 Group (Combination Group, i.e., using AI Design + Production):** Combining the AI measures of Groups B and C, utilizing AI algorithms for landscape design and using AI-controlled machinery to assist in rattan production.

Results of Experiment A:

The Results of Experiment A are shown in Table 2.

Table 2: Descriptive Statistics for Different Groups on Different Indicators

Indicator	A1 Group (Control)	A2 Group (AI Design)	A3 Group (AI Production)	A4 Group (AI Design & Production)
Average Tourist Dwell Time (hours)	1.5	2	1.8	2.3
Tourist Number Growth Rate (%)	0	50	30	70
Tourism Revenue Growth Rate (%)	0	23.4	15	28.2
Social Media Comment Number Growth Rate (%)	0	12	15	23.5
Percentage of Positive Sentiment in Comments (%)	60	80	45	90
Rattan Product Sales (pieces)	530	850	700	834
Rattan Product Sales Growth Rate (%)	0	60.3	32.7	57.3
Resident Per Capita Income Growth Rate (%)	0	30	20	35
Cultural Connotation Score (1-10 points)	7	8	6.5	8.5
Landscape Attractiveness Score (1-10 points)	6	7.6	7	8.8
Tourist Interview Satisfaction (%)	70	85	82	90

ANOVA analysis revealed significant differences ($p < 0.05$) between different intervention measures in terms of average tourist dwell time, tourist number growth rate, tourism revenue growth rate, social media comment number growth rate, rattan product sales growth rate, resident per capita income growth rate, expert scores, and tourist interview satisfaction.

Correlation analysis indicated a significant positive correlation ($p < 0.01$) between landscape aesthetic value and tourist numbers, tourism revenue, social media comment numbers, percentage of positive sentiment in comments, rattan product sales, and resident per capita income.

Regression analysis demonstrated that AI intervention had a significant positive impact on landscape aesthetic value, economic benefits, social benefits, and environmental benefits. Notably, the combination of AI design and AI production (Group D) maximized the enhancement of landscape aesthetic value and economic benefits.

The results of Experiment A showed that Group D (AI Design + Production) outperformed the other three groups in terms of average tourist dwell time, tourist number growth rate, tourism consumption growth rate, social media comment number growth rate, rattan product sales growth rate, resident per capita income growth rate, expert scores, and tourist interview satisfaction. This suggests that AI-assisted rattan-based soft landscape elements are more attractive, effectively attracting tourists, increasing scenic spot popularity and economic benefits, promoting local economic development, and improving residents' living standards.

4.2 Experiment B

Experiment B had two themes:

1) To explore the relationship between respondents' acceptance of AI technology application and related factors.

2) To analyze the correlation between respondents' acceptance of different AI technology applications, such as the degree of association with themes like "cultural heritage," "personalized

experience," and "environmental protection."

Data Collection: Researchers employed a single data collection method, collecting data through questionnaires.

Questionnaire Survey: Conducting surveys among tourists and experts to assess rattan and landscape aesthetic value.

Multiple Regression Analysis:

Constructing a Multiple Regression Model

Researchers used respondents' acceptance of AI technology application (Q22_Acceptance) as the dependent variable and included several independent variables that influence their acceptance in the model, including:

• Q3_Understanding: Respondents' understanding of rattan weaving.

• Q5_Importance of Preserving Traditional Rattan Weaving Techniques: Respondents' importance placed on preserving traditional rattan weaving techniques.

• Q10_Importance of Intelligent Landscape Planning and Design: Respondents' rating of the importance of intelligent landscape planning and design.

• Q14_Importance of Integrating Traditional Culture: Respondents' importance placed on integrating AI technology into traditional rattan weaving culture.

• Q21_Importance of Reducing Dissatisfaction: Respondents' importance placed on potential risk factors.

Model Expression:

Q22_Acceptance = $\beta 0$ + $\beta 1$ * Q3_Understanding + $\beta 2$ * Q5_Importance of Preserving Traditional Rattan Weaving Techniques + $\beta 3$ * Q10_Importance of Intelligent Landscape Planning and Design + $\beta 4$ * Q14_Importance of Integrating Traditional Culture + $\beta 5$ * Q21_Importance of Reducing Dissatisfaction + ε

where $\beta 0$ is the constant term, $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$ are the regression coefficients for the independent variables, and ε is the error term.

Use statistical software (such as SPSS or R) to fit the model and test the model's significance, goodness of fit, and the significance of the independent variables.

Table 3: Multiple Regression Analysis Results

Variable	Regression Coefficient (β)	Standard Error (SE)	t-value	p-value
Q3_Understanding	0.287	0.094	3.05	0.003
Q5_Importance of Preserving Traditional Rattan Weaving Techniques	0.382	0.115	3.33	0.001
Q10_Importance of Intelligent Landscape Planning and Design	0.256	0.089	2.88	0.005
Q14_Importance of Integrating Traditional Culture	0.312	0.098	3.18	0.002
Q21_Importance of Reducing Dissatisfaction	-0.245	0.076	-3.22	0.002
Constant Term ($\beta 0$)	1.954	0.487	4.02	0.000

The results of multiple regression analysis are shown in Table 3, and the influence diagrams are shown in Figure 3. The results of the multiple regression experiment showed that respondents' importance placed on traditional craftsmanship (Q5), their understanding of AI technology application (Q3), their expectations for future rural landscapes (Q10), and their importance placed on integrating AI technology into traditional culture (Q14) all had a significant positive impact on their acceptance of AI technology application (Q22_Acceptance). Conversely, the importance placed on potential risks (Q21) had a significant negative impact on their acceptance. In other words, the more respondents value traditional craftsmanship, the better they understand AI technology, and the higher their expectations for future rural landscapes, the more they accept the use of AI technology to generate personalized rural rattan-based

soft landscape design solutions. At the same time, the more respondents are concerned about the risks associated with AI technology, the less they accept its use.
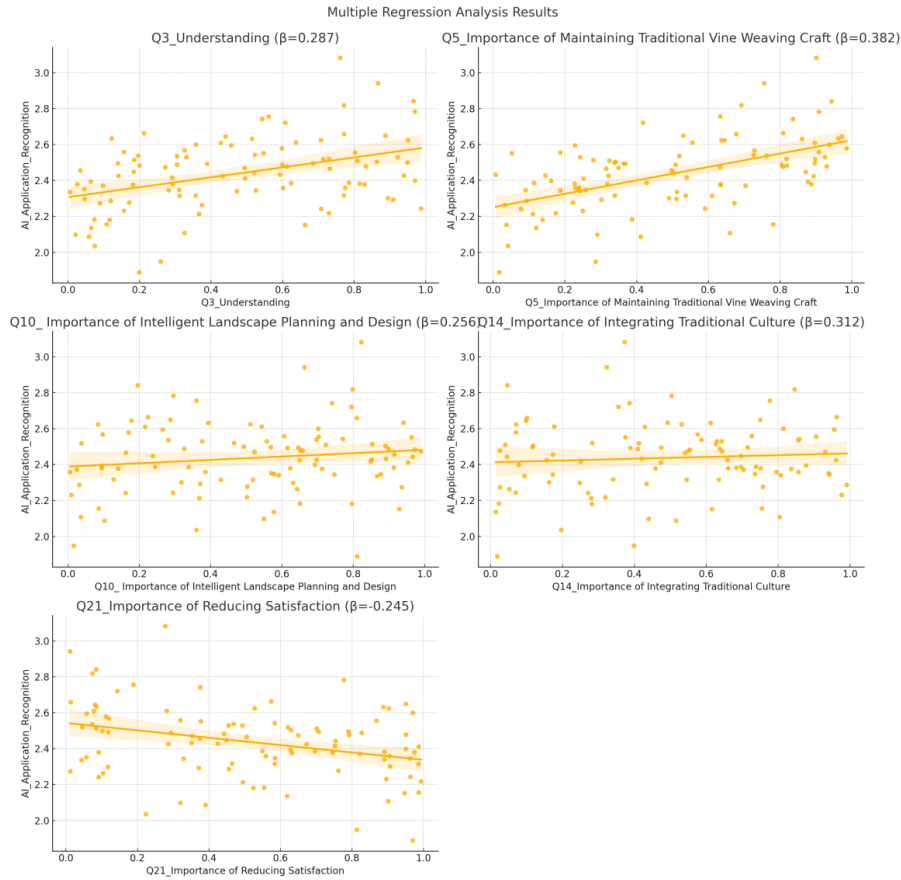

Figure 3: Schematic Diagrams of Multiple Regression Influence

Network Analysis:

Constructing a Correlation Matrix

Based on respondents' ratings of different AI technology applications, calculate the correlation coefficients between each technology application to construct a correlation matrix, as shown in Table 4.

Table 4: Correlation Matrix Data for AI Technology Applications

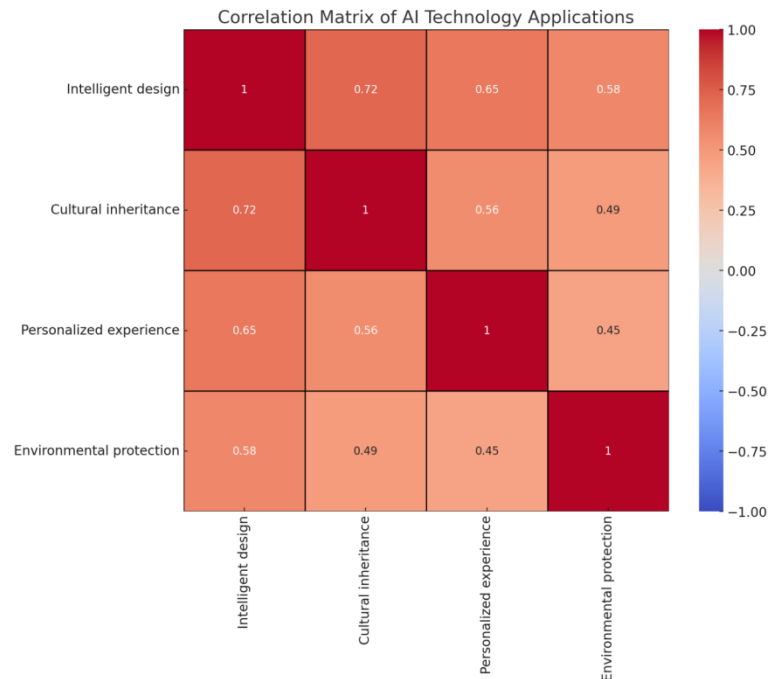| Application	Intelligent Design	Cultural Heritage	Personalized Experience	Environmental Protection
Intelligent Design	1	0.76	0.69	0.63
Cultural Heritage	0.76	1	0.61	0.55
Personalized Experience	0.69	0.61	1	0.51
Environmental Protection	0.63	0.55	0.51	1

Figure 4: Heatmap of Correlation Matrix Data for AI Technology Applications

The heatmap shown in Figure 4 illustrates the correlations between different AI technology applications. The heatmap uses a color scale, where values close to 1 are shown in warmer colors (red), values close to -1 are shown in cooler colors (blue), indicating the strength and direction of the correlation. The annotations in the heatmap cells represent the Pearson correlation coefficients.

Summary of Experiment B

The results of the above survey questionnaire indicate significant correlations between different respondents' attention to different AI technology applications. For example, "Cultural Heritage" has a strong positive correlation with "Intelligent Design" and "Digital Heritage and Protection," indicating that respondents believe AI technology can help better preserve rattan weaving culture. Similarly, "Personalized Experience" has a strong positive correlation with "Facial Recognition," "Speech Recognition," and "Intelligent Interactive Systems," suggesting respondents anticipate AI providing more personalized tourism experiences. Furthermore, "Environmental Protection" has a strong positive correlation with "Sustainability" and "Eco-Friendly Materials," indicating that respondents expect AI technology applications to drive sustainable development of rural landscapes.

Experiment B results show that respondents' importance placed on traditional craftsmanship, their understanding of AI technology applications, and their expectations for future landscapes all significantly positively influence their acceptance of AI technology applications, while the importance placed on potential risks significantly negatively impacts their acceptance. Other scholars also agree with this viewpoint, that is, the more respondents value traditional craftsmanship, the better they understand AI technology, and the higher their expectations for future landscapes, the more they accept the use of AI technology to generate personalized rural rattan-based soft landscape design solutions[8]. Respondents' attention to different AI technology applications exhibits significant correlations, highlighting key themes such as cultural heritage, personalized experience, and environmental protection. At the same time, the more respondents are concerned about the risks associated with AI technology, the less they accept its use.

The network analysis results show that respondents' attention to different AI technology applications exhibits significant correlations, highlighting key themes such as cultural heritage, personalized experience, and environmental protection. Respondents generally support the application of AI technology in rural rattan-based soft landscapes and are full of expectations for its future development. The results of multiple regression analysis and network analysis indicate that respondents' importance placed on traditional craftsmanship, their understanding of AI technology applications, and their expectations for future landscapes all significantly influence their acceptance of AI technology applications [9]. This viewpoint has also been mentioned in other papers by researchers [10].

5. Conclusions and Discussion

5.1 Conclusions

This research reveals the remarkable attractiveness and positive impact of the integration of AI technology with rattan weaving in rural landscape space creation. As a traditional craft rich in regional culture and historical memories, the introduction of rattan effectively highlights the cultural and historical essence of rural areas, imparting a unique humanistic and artistic quality to the landscape. AI technology can effectively enhance the design innovation, production efficiency, and quality consistency of rattan products, while also enhancing the aesthetic value and appeal of the landscape.

Advantages of AI-Assisted Rattan:

• **AI-Assisted Design:** Enhances design efficiency and innovation, enables personalized customization, and expands the boundaries of rattan design.

• **AI-Driven Production:** Improves production efficiency and product quality, reduces labor intensity and production costs, and drives the modernization of rattan products.

• **AI Expansion of Application Scenarios:** Enhances the intelligence and interest of rattan products, expands application scenarios, promotes the sustainable development of the rattan industry, and injects new vitality into traditional crafts.

• **Integration of Technology and Culture:** Creates new landscape experiences. The intervention of AI is not simply an addition to traditional rattan weaving but promotes the deep integration of technology and culture, enhancing the cultural connotations of rattan-based soft landscape elements.

AI can draw inspiration from traditional culture and integrate modern technological elements, creating landscapes that combine traditional beauty with a technological feel. For example, intelligent interactive design allows rattan installations to adjust in real-time based on visitor feedback, enhancing interactivity—a breakthrough that traditional rattan-based soft landscape elements could not achieve. AI-assistance achieves the dual goals of cultural heritage and technological innovation, representing a technological revolution in experiential design.

• **Stimulating Rural Endogenous Development:** Resonating economic and cultural value. AI-assisted rattan-based soft landscape elements significantly enhance local residents' income and product sales, reflecting the economic driving force of technology assistance.

This development model does not rely on external resource investment but is based on local cultural resources, effectively stimulating the inherent vitality and potential of rural areas. The enhanced cultural content of rattan-based soft landscape elements attracts more visitors, further promoting local economic development. AI-assisted rattan provides a new development model that resonates with economic benefits and cultural value, offering a new path for rural revitalization.

• **Expanding Aesthetic Perception Boundaries:** Leading Sustainable Design Concepts. AI-assisted rattan products create landscapes with a greater sense of technology and futurism, enriching the visual experience of the landscape, challenging traditional aesthetic concepts, and broadening the boundaries of aesthetic appreciation. AI-assisted design and 3D printing technology help reduce resource waste, embodying sustainable design principles and highlighting the positive environmental impact of technology assistance. The fusion of AI and rattan leads to a more environmentally friendly and future-oriented landscape design trend.

5.2 Research Limitations

While achieving certain results, the research also has some limitations:

• The paper mainly explores the theoretical aspects of AI-assisted rattan technology, with limited actual case validation. Future research can strengthen the exploration of practical landscape impact verification and AI technology through actual landscape design case studies.

• Although the cultural connotations of rattan are mentioned in the research, there is a lack of in-depth exploration and concrete manifestation. Future research can further explore the relationship between rattan products and rural culture, delving into their rich history, regional characteristics, and humanistic connotations.

• The paper focuses primarily on the impact of AI technology on the landscape, with relatively limited discussion of sustainable development. Future research can further explore how to achieve ecological protection and resource recycling through rattan technology, as well as the role of AI technology in sustainable landscapes.

5.3 Future Research Directions

Future research can delve deeper into the specific needs and preferences of different groups regarding AI technology applications. For example, conducting segmented research targeting respondents of different ages, genders, professions, and income levels to analyze their acceptance, preferences, and concerns about different technological applications. It can also explore how AI technology can deeply integrate with rural culture and tourism resources. For instance, researching how to utilize AI technology to develop rural cultural experience projects, enhancing the cultural connotations and competitiveness of rural tourism. Additionally, it can analyze the costs and benefits of AI technology application in rural rattan-based soft landscapes. For example, analyzing the costs and benefits of different AI technologies and assessing their economic feasibility. Finally, it can evaluate the impact of AI technology application on rural economic development and social benefits. For example, studying the impact of AI technology applications on rural employment, income, living standards, and cultural development.

Acknowledgment

References

[1] Sui, R. Z. (2020). The application and research of rattan furnishings in interior space design (Doctoral dissertation). Sichuan Normal University. DOI: 10.27347/d.cnki.gssdu.2020.001220.

[2] Wen, G. D., & Ma, Z. X. (2021). Design and implementation of bamboo and rattan weaving handicrafts assistant mini program for farmers under the background of rural revitalization. Southern Agricultural Machinery, 52(23), 80-82+86.

[3] Pan, Z. H., & Han, P. (2022). Research on the revitalization mechanism of traditional rattan weaving implements in Jiaodong from the perspective of folk revival. Tiangong, (05), 23-25.

[4] Cao, R. R. (2022). Application and innovation of traditional rattan weaving products in home design. Tomorrow Fashion, (06), 89-92.

[5] Li, D. (2022). Value reconstruction of traditional handicrafts under the background of urbanization (Doctoral dissertation). Chengdu University. DOI: 10.27917/d.cnki.gcxdy.2022.000236.

[6] Yin, Y. P., Zhang, R. L., & Kang, H. N. (2023). Research on the integration and application of traditional rattan weaving products in modern furniture design. Beauty and Times (Upper), (01), 50-54. DOI: 10.16129/j.cnki.mysds.2023.01.042.

[7] Ling, S. Y., & Li, X. X. (2015). The application of folk crafts in modern design: Taking rattan art as an example. Popular Literature and Art, (01), 73-74.

[8] Liu, Y. M., Tong, Z., & Li, Q. B. (2023). From handicrafts to intangible cultural heritage: The value reconstruction and innovative development of ethnic village agricultural product brands—Taking the rattan weaving industry of Danyang Village, Disu Town, Du'an Yao Autonomous County, Guangxi as an example. Guangxi Ethnic Studies, (02), 180-188.

[9] Liu, X. Q. (2023). Research on the application of bamboo and rattan weaving products in architectural design. Shanghai Packaging, (03), 89-91. DOI: 10.19446/j.cnki.1005-9423.2023.03.031.

[10] Hu, W., Sikka, S., Wang, Z., Zhang, W., & Huang, T. (2023). Protection and inheritance of traditional intangible cultural heritage based on big data technology: A case study in Guangxi. Academic Journal of Humanities & Social Sciences, 6(23).