

Research on the Willingness of Jiangxi Province Residents to Inherit Jingdezhen Ceramic Culture

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Abstract: This research group investigates and researches the current situation of the knowledge of Jingdezhen ceramic culture and the willingness to inheritance. Various methods such as visiting research, issuing questionnaires and data modeling are used to collect, organize and analyze the data related to the inheritance willingness of Jingdezhen ceramic culture. The formal questionnaire is divided into three parts: basic information, inheritance willingness and inheritance behavior. The survey object was permanent residents of Jiangxi Province. A total of 1,000 questionnaires were distributed through online and offline, and 854 valid questionnaires were recovered, with an effective recovery rate of 85.4%, and finally 810 questionnaires were obtained. Through principal component analysis, several factors that play a major role in influencing the inheritance willingness are extracted, and then combined with gray correlation analysis, the influence degree of each influential factor on the inheritance willingness of Jingdezhen ceramic culture is analyzed as well as ranked, and it is concluded that educational factors, interest motivation, and economic factors are the main factors affecting the inheritance willingness. Using K-means clustering analysis, the crowd in contact with Jingdezhen ceramic culture is divided into audience, inheritance crowd and promotion crowd. Then on this basis, the inheritance trend of Jingdezhen ceramic culture is predicted, pointing out the strong suggestions that need to strengthen the publicity efforts. In the form of inheritance, people of different ages prefer Jingdezhen ceramic culture has always been more inclined to "hands-on experience making ceramics" to learn the culture. Finally, this paper provides suggestions on how to better inherit the Jingdezhen ceramic culture.

Keywords: Jingdezhen ceramic culture, Principal component analysis, Gray correlation analysis, K-means clustering model

1. Introduction

In China, the creation of pottery technology can be traced back to the era of 4500 to 2500 BC, and an important part of the history of the development of the Chinese nation is the history of ceramic development. The achievements of the Chinese in science and technology, as well as the pursuit and shaping of beauty, are in many ways embodied through ceramic production, and form the very typical technical and artistic characteristics of each era. Jiangxi is a large province of ceramic culture, and Jingdezhen ceramic culture especially reflects the unique cultural charm of Gan Poyang. The significance of this report is to start from the time-honored Jingdezhen ceramic culture, which is the excellent traditional Chinese culture, to lay a solid foundation for the realization of the development of the excellent traditional Chinese culture, and to make the broad and profound excellent traditional Chinese culture create brilliance again in the new era. On this basis, to enhance the importance of all sectors of society to the excellent traditional Chinese culture, and improve the public recognition of the excellent traditional Chinese culture, to promote the creative and innovative development of the excellent traditional Chinese culture [1,2].

2. Investigation Program and Implementation

2.1 Survey Program Design

2.1.1 Purpose of the survey

Based on the issues raised, the study identified six areas of work.

Understanding the willingness of the

permanent residents of the province to inherit the ceramic culture of Jingdezhen: collecting the reasons for the permanent residents of the province to inherit the ceramic culture of Jingdezhen, and further analyzing the influencing factors therein;

Specifically explore the reasons for the negative correlation between inheritance behaviors and the willingness to inherit, and explore the reasons for specific behaviors and provide suggestions for their modification and improvement;

Mining the clear characteristics and relevant information of various groups of people in the inheritance of Jingdezhen ceramic culture: through the comprehensive analysis of the cognitive status quo and the willingness of inheritance, different categories of people are constructed and their relevant characteristics and information are mined;

Predicting the future development trend of Jingdezhen ceramic culture: According to the characteristics of different groups of people in Jingdezhen ceramic culture inheritance, the trend of Jingdezhen ceramic culture inheritance is predicted;

Mining the new form of Jingdezhen ceramic culture inheritance: based on the results of the analysis and the degree of hobby of communication methods, looking for new forms of ceramic culture inheritance with Jingdezhen.

2.1.2 Targets and methods of investigation

The survey object of this project is the permanent residents of Jiangxi Province, mainly using literature analysis method and questionnaire survey method.

2.1.3 Questionnaire design

The design of the questionnaire mainly includes five parts: basic information, the current situation of ceramic culture cognition, inheritance behavior and ways, inheritance willingness and influencing factors, and inheritance and dissemination of Jingdezhen ceramic culture.

2.1.4 Sampling program design

(1) Sampling method

Jiangxi is a major ceramic province in China, in order to comprehensively understand the current situation of the residents of Jiangxi province's knowledge of Jingdezhen ceramic culture and the willingness to inheritance, the team conducted a specific questionnaire survey. Considering the uneven development

of the economy and education in various regions of Jiangxi Province, before sampling, this paper divides Jiangxi Province according to geographic location, respectively, Gannan, Ganzhong, Ganbei, and then adopts stratified sampling to determine the number of sampling prefecture-level cities in the three regions, and then randomly selects the prefecture-level cities, and finally, according to the proportion of the number of people in the regional sub-population, the residents are selected to fill in the questionnaire(see Table 1), so as to ensure the scientific nature of the survey and the randomness of the data.

Table 1. Population in major areas of Jiangxi Province

Geography (resident population: 10,000)	Prefecture-level cities (resident population: 10,000)
Ganbei (1092.03)	Nanchang (600)
	Jiujiang (492.03)
Ganzhong (649.54)	Fengcheng City (147.07)
	Yichun (60.21)
	Ji'an (442.26)
Gannan (898.81)	Ganzhou (898.81)

(2) Pre-survey

Before the formal survey, the team took a small sample for the survey, adopting a combination of online and offline, and distributed 105 questionnaires to the three regions of Gannan, Ganzhong, and Gannan North, with 35 questionnaires in each place, and 97 questionnaires were recovered, and carried out the preliminary research and test analysis. The setting of questionnaire questions and the unreasonable setting of options were modified, and then after a brief return survey, the effect was improved and the questionnaire was finalized.

(3) Formal survey sampling

A total of 1,000 questionnaires were distributed, 854 valid questionnaires, 85.4% of valid questionnaires were recovered.

For administrative districts (counties) with valid questionnaire rates lower than the optimal sample size, we will make up the questionnaires; for administrative districts (counties) with valid questionnaire rates higher than the optimal sample size, we delete part of the valid questionnaires by truncating the tail, controlling the final number of questionnaires to be 810.

2.2 Quality Control

The objectives of quality control include obtaining objective, accurate, true and effective data, reducing human errors,

improving the scientific nature of the survey results, and avoiding the waste of human, material and financial resources. Therefore, we strictly control the questionnaire design, survey implementation, data processing and other aspects of quality control.

2.3 Pre-Check Data Processing and Testing

Firstly, the data were collected and verified, then the questionnaire data on the questionnaire star platform were exported and coded, and Excel was utilized for data preprocessing to eliminate questionnaires with an answer duration lower than 1.5 minutes and higher than 10 minutes and with misplaced logic, and finally 97 questionnaires were identified for verification.

2.3.1 Reliability analysis

Reliability, or reliability, refers to the degree to which the results of measurement data are consistent and dependable. In this survey, the reliability of the questionnaire as a whole and its scale questions *Q11*, *Q12*, *Q23*, *Q30* were analyzed according to the α reliability coefficient method.

The Cronbach α reliability coefficient is a commonly used reliability coefficient with the formula:

$$\alpha = \left(\frac{k}{k-1} \right) * \left(1 - \frac{\sum Si^2}{ST^2} \right) \quad (1)$$

Where k is the total number of items in the scale, Si^2 is the within-question variance of the score of the i th question, and ST^2 is the variance of the score of all the questions. The reliability coefficient of the total scale should preferably be above 0.8 and between 0.7-0.8 is acceptable, while the reliability coefficients of the subscales should preferably be above 0.7 and 0.6-0.7 is acceptable. If the final coefficient is shown to be below 0.6 then consideration should be given to rewriting the questionnaire.

The survey has been reliability coefficient greater than 0.8 and the standard of good reliability evaluation, the results of the reliability analysis of each scale are as Table 2 and Table 3 :

Table 2. Pre-survey Overall Reliability Analysis Table

item count (of a consignment etc)	sample size	Cronbach's alpha coefficient
30	97	0.877

Table 3. Reliability analysis table for each item of the pre-survey

title number	Cronbach's Alpha	item count (of a consignment etc)	reliability assessment
Q11	.866	5	(of an unmarried couple) be close
Q12	.903	5	(of an unmarried couple) be close
Q23	.891	5	(of an unmarried couple) be close
Q30	.825	5	(of an unmarried couple) be close

The total scale reliability of this with the questionnaire is 0.877, which is high and the α reliability coefficients of each item are above 0.820, which is good for reliability evaluation. Therefore, the questionnaire in this pre-survey is well-designed and has high reliability after verification.

2.3.2 Validity analysis

Validity analysis refers to the analytical validity of the scale quantity expressed to the degree of accuracy of the measurement indicator, i.e., it is used to measure the reasonableness of the design of the question items. The Bartlett's test of sphericity and KMO test were used as indicators in this investigation, which were validated by factor analysis (exploratory factor analysis) method. In the Bartlett sphericity test, the p-value is required to be less than 0.05, indicating that the factors are independent of each other, and in the KMO test, the KMO value (greater than 0.6 as a criterion), less than 0.5 indicates that the data is not suitable for factor analysis. The specific results of this validity analysis are as Table 4 Shown:

Table 4. Table of KMO and Bartlett's test

KMO value		0.834
Bartlett Sphericity Check	approximate chi-square (math.)	98.542
	(number of) degrees of freedom (physics)	6
	significance	0.000

In this pre-survey, the KMO value is greater than 0.8 and Bartlett's test of sphericity is statistically significant. It indicates that in this pre-survey the questionnaire is well designed and the validity of the test is high.

2.4 Official Survey Data Processing and Testing

In this survey, reliability, randomness and energy efficiency of the questionnaire data were tested using reliability and validity analysis.

2.4.1 Reliability analysis

In this survey, the questionnaire is divided into

4 scale questions according to the questionnaire index system into 4 dimensions namely ceramic culture cognition, ceramic culture inheritance willingness, ceramic culture inheritance behavior and ceramic culture dissemination and inheritance, the overall and each dimension using Cronbach's α confidence coefficient method for reliability analysis, the results are as follows The results are shown in Table 5.

Table 5. Overall Reliability Analysis of Formal Surveys

Cronbach's Alpha	sample size	item count (of a consignment etc)
.981	610	30

Table 6 Reliability analysis table for each item of the formal survey

title number	Cronbach's Alpha	item count (of a consignment etc)	reliability assessment
Q11	.915	5	(of an unmarried couple) be close
Q12	.916	5	(of an unmarried couple) be close
Q23	.910	5	(of an unmarried couple) be close
Q30	.902	5	(of an unmarried couple) be close

by Table 5 and Table 6, we know that Cronbach's α reliability coefficients are all greater than 0.900, indicating that the questionnaire scales are reasonably categorized and the questionnaire reliability is evaluated as good and reliable.

2.4.2 Validity analysis

(1) KMO and Bartlett's test of sphericity

From the test method of the pre-survey, the formal survey is still tested by the factor analysis method, and the results of the validity analysis are shown in the Table 7:

Table 7. Formal Survey KMO and Bartlett's Test of Sphericity Table

KMO value	.933
Bartlett's test of sphericity	approximate chi-square (math.) 15584.026 of (number of) degrees of freedom (physics) 300.000 significance .000

It is known that the KMO value of 0.933 and Bartlett's test of sphericity indicates statistical significance, i.e., the questionnaire design is well structured.

(2) Rotation factor

As can be seen in the Table 8, the results of the factor analysis are consistent with the dimensionality of the questionnaire, and the extracted terms of the variance of the common factors are greater than 0.800, which indicates that the validity of the questionnaire is good.

In summary, the results of the reliability analysis test indicate that the formal survey

was successful.

Table 8. Rotate to Matrix

	ingredient			
	1	2	3	4
Q11.1	.870			
Q11.2	.890			
Q11.3	.820			
Q11.4	.890			
Q11.5	.870			
Q12.1		.870		
Q12.2		.890		
Q12.3		.870		
Q12.4		.880		
Q12.5		.840		
Q23.1			.880	
Q23.2			.870	
Q23.3			.850	
Q23.4			.840	
Q23.5			.870	
Q30.1				.870
Q30.2				.860
Q30.3				.850
Q30.4				.830
Q30.5				.870

3. Analysis of the Willingness to Inherit and Influencing Factors of Jingdezhen Ceramic Culture

3.1 Extraction of Factors Influencing the Willingness to Inherit Principal Component Analysis

In this paper, principal component analysis will be used to explore the influencing factors of inheritance willingness.

3.1.1 Construction of the indicator system

Based on the data obtained from the questionnaire, this report selects 19 indicators from six aspects, namely media factors, cognitive status quo, interest motivation, social influence, economic factors and educational factors, to construct an indicator system for influencing the public's willingness to inherit ceramic culture [3-5].

3.1.2 Basic steps of principal component analysis

(1) The number of indicators n is selected as 19, the value of the estimator m is 810, and the matrix X is:

$$X = \begin{bmatrix} x_{11} & \cdots & x_{1n} \\ \vdots & & \vdots \\ x_{m1} & \cdots & x_{mn} \end{bmatrix} \quad (2)$$

Where x_{ij} denotes the j th indicator in the i st sample.

(2) Indicators were standardized in order to eliminate variability between variables:

$$X = \begin{bmatrix} x_{11}^* & \cdots & x_{1n}^* \\ \vdots & & \vdots \\ x_{m1}^* & \cdots & x_{mn}^* \end{bmatrix} \quad (3)$$

Where

$$x^* = \frac{x_{ij} - x_j}{\sqrt{VAR(x_j)}} \quad (i = 1, 2, \dots, n; j = 1, 2, \dots, p)$$

, x_j is the variance of the j indicator.

(3) Calculate the correlation coefficient matrix A

$$A = \begin{bmatrix} r_{11} & \dots & r_{1n} \\ \dots & \dots & \dots \\ r_{m1} & \dots & r_{mn} \end{bmatrix} \quad (4)$$

where r_{ij} ($i, j = 1, 2, \dots, p$) is the correlation coefficient between x_i^* and x_j^* :

$$r_{ij} = \frac{\sum_{k=1}^m (x_{ki} - x_i)(x_{kj} - x_j)}{\sqrt{\sum_{k=1}^m (x_{ki} - x_i)^2} \sqrt{\sum_{k=1}^m (x_{kj} - x_j)^2}} \quad (5)$$

1) Derive the n eigen roots and order them to derive the eigenvector matrix.

2) Calculate the component variance contribution rate and cumulative contribution rate to produce individual component score coefficient results.

Practicality test

In this report, KMO and Bartlett's test were

Table 10 Matrix of principal component loading coefficients

name (of a thing)	Ingredients					
	Principal Component 1	Principal component 2	Principal Component 3	Principal Component 4	Principal Component 5	Principal component 6
Educational factor 1	0.017	0.766	0.083	-0.053	0.035	0.035
Social factor 1	0.075	0.689	0.027	-0.059	-0.072	-0.099
economic factor	0.042	0.798	-0.033	0.054	-0.074	0.076
Cognitive status 1	-0.020	-0.082	0.158	-0.263	-0.649	0.654
Cognitive status 2	0.862	-0.023	0.017	-0.000	0.058	0.048
Cognitive status 3	0.873	-0.051	0.006	-0.024	0.005	-0.005
Cognitive status4	0.788	-0.004	0.006	0.026	0.031	0.010
Cognitive status5	0.875	0.038	-0.013	-0.037	-0.031	-0.003
Cognitive status 6	0.861	-0.017	-0.023	0.038	0.008	-0.035
Motivation of interest 1	0.855	0.024	0.005	0.001	0.008	0.047
Interest motivation 2	0.866	0.003	0.059	-0.041	-0.005	0.020
Interest motivation 3	0.861	-0.042	-0.019	0.020	0.006	-0.012
Interest Motivation 4	0.851	-0.006	0.004	-0.007	0.010	-0.021
Interest Motivation 5	0.822	-0.037	0.012	0.004	-0.051	-0.038
Media factor 1	0.072	0.000	-0.019	0.704	-0.091	0.368
Media factor 2	-0.019	0.032	0.021	-0.385	0.701	0.565
Media factor 3	0.032	0.007	-0.784	-0.147	-0.021	0.089
Media factor 4	-0.012	-0.056	0.789	-0.159	0.032	-0.087
Media factor 5	-0.064	0.039	0.143	0.590	0.278	0.210

3.2 Factors Affecting the Willingness to Pass on Gray Correlation Analysis

According to the principal component influence factors, the ceramic culture inheritance willingness influence factors are divided into six categories, respectively, media factors, cognitive status, interest motivation,

conducted on the 19 factors influencing the willingness to inherit ceramic culture, and the results of both tests are shown in the Table 9.

Table 9. KMO and Bartlett's test

KMO value		0.953
Bartlett Sphericity Check	Approximate cardinality	5725.733
	df	171
	p-value	0.000

It can be seen that the KMO value is 0.953, which is greater than 0.6; the p-value is less than 0.05, which passes the Bartlett's test of sphericity, indicating that the data is suitable for principal component analysis.

3.1.4 Extraction of principal components

According to the principal component analysis, the 19 indicators under each factor were dimensionalized, and 6 principal components were extracted i.e. the main influences on the willingness to pass on are media factors, cognitive status quo, interest motivation, social influence, economic factors and educational factors. The results of its component score coefficients are as is shown in Table 10.

In summary, it can be concluded that media factors, cognitive status, interest motivation, social influence, economic factors and educational factors all have a positive influence on the willingness to pass on.

social influence, economic factors and educational factors. These six categories of factors of each evaluation index through the principal component analysis, the inheritance will be "inheritance does not matter", "unwilling", "general", "willing", "very willing" to assign a value of 1-5 points.

This report uses the method of gray correlation analysis to study the importance of each factor on the willingness to inherit ceramic culture, and will calculate the gray correlation coefficients between the six influencing factors and the willingness to inherit, namely, media factors (1, 2, 3, 4, 5), cognitive status

quo (1, 2, 3, 4, 5, 6), motivation of interest (1, 2, 3, 4, 5), social influences (1), economic factors (1) and educational factors (1). correlation coefficient, the specific results are as follows Table 11 The results are shown in Table 11

Table 11 Table of gray correlation coefficients between specific factors and willingness to transmit

evaluation unit	relatedness	rankings
Educational factor 1	0.778	1
Interest Motivation 4	0.77	2
Economic factor 1	0.755	3
Cognitive status4	0.752	4
Cognitive status 6	0.733	5
Cognitive status5	0.731	6
Interest motivation 2	0.725	7
Cognitive status 3	0.722	8
Motivation of interest 1	0.721	9
Interest motivation 3	0.721	10
Cognitive status 2	0.721	11
Interest Motivation 5	0.717	12
Cognitive status 1	0.678	13
Social factor 1	0.677	14
Media factor 2	0.432	15
Media factor 3	0.431	16
Media factor 1	0.407	17
Media factor 5	0.396	18
Media factor 4	0.396	19

It can be seen that educational factors (correlation: 0.778) have the highest overall rating, followed by interest motivation (correlation: 0.708) and economic factors (correlation: 0.704) in Table 11.

4. Crowd Classification and Ceramic Cultural Heritage Trend Forecast Analysis

4.1 Portrait of Different Groups of People in Ceramic Culture Inheritance - Cluster Analysis

4.1.1 Determination of clustering variables and processing of original data

In order to analyze the characteristics of different groups of people in ceramic culture inheritance, this paper selected six clustering variables (inheritance willingness, frequency of participation in ceramic culture-related activities, degree of interest, degree of awareness, age, and monthly income) for analysis.

(1) Respondents' Ranking of Willingness to Pass It On

Question in the questionnaire: Are you willing to pass on and understand ceramic culture?

According to the respondents' answers, they were scored from 1-5, from very reluctant to willing, respectively.

(2) Classification of Respondents' Frequency of Participation in Ceramic Culture-Related Activities

Question in the questionnaire: How often do you participate in or experience ceramic culture related activities?

According to the respondents' answers, "none" was scored as 1; "once a year or less" as 2; "once every six months" as 3; "once a month" as 4; and "once a week" as 5. Once" was given a score of 4, and "Once a week" was given a score of 5.

(3) Classification of respondents' level of interest

Question in the questionnaire: How interested are you in the following Jingdezhen ceramic cultures?

Anjo respondents' answers to the scores for the level of interest in the five ceramic culture types were averaged.

(4) Ranking of Respondents' Level of Awareness

Based on four general knowledge questions about ceramic culture in the questionnaire.

According to the respondent's answer, from answering 1 question correctly to answering 4 questions were recorded as 1-5 points.

(5) Classification of Respondents' Ages

According to the question in the questionnaire:

what is your age?

According to the respondents' answers, "under 18 years old" was scored 1; "18-25 years old" was scored 2; "26-35 years old" was scored 3; "36-45 years old" was given a score of 4; "46-60 years old" was given a score of 5; and "over 60 years old" was given a score of 6.

(6) Classification of respondents' monthly income

According to the question in the questionnaire: what is your monthly income?

According to the respondents' answers, "no income" was scored as 1; "less than \$1,500"

was scored as 2; "\$1,501-\$3,000" was scored as 3; "\$3001-\$5000" is scored as 4; "\$5001-\$10,000" is scored as 5; and "\$10,001-\$2,000" is scored as 6; 7 points for "\$20,001 or more".

4.1.2 Cluster analysis results

Table 12 is the number of cases in each clustering, with 165 cases in the first category, or 20.49%; 240 cases in the second category, or 29.51%; and 405 cases in the third category, or 50.00%. As a whole, the first two categories are more evenly distributed, partly indicating that the clustering is more effective.

Table 12. Summary of basic information on clustering categories

clustering category	frequency	Percentage (%)
cluster 1	165	20.49%
cluster 2	240	29.51%
cluster 3	405	50.00%
add up the total	610	100%

Table 13 are the means and p-values obtained from the K-means cluster analysis, and the p-values corresponding to the F-test are basically 0.000, which shows that this classification method is feasible and the differences between each category are significant.

The inheritance willingness of the first group is higher, between the second and the third group, the frequency of visiting ceramic culture related activities, the degree of interest, age, monthly income of this group is higher, which is manifested in the fact that they have the time to experience the Jingdezhen ceramic culture but seldom come into contact with it due to their life. Therefore, the first group is defined as the audience, and there are 165 people in the sample, accounting for 20.49%.

The inheritance willingness of the second group is the highest. The age, monthly income and frequency of participation in ceramic culture-related activities of this group are also the lowest, but the degree of interest and cognition are higher, mainly students and young people, who often come into contact

with ceramic culture in their daily lives and are more knowledgeable about ceramic culture. Therefore, they showed the highest willingness to inherit. However, due to income and time constraints, they seldom participate in activities related to ceramic culture. Therefore, the second group is defined as the promotion group, and there are 240 people in this group in the sample, accounting for 29.51%.

The third group has the lowest willingness to pass on, this group has the highest level of interest, awareness, age and monthly income, which is manifested in people with certain life experience and economic strength, who have a very strong interest and passion for ceramic culture, they often have relatively rich knowledge and skills of ceramic culture, but are rarely willing to spend time and energy to understand and explore the various aspects of ceramic culture. Therefore, the third group of people is defined as the heritage group, and there are 405 such people in the sample, accounting for 50%.

Table 13. Comparison results of ANOVA differences in clustering categories

	Results of cluster category ANOVA difference comparisons (mean ± standard deviation)			F	p
	cluster 1	cluster 2	cluster 3		
Willingness to pass on	3.56±1.38	3.66±1.29	3.34±1.38	3.248	0.040*
Frequency of participation in ceramic culture related activities	3.37±1.55	1.78±1.07	1.83±1.11	83.194	0.000**
level of interest	2.37±1.07	4.20±0.56	4.19±0.53	353.008	0.000**
cognitive level	1.86±0.69	4.19±0.60	4.26±0.44	939.794	0.000**
(a person's) age	3.58±1.60	2.12±1.20	4.05±1.19	130.092	0.000**
monthly salary	4.66±1.64	2.90±1.48	5.30±0.95	199.844	0.000**

Ceramics in Jingdezhen, Jiangxi Province
Understanding that the process of cultural

4.2 Trend Analysis of Cultural Heritage of

transmission presents high similarity with the process of infectious disease diffusion and transmission, this paper applies the idea of infectious disease model to construct the mathematical model of ceramic cultural transmission based on the results of the classification of the inherited population in Jiangxi Province above.

4.2.1 Prediction of ceramic cultural heritage trends in jingdezhen, jiangxi province based on sir modeling

(1) Mathematical model of ceramic cultural inheritance

According to the above clustering analysis results, the crowd is divided into three categories, combined with the SIR model, the promotion of the crowd, the inheritance of the crowd and the audience as the "source of contagion", the introduction of publicity reference factor v_1 , v_2 , the construction of the ceramic culture heritage model is shown below:

$$P_k(t) + I_k(t) + R_k(t) = 1$$

$$\begin{cases} \frac{dP_k(t)}{dt} = -\alpha v_1 I_k(t) P_k(t) - \eta v_2 P_k(t) + \gamma v_1 R_k(t) \\ \frac{dI_k(t)}{dt} = \alpha v_1 I_k(t) P_k(t) - \beta v_2 I_k(t) \\ \frac{dR_k(t)}{dt} = -\gamma v_1 R_k(t) - \beta v_2 I_k(t) + \eta v_2 P_k(t) \end{cases} \quad (6)$$

Among them, $P_k(t)$ is the proportion of Jingdezhen ceramic culture promotion population to the population of Jiangxi Province; $I_k(t)$ is the proportion of Jingdezhen ceramic culture inheritance population to the population of Jiangxi Province; $R_k(t)$ is the proportion of Jingdezhen ceramic culture audience population to the population of Jiangxi Province; α is the probability of contact between Jingdezhen ceramic culture promotion and inheritance populations; β is the probability of negative dissemination of Jingdezhen ceramic culture by Jingdezhen ceramic culture inheritance populations; η is the probability of promotion of Jingdezhen ceramic culture. γ is the probability of negative transmission of Jingdezhen ceramic culture; is the probability of Jingdezhen ceramic culture audience becoming the

promotion crowd; v_1 is the reference factor for the crowd that becomes active in the promotion and transmission of Jingdezhen ceramic culture under the influence of publicity; v_2 is the reference factor for the demise of Jingdezhen ceramic culture under the influence of publicity.

4.2.2 Analysis of the impact of publicity efforts on the inheritance of Jingdezhen ceramic culture

If in the absence of any publicity efforts, take $v_1 = 0.02$, $v_2 = 0.5$, Jingdezhen ceramic culture of the inheritance of the crowd and the promotion of the crowd will gradually decrease over time, the audience will gradually increase over time. If we do not go against the Jingdezhen ceramic culture for publicity, Jingdezhen ceramic culture will face the risk of loss. Visible, increase publicity and promotion without delay.

If in the case of small publicity efforts, take, $v_1 = 0.1$, $v_2 = 0.1$, Jingdezhen ceramic culture inheritance crowd and audience will slowly increase over time, the promotion of the crowd will also be slowly reduced over time, it can be seen, we contribute a small part of the publicity and promotion of Jingdezhen ceramic culture, to promote the inheritance and continuation of the ceramic culture of Jingdezhen is also of help significance.

If in the case of further increase in publicity, such as take $v_1 = 0.5$, $v_2 = 0.02$, when the community to increase the publicity for the Jingtao culture, Jingdezhen ceramic culture of the inheritance of the crowd will increase dramatically over time, the promotion of the crowd and the audience will be gradually transformed into the inheritance of the crowd over time, that is, when we increase the publicity and promotion of the Jingdezhen ceramic culture, more to promote the inheritance of the Jingdezhen ceramic culture.

4.3 Analysis of Ceramic Cultural Inheritance Ways and Methods

Therefore, this section intends to analyze the correlation between age and inheritance pathway by exploring the correlation between age and inheritance pathway, to understand the tendency of the residents at this stage to choose various ways of inheritance of Jingdezhen ceramic culture, and to provide

ideas for the subsequent search for programs to better inherit the Jingdezhen ceramic culture.

A correlation analysis of age and type of heritage was conducted with 810 respondents to explore the tendency of different age groups towards learning ceramic culture. The results

of the analysis show a p-value of 0.038, indicating that there is a significant difference in the way of learning ceramic culture among different age groups. The cross-tabulation diagram is as follows Figure 1 The cross-tabulation diagram is shown in Figure 1:

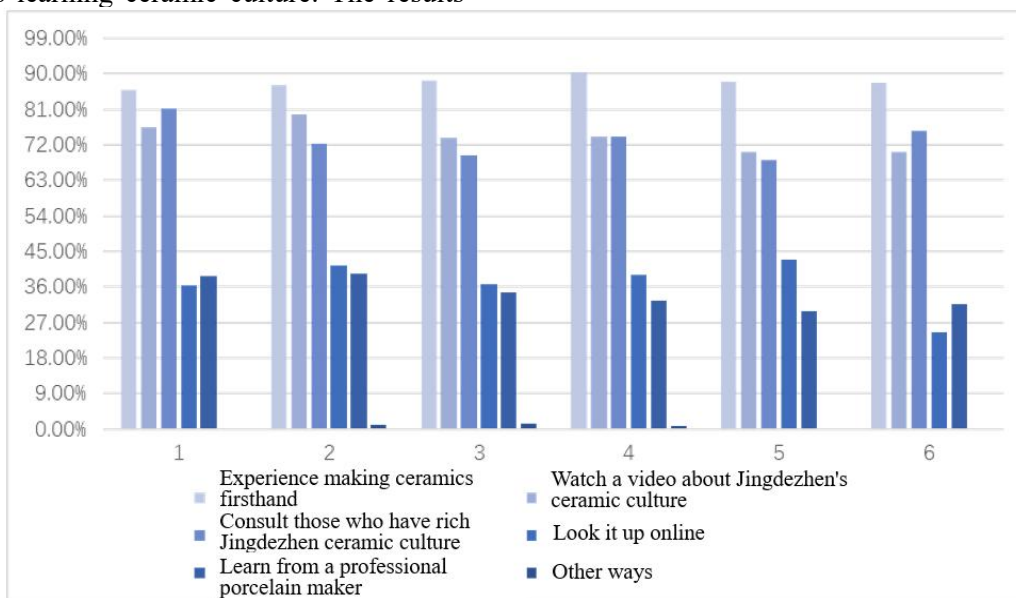


Figure 1. Cross-Aggregation Diagram

From the data can be obtained, in every age group of people are more inclined to "hands-on experience making ceramics" to learn ceramic culture, followed by "watching videos about Jingdezhen ceramic culture" and "rich Jingdezhen ceramic culture" two ways to learn ceramic culture. Ceramic culture through "watching videos about Jingdezhen ceramic culture" and "consulting with people who have rich Jingdezhen ceramic culture". It shows that

both age groups prefer to experience the knowledge of ceramic culture.

Analysis based on the chi-square goodness-of-fit test presents significance ($\chi^2 = 637.791, p=0.000$), implying that there is significant variability in the proportion of choices for each item, and that the variability can be compared specifically through response rates or prevalence rates. The prevalence rate of each item is shown in Figure 2 shown:

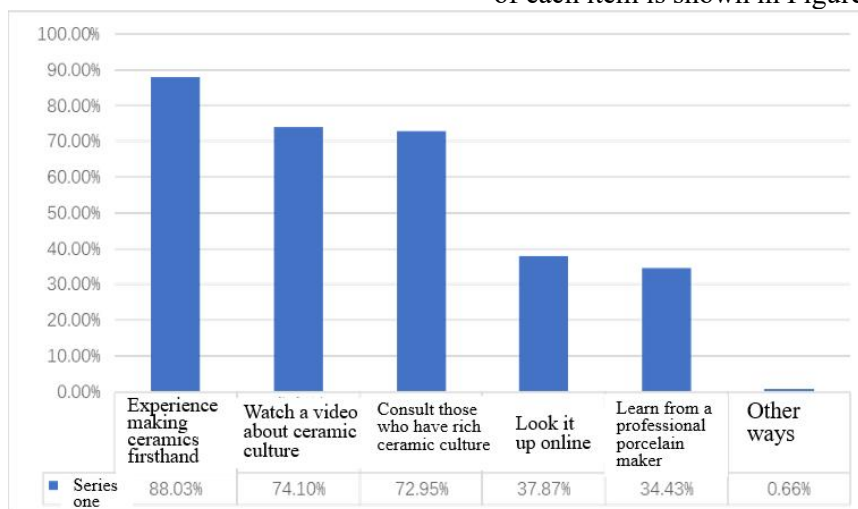


Figure 2. Penetration Rate Graph

The Figure 2 shows that the residents of Jiangxi Province are more inclined to learn

about ceramic culture through "hands-on experience in making ceramics".

5. Discussion

5.1 Reach a Verdict

5.1.1 Jingdezhen ceramic culture inheritance will aspect

Educational factors, interest motivation, and economic factors are the main factors influencing the willingness to pass it on

From the results of principal component analysis and gray correlation analysis, it can be concluded that the comprehensive evaluation of educational factors is the highest (correlation: 0.778), followed by interest motivation (correlation: 0.708) and economic factors (correlation: 0.704). This indicates that the relevant personnel can mainly start from the above three factors to improve the public's awareness of the current situation and inheritance willingness of Jingdezhen ceramic culture.

5.1.2 Aspects of population categorization and ceramic culture inheritance trends

(1) The different groups of people who inherit can be categorized as audience, promotion and inheritance groups.

The audience population of Jingdezhen ceramic culture has a high willingness to inherit. The promotion crowd shows the highest willingness to inherit. The inheritance willingness of the inheritance crowd is the lowest.

(2) Publicity efforts have a significant impact on the inheritance of Jingdezhen ceramic culture

Only by increasing publicity, raising the awareness of the crowd, and prompting the crowd's willingness to inherit, so as not to let the excellent culture of obscurity.

5.1.3 Jingdezhen ceramic cultural heritage form aspects

(1) The way of practicing Jingdezhen ceramic culture tends to be hands-on at each age level.

By analyzing the correlation between age and the way of transmission, it was found that each age group preferred to learn about the culture by "experiencing the making of ceramics".

5.2 Suggestion

5.2.1 Tracing the roots of the problem to make up for the shortcomings

For the residents of Jingdezhen ceramic culture general knowledge of the lower degree of this problem, first of all, you can use the residents to understand the main way of

Jingdezhen ceramic culture - related film and television output, Jingdezhen ceramic culture through social media platforms and other channels for dissemination. On the basis of linking with the travel bloggers, knowledge bloggers and non-heritage bloggers of major video platforms, a multimedia matrix is constructed to disseminate and promote Jingdezhen ceramic culture with maximum benefits. Secondly, we must grasp the golden period of cultural development and education, and organize activities such as "non-heritage culture in school", "ceramic creation marketing contest" and "Jingdezhen ceramic culture knowledge contest" through cooperation with schools and enterprises. " And other activities, deepen the primary and secondary schools and universities students for the degree of knowledge of Jingdezhen ceramic culture^[6,7].

5.2.2 Perseverance strengthens weaknesses

Jingdezhen ceramic culture inheritance willingness to inheritance behavior presents a certain negative impact, that is, the majority of residents with inheritance willingness but difficult to pay practice, means that the implementation of inheritance behavior of the pre-process or process there are certain problems. Therefore, the inheritance of Jingdezhen ceramic culture not only need to optimize the inheritance behavior within the various types of pavilions or activities of the organizational process, staff quality, environmental structure, etc., but also with the help of the power of the times to stimulate the masses to independent perception of culture, and then inheritance of culture. Specifically, through the video platform released in the creation of incentive activities, in the social e-commerce platform to open up exclusive phrases, such as # Jingdezhen ceramic culture # and other activities, to encourage individuals to actively explore the Jingdezhen ceramic culture related content, and then achieve the effect of universal creation, independent learning [8-12].

6. Conclusion

Compared with the deep popularization of Jingdezhen ceramics cultural awareness is still facing a long way to go, Jingdezhen ceramics as a symbol but has been known far and wide at home and abroad. Therefore, jingdezhen cultural awareness can use its reputation, more

widely promote its inner more deep and detailed historical heritage, customs, ceramic technology, etc., so that the masses in the mention of Jingdezhen ceramics, is no longer just a simple fuzzy sign, but more specific and practical form. In terms of practical measures, it can be through all kinds of linkage activities, ceramic culture to intimate and interesting image close to life, such as and milk ceramics linkage to ceramic cultural knowledge as the main elements of ceramic packaging, and game manufacturers linkage and ceramic culture related to the internal activities of the game or production of ceramics game peripheral, and non-heritage products linkage to the "One Belt, One Road" mode to promote culture. and non-heritage products to "one belt, one road" mode to promote culture and so on.

References

- [1] GUO Jianhui. Promoting the creative transformation and innovative development of Jingdezhen ceramic culture: A survey based on the three treasures of Jingdezhen. Jiangxi Social Science, 2021, 41(8):5-13.
- [2] Lv Dongliang. The status quo and development of exhibition display in Jingdezhen ceramic-based museums. Chinese Literary Artist, 2018(10):264-265.
- [3] Li Xiuchun. Research on experiential ceramic art space design based on emotionalization Guangxi Normal University, 2019
- [4] Lu Wenya. A study on the status quo and countermeasures of the cognition of Chinese excellent traditional culture among college students--Taking Xinzhou Normal College as an Example. Chinese Character and Culture, 2022(12):163-165.
- [5] Wang Jingshan. Study on the Current Situation and Influencing Factors of College Students' Cognition of Red Culture from the Perspective of Cultural Inheritance--An Empirical Survey Based on 27 Colleges and Universities in China. College Counselor, 2022(03):75-80.
- [6] Wu Wenkhor, Shao Yu. Post-epidemic development of Jingdezhen Ceramic Museum in the digital era. Journal of Ceramics, 2022, 43(01):158-162.
- [7] Wu Xiaohua, Huang Yong. The path of strategic transformation of Jingdezhen ceramic cultural and creative industry under the perspective of digital economy. China Ceramic Industry, 2024, 31(01):67-70.
- [8] Xu Yan. Research on the ideas, problems and improvement direction in the planning of ceramic theme exhibition--Taking the temporary exhibition of China Ceramic Museum in Jingdezhen as an example. Art Appreciation, 2021(11):133-135.
- [9] Xie Yi, Zhao Xia. Cultural and creative services of ceramic archives under the national cultural digitization strategy: opportunity, dilemma and way forward. Shandong Ceramics, 2024, 47(02):5-13.
- [10] YANG Mingkun, QI Xuan, WANG Junhong. Research on the dissemination path of ceramic culture in Zibo under the position of telling China's story. Shandong Ceramics, 2024, 47(01):24-30.
- [11] Yuan Fang. Research on the dissemination of cultural and creative products and audience's cultural cognition in Gui Southwest Museum. Hunan Packaging, 2022, 37 (03):137-140.
- [12] Zhong Chunxia, Li Lusheng, Lai Xin et al. External Communication of Jingdezhen Ceramic Culture Based on Cultural Inheritance and Innovation. Ceramics Research, 2023, 38(03):51-53.