

Innovations in Evaluating Cultural Value of Bian Embroidery Heritage Based on Fuzzy Comprehensive Valuation and Content Analysis Method

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Abstract - Bian embroidery is a non-physical cultural heritage at national level. It is an important step to evaluate its cultural value in determining heritage value of Bian embroidery. This paper elaborates the connotation of cultural value of Bian embroidery and tries to evaluate specifically the cultural value of Bian embroidery heritage on the basis of questionnaire survey. The innovation is that we construct a complete evaluating system of cultural value which combines fuzzy comprehensive valuation with content analysis method and from which evaluating result of cultural value of Bian embroidery heritage can be derived. The thought on evaluating cultural value put forward in this paper could be further used to evaluate other non-physical cultural heritage.

Keywords - *Evaluating Cultural Value, Bian Embroidery Heritage, Fuzzy Comprehensive Valuation, Content Analysis Method*

I. INTRODUCTION

Bian embroidery, as a traditional handcraft, was established as one of the first batch of non-physical cultural heritages in Henan Province in 2006. And after that in 2008, as a folk fine art item, it was selected as the second batch of national non-physical cultural heritage. Compared with other embroideries such as Su embroidery and Shu embroidery, Bian embroidery is troubled by such problems as pricing chaos and shortage of government investment, which result from people's lack of knowledge about the value of Bian embroidery heritage. Thus, it is imperative to conduct the due comprehension and scientific evaluation of the overall value of Bian embroidery heritage. It is advisable that the evaluation should be a combination of economic value and cultural value since pure economic evaluation is not inclusive of the total cultural value. Therefore, the independent evaluation of cultural evaluation of Bian embroidery is called for.

According to Mason, cultural value was used to establish cultural belonging of a certain heritage. It was endowed with historical significance, political characteristics and nationality and closely associated with the lifestyle of a group. [1] Simonton held that cultural value referred to a variety of value representation form of cultural commodities and service, which applied to tangible art, music, cultural heritage, movie or literature and could be composed of many different parts with strong observables. [2] To the point of Throsby, cultural value was multi-dimensional, referring to esthetic characteristics, spiritual significance, symbolic meaning, historic importance, degree of influencing on the development trend of arts, authenticity, integrity, and peculiarity. [3] The connotation and classification of cultural value presented by Throsby is more inclusive,

therefore can be more favorable to make us systemically comprehend the types of cultural value.

However, there is much less methods to draw upon in terms of the assessment methods of cultural value. Wu Meiping held that assessment method used in fuzzy mathematics theory and marginal opportunity cost method could be taken advantage of so as to tentatively establish the value assessment matrix of cultural heritage. [4] Gu Jiang put forward the principles of constructing the evaluation system of cultural value and the methods of setting up the system of indicators, pointing out the possibility that contingent valuation method and fuzzy assessment method could be adopted in assessing cultural value of non-physical cultural heritage. [5] Zhong Yi took advantage of fuzzy comprehensive evaluation to conduct assessment of revolutionary tourism resources, in an attempt to establish an evaluation system combining quantitative and qualitative assessment for the sake of researching on assessing cultural value of non-physical cultural heritage. [6] As far as the object of study is concerned, as to the value evaluation in the field of cultural heritage, more attention is paid to tangible heritage and resources, with little on the intangible resources. Though some researchers have proposed some methods for evaluating intangible cultural heritage, detailed deduction and demonstration are waiting to be induced. Comparatively speaking, fuzzy assessment method is a well-acknowledged instrument in the field of cultural heritage.

In light of the concept system presented by David Throsby and by dint of content analysis method and fuzzy comprehensive evaluation method, this paper sets out to conduct an evaluation of the cultural value of Bian embroidery. The line of thought is: At first, elaborate and extend David Throsby's cultural value concept to build an assessment system of the cultural value of Bian

embroidery, then design questionnaire and at last obtain samples through sampling survey, on basis of which to complete the assessment.

II. CONSTRUCTION OF THE ASSESSMENT SYSTEM OF THE CULTURAL VALUE OF BIAN EMBROIDERY HERITAGE

Six dimensions, i.e. aesthetic value, spiritual value, social value, historical value, symbolic value and authenticity value are extracted to establish the system. These six dimensions thus form the first-level indicators, on basis of which 19 second-level indicators are found. All these indicators jointly constitute the assessment system of the cultural value of Bian embroidery.

TABLE 1. THE SYSTEM OF EVALUATING CULTURAL VALUE OF BIAN EMBROIDERY HERITAGE

Dimension of Valuation	Code	Factor	Code
Aesthetic value	A1	Topic	B1
		Shape	B2
		Regional Characteristic	B3
		Characteristic of the times	B4
		Thoughts Expressed	B5
Spiritual value	A2	Religious Belief	B6
		Emotional Inspirations	B7
Social value	A3	Forces Responsible for Social Harmony	B8
		Degree of Public Participation	B9
		Scientific and Research Value	B10
Historical value	A4	Popularity	B11
		Longstanding	B12
		Inheritance	B13
		Integrity	B14
Symbolic value	A5	Educational Function	B15
		Emotional Identity	B16
Authenticity value	A6	Authenticity	B17
		Originality	B18
		Uniqueness	B19

The following is the introduction to the 19 second-level indicators.

- B1, topic, refers to theme form of Bian embroidery product, which may be divided into traditional craftsmanship, performance art or other types.
- B2, shape, is related to whether Bian embroidery product can bring a comfort and merciful mood to observers in the terms of vision, audition, sense of touch and imagination. In addition, it is also been concerned about whether Bian embroidery product can be harmonious in image, color, artistic conception and technique when taken on via physical form.
- B3, regional characteristic, refers to whether Bian embroidery product is characteristic of special feeling of the local and whether they are capable of

reflecting the natural environment and economic-social environment of the region.

- B4, characteristic of the times, refers to the cultural spirit and social conception inherited and expressed by the art form of Bian embroidery in different historical periods and civilizations.
- B5, thoughts expressed, namely whether Bian embroidery has definite idea and theme to express.
- B6, religious belief, refers to whether Bian embroidery exerts special cultural significance on religious followers or other cultural groups and whether religious atmosphere is strong.
- B7, emotional inspirations, refers to the touching of Bian embroidery on personal emotions, spirits or souls and the special significances of its own.
- B8, forces responsible for social harmony, refers to the part played by Bian embroidery art in coordinating the relations between man and man and between human and society, in resolving social conflicts, in promoting communication and cooperation and in contributing to social harmony and stability.
- B9, degree of public participation, refers to what extent Bian embroidery can effect and change lifestyle of the people, or vice versa.
- B10, scientific and research value, refers to that Bian embroidery can provide the crowd with important and valuable scientific knowledge and information and with peculiar cultural genes and spiritual idiosyncrasy developed in the long history. Specifically speaking, Bian embroidery can reflect the production force level, scientific and technological level, ideological understanding level, social customs, and so on in different historical periods, so they can serve as an ideal specimen for researchers.
- B11, popularity, refers to the depth and width of effect brought by Bian embroidery. Generally speaking, cultural value of cultural heritage is proportional to its popularity.
- B12, longstanding, refers to the temporal and spatial span of Bian embroidery, whether it is produced in Han dynasty, Tang-Song dynasties, Ming-Qing dynasties or modern times. For non-physical cultural heritage, the more time-honoured it is, the more valuable it will be.
- B13, inheritance, is determined by the manners, characteristics and levels of inheritance and degree of being engendered.
- B14, integrity, refers to what extent contemporary Bian embroidery maintains the original appearance like its ancestors in terms of content and form.
- B15, educational function, refers to the value implicated by Bian embroidery products with rich knowledge, fine tradition and moral level, which helps to raise cultural cultivation and moral sentiment of every social group.

- B16, emotional identity, refers to self awareness of cultural and emotional identity of a group or individual inspired by Bian embroidery, cultural confidence obtained and connection with cultures from other nations, regions and groups, which helps to improve cross-cultural dialogues and understandings.
- B17, authenticity, refers to that Bian embroidery craft and its art are authentic but not fictive; and they are conceptually complete. Authenticity serves as a reference for assessment and is used to ascertain that the information of meaning and value of cultural heritage is authentic.
- B18, originality, refers to whether Bian embroidery product is original, first-hand, non-mimic and non-replicated.
- B19, uniqueness, refers to the peculiarity and the rarity of Bian embroidery as a non-physical cultural heritage.

III. DATA COLLECTION AND REDUCTION

This paper adopts questionnaire survey method to collect data by distributing questionnaires randomly in the city proper. From May first, 2014 to October first, 2014, we investigated Bian embroidery producers, dealers, city dwellers, tourists and college students to acquire their understandings and feelings concerning about cultural value of Bian embroidery heritage.

Giving that what this paper aims is to study the relationship between subjective judgments of those surveyed and cultural value of Bian embroidery heritage, the subjects of investigation were confined to those who have better access to Bian embroidery because their conception of the cultural value of Bian embroidery products could be regarded as representative among all people. Due to the dynamic character of subjects to be investigated, it is next to impossible to determine the exact number of subjects. Thus, it is inappropriate to execute rigid probabilistic sampling. On the basis of previous researches, purposeful sampling, that is, a method combining non-probabilistic sampling and random sampling was adopted.

The subjects investigated included dealers or producer-dealers in 35 shops dealing with Bian embroidery in Imperial Song Street, Quanqian Avenue, and the Millennium City Park to whom 120 questionnaires were distributed. City dwellers in 10 residential quarters were visited randomly with 120 questionnaires being distributed. 120 questionnaires were given to the tourists in the Millennium City Park and still 120 to the college students in Kaifeng city proper.

Before the investigation, we chose 4 graduates from Economics Department in Henan University to become investigators. They were given a detailed interpretation of the implication of each indicator and demanded to explain them clearly in case the subject should meet with any

difficulties. Taking into consideration of the fact that the locations investigated were disperse and only weekends and holidays were available to the graduates, to improve efficiency and quality of the investigation, we dealt with sampling through a filtering process of the, namely, only those who had enough knowledge or initial conception about Bian embroidery products to be investigated. To ensure the reliability of data, we asked the investigators to complete questionnaires during semi-interviews.

In the above-mentioned periods, 480 questionnaires were distributed and subsequently got back, among which 456 were valid. Therefore, ratio of effective questionnaires was 95 percent. As to the subjects, females took the percentage of 52.4% while males 47.6%; 33.3% were above 60 years old, 33.2% between 29-38, 32.3% between 19-28 and 1.2% below 18 years old; 6.5% of them had master's degree or doctoral, 57.3% bachelor's degree and 36.2% just graduated from senior high or polytechnic schools; 55.6% of them worked in enterprises or institutions, with the rest in other units.

IV. RELIABILITY TEST OF DATA

The degree of reliability is the direct factor determining whether the content analysis is successful or not. The content analysis will be rendered invalid if there is no systematic reliability test, no assessment or report of reliability. Reliability test is composed of internal reliability test and external reliability test. The former is to explain whether a group of assessment items are measuring the same feature by adopting Cronbach Alpha (α) while the latter to know whether the results are consistent when the same item is given repetitive assessments in the same period by adopting split-half reliability method. [7] In this paper, only Cronbach α is utilized because the data given by investigators are calculated quantitatively based on predesigned questionnaires and scales and then can pass through internal reliability test without executing external reliability test.

Cronbach Alpha (α) is calculated by the formula:

$$\alpha = nr/[1+(n-1)r]$$

where n refers to the number of all items to be assessed and r the mean value of correlation coefficients of all items. The value of α is between 0-1. The more near Cronbach α is to 1, the more reliable the scale is.

It is generally believed that when Cronbach α is below 0.6, it shows the scale lacks of internal consistency and needs to be revised; when Cronbach Alpha α is between 0.7-0.8, it shows that the scale is enough reliable to be accepted; when Cronbach α is above 0.8, it shows that the scale has good reliability.

After inputting 456 groups of data into SPSS software, Cronbach α reaches 0.808, showing that the scale has good reliability.

TABLE 2. TOTAL STATISTICS OF ITEMS

Code	Scale mean after cancelling the item	Scale variance after cancelling the item	Overall correlation of items revised	Cronbach's Alpha
B1	73.16	56.161	0.256	0.806
B2	73.27	55.993	0.322	0.803
B3	73.17	55.813	0.306	0.803
B4	73.49	51.943	0.549	0.789
B5	73.48	51.784	0.614	0.786
B6	73.25	52.867	0.405	0.798
B7	74.22	55.027	0.280	0.806
B8	73.90	53.561	0.401	0.798
B9	73.70	52.667	0.485	0.793
B10	73.54	54.614	0.409	0.798
B11	73.52	52.510	0.518	0.791
B12	73.18	57.434	0.228	0.807
B13	73.29	56.538	0.260	0.806
B14	73.93	53.728	0.411	0.798
B15	73.73	51.493	0.425	0.797
B16	73.36	53.008	0.404	0.798
B17	73.40	57.028	0.274	0.805
B18	74.00	57.281	0.313	0.804
B19	74.24	52.297	0.387	0.800

V. CONTENT ANALYSIS ON CULTURAL VALUE OF BIAN EMBROIDERY HERITAGE

Descriptive measurement, such as mean value and scale used in relative contrastive analysis is the basic and most frequently used tool in content analysis. The cultural value of Bian embroidery heritage should be assessed from six dimensions which will be measured by mean value and frequency.

A. Assessment Statistics on Aesthetic Value of Bian Embroidery Heritage

In the table 3, the sum of 5 points and 4 points in terms of percentage in every analytical unit is more than 75, which suggests that the crowd have much higher valuation on aesthetic value of Bian embroidery heritage. Above all, the total percentage of topic more than 4 points is highest, which indicates that the people have the biggest confidence in topic of Bian embroidery.

TABLE 3 ASSESSMENT STATISTICS ON AESTHETIC VALUE OF BIAN EMBROIDERY HERITAGE

Dimension		Aesthetic value				
Analytical unit		Topic (B1)	Shape (B2)	Regional characteristic (B3)	Characteristic of the times (B4)	Thoughts expressed (B5)
5 points	Frequency	289	227	294	209	176
	Percentage	63.4	49.8	64.5	45.8	38.6
4 points	Frequency	131	183	90	135	217
	Percentage	28.7	40.1	19.7	29.6	47.6
3 points	Frequency	10	40	71	92	32
	Percentage	2.2	8.8	15.6	20.2	7.0
2 points	Frequency	26	6	1	20	31
	Percentage	5.7	1.3	0.2	4.4	6.8
1 point	Frequency	0	0	0	0	0
	Percentage	0	0	0	0	0

B. Assessment Statistics on Spiritual Value of Bian Embroidery Heritage

In the table 4, the sum of 5 points and 4 points in terms of percentage from the point of religious belief is more than 74, but that from the point of emotional inspirations lower than 37, which suggests that the crowd have much bigger inconsistent views on the two indicators of spiritual value of Bian embroidery heritage.

TABLE 4. ASSESSMENT STATISTICS ON SPIRITUAL VALUE OF BIAN EMBROIDERY HERITAGE

Dimension		Spiritual value	
Analytical unit		Religious belief (B6)	Emotional inspirations (B7)
5 points	Frequency	333	90
	Percentage	73.0	19.8
4 points	Frequency	4	77
	Percentage	0.9	16.9
3 points	Frequency	89	230
	Percentage	19.5	50.4
2 points	Frequency	30	59
	Percentage	6.6	12.9
1 point	Frequency	0	0
	Percentage	0	0

C. Assessment Statistics on Social Value of Bian Embroidery Heritage

In the table 5, the sum of 5 points and 4 points in terms of percentage from the point of scientific and research value is more than 75, degree of public participation more than 60, but forces responsible for social harmony lower than 50. Therefore, scientific and research value of Bian embroidery heritage is

commendable, but social responsibility senses of Bian embroidery enterprises should be strengthened.

TABLE 5. ASSESSMENT STATISTICS ON SOCIAL VALUE OF BIAN EMBROIDERY HERITAGE

Dimension		Social value		
Analytical unit		Forces responsible for social harmony (B8)	Degree of public participation (B9)	Scientific and research value (B10)
5 points	Frequency	144	165	162
	Percentage	31.6	36.2	35.5
4 points	Frequency	69	118	191
	Percentage	15.1	25.9	41.9
3 points	Frequency	233	161	99
	Percentage	51.1	35.3	21.7
2 points	Frequency	10	12	4
	Percentage	2.2	2.6	0.9
1 point	Frequency	0	0	0
	Percentage	0	0	0

D. Assessment Statistics on Historical Value of Bian Embroidery Heritage

In the table 6, there are three indicators whose total percentages got of 5 points and 4 points are more than 75, the residual nearly 60, which indicates that by and large the people think better of historical value of Bian embroidery heritage.

TABLE 6. ASSESSMENT STATISTICS ON HISTORICAL VALUE OF BIAN EMBROIDERY HERITAGE

Dimension		Historical value			
Analytical unit		Popularity (B11)	Longstanding (B12)	Inheritance (B13)	Integrity (B14)
5 points	Frequency	194	243	217	96
	Percentage	42.5	53.5	47.6	21.1
4 points	Frequency	151	190	202	176
	Percentage	33.1	41.7	44.3	38.6
3 points	Frequency	93	22	23	146
	Percentage	20.4	4.8	5.0	32.0
2 points	Frequency	18	1	14	38
	Percentage	4.0	0.2	3.1	8.3
1 point	Frequency	0	0	0	0
	percentage	0	0	0	0

E. Assessment Statistics on Symbolic Value of Bian Embroidery Heritage

In the table 7, total percentage with 5 points and 4 points for every indicator is between 65 and 80, which indicates the people have given a mediocre comment on symbolic value of Bian embroidery heritage. Undoubtedly, the result is in accordance with the reality. After all, there is scarcely Bian embroidery products inherited from the moment far away from now.

TABLE 7. ASSESSMENT STATISTICS ON SYMBOLIC VALUE OF BIAN EMBROIDERY HERITAGE

Dimension		Symbolic value	
Analytical unit		Educational function (B15)	Emotional identity (B16)
5 points	Frequency	199	278
	Percentage	43.6	61.0
4 points	Frequency	112	74
	Percentage	24.6	16.2
3 points	Frequency	57	67
	Percentage	12.5	14.7
2 points	Frequency	88	37
	Percentage	19.3	8.1
1 point	Frequency	0	0
	Percentage	0	0

F. Assessment statistics on authenticity value of Bian embroidery heritage

In the table 8, the assessments on the secondary indicators are greatly different. Total percentage with 5 points and 4 points for authenticity is more than 90, degree of originality approximately 65 and uniqueness right 41. The results suggest that the people believe the work of Bian embroidery is originated from the reality, not quite affirmatively believe the craft is original and not much support the uniqueness of Bian embroidery heritage.

TABLE 8. ASSESSMENT STATISTICS ON AUTHENTICITY VALUE OF BIAN EMBROIDERY HERITAGE

Dimension		Authenticity value		
Analytical unit		Authenticity (B8)	Originality (B9)	Uniqueness (B10)
5 points	Frequency	155	3	117
	Percentage	34.0	0.7	25.6
4 points	Frequency	263	294	70
	Percentage	57.7	64.5	15.4
3 points	Frequency	38	158	159
	Percentage	8.3	34.6	34.8
2 points	Frequency	0	1	07
	Percentage	0	0.2	23.5
1 point	Frequency	0	0	3
	Percentage	0	0	0.7

VI. FUZZY COMPREHENSIVE VALUATION ON BAIN EMBROIDERY HERITAGE

Cultural value of Bian embroidery heritage is composed of six first-level indicators and 19 second-level indicators in terms of the characteristics of cultural value system of Bina embroidery heritage. Therefore, the assessment will be carried out at these two levels.

A. Divide the Set of Factors $U=\{u1,u2,\dots, u19\}$ into Six Groups

$U1=\{u1,u2,\dots,u5\}$, $U2=\{u6,u7\}$, $U3=\{u8,u9,u10\}$, $U4=\{u11,u12,u13,u14\}$, $U5=\{u15,u16\}$, $U6=\{u17,u18,u19\}$.

B. Calculate the First-level Fuzzy Comprehensive Evaluation Vectors

Assume that $V=\{V1, V2, \dots, V5\}$. $V1$ denotes evaluation grade is very high (5 points); $V2$ high (4 points); $V3$ normal (3 points); $V4$ low (2 points); $V5$ very low (1 point). Factors of U_i ($i=1, 2, 3, 4, 5, 6$) will be individually evaluated based on the previous primitive statistics so that evaluation matrix of single factor, i.e. fuzzy relation matrix can be constructed. For the second level set of factors U_i ($i=1, 2, 3, 4, 5, 6$), we have the following evaluation results.

$U1=\{u1,u2,\dots,u5\}$ and weight vector $A1=(0.2,0.3,0.17,0.19,0.14)$ is derived from expert evaluation, so evaluation matrix of single factor related with $U1$ is:

$$R_1 = \begin{bmatrix} 0.634 & 0.287 & 0.022 & 0.057 & 0 \\ 0.498 & 0.401 & 0.088 & 0.013 & 0 \\ 0.645 & 0.197 & 0.156 & 0.002 & 0 \\ 0.458 & 0.296 & 0.202 & 0.044 & 0 \\ 0.386 & 0.476 & 0.07 & 0.068 & 0 \end{bmatrix}$$

Then make first-level fuzzy comprehensive evaluation with the model of $M(\wedge, V)$. We have $B1=A1 R1=(0.3, 0.3, 0.19, 0.068, 0)$.

Similarly, $U2 = \{u6,u7\}$ and its weight vector $A2=(0.3, 0.7)$. The corresponding evaluation matrix of single factor is:

$$R_2 = \begin{bmatrix} 0.73 & 0.009 & 0.195 & 0.066 & 0 \\ 0.198 & 0.169 & 0.504 & 0.129 & 0 \end{bmatrix}$$

The subsequent result of first-level fuzzy comprehensive evaluation is:

$$B2=A2 R2=(0.3, 0.169, 0.504, 0.129, 0)$$

$U3=\{u8,u9,u10\}$ and its weight vector $A3=(0.2,0.5,0.3)$. The corresponding evaluation matrix of single factor is:

$$R_3 = \begin{bmatrix} 0.316 & 0.151 & 0.511 & 0.022 & 0 \\ 0.362 & 0.259 & 0.353 & 0.026 & 0 \\ 0.355 & 0.419 & 0.217 & 0.009 & 0 \end{bmatrix}$$

The subsequent result of first-level fuzzy comprehensive evaluation is:

$$B3=A3 R3=(0.362,0.3,0.353,0.026,0)$$

$U4=\{u11,u12,u13,u14\}$ and its weight vector $A4=(0.4,0.2,0.25,0.15)$. The corresponding evaluation matrix of single factor is:

$$R_4 = \begin{bmatrix} 0.425 & 0.331 & 0.204 & 0.04 & 0 \\ 0.533 & 0.417 & 0.048 & 0.002 & 0 \\ 0.476 & 0.443 & 0.05 & 0.031 & 0 \\ 0.211 & 0.386 & 0.32 & 0.083 & 0 \end{bmatrix}$$

The subsequent result of first-level fuzzy comprehensive evaluation is:

$$B4=A4 R4=(0.4,0.331,0.204,0.083,0)$$

$U5=\{u15,u16\}$ and its weight vector $A5=(0.3, 0.7)$. The corresponding evaluation matrix of single factor is:

$$R_5 = \begin{bmatrix} 0.436 & 0.246 & 0.125 & 0.193 & 0 \\ 0.61 & 0.162 & 0.147 & 0.081 & 0 \end{bmatrix}$$

Then, we get the first-level fuzzy comprehensive evaluation:

$$B5=A5 R5=(0.61,0.246,0.147,0.193,0)$$

$U6=\{u17,u18,u19\}$ and its weight vector $A6=(0.4,0.3,0.3)$. The corresponding evaluation matrix of single factor is:

$$R_6 = \begin{bmatrix} 0.34 & 0.577 & 0.083 & 0 & 0 \\ 0.007 & 0.645 & 0.346 & 0.002 & 0 \\ 0.256 & 0.154 & 0.348 & 0.235 & 0.007 \end{bmatrix}$$

The subsequent result of first-level fuzzy comprehensive evaluation is:

$$B_6=A_6 R_6=(0.34,0.4,0.3,0.235,0.007)$$

C. Calculate the Second-Level Fuzzy Comprehensive Evaluation Vectors

For the first-level set of factors $U=\{U_1, U_2, U_3, U_4, U_5, U_6\}$, weight vector $A=(0.19,0.15,0.13,0.11,0.25,0.17)$ by expert evaluation. The overall evaluation matrix of single factor is:

$$R = \begin{bmatrix} B_1 \\ B_2 \\ B_3 \\ B_4 \\ B_5 \\ B_6 \end{bmatrix} = \begin{bmatrix} 0.3 & 0.3 & 0.19 & 0.068 & 0 \\ 0.3 & 0.169 & 0.504 & 0.129 & 0 \\ 0.362 & 0.3 & 0.353 & 0.026 & 0 \\ 0.4 & 0.331 & 0.204 & 0.083 & 0 \\ 0.61 & 0.246 & 0.147 & 0.193 & 0 \\ 0.34 & 0.4 & 0.3 & 0.235 & 0.007 \end{bmatrix}$$

The subsequent result of second-level fuzzy comprehensive evaluation is:

$$B=A R=(0.25,0.246,0.19,0.193,0.007)$$

According to the principle of maximum membership degree, the comprehensive assessment level of cultural value of Bian embroidery heritage is V1 (very high). It is possible that the cultural value was overrated because the subjects were narrowed to those who have a good knowledge of Bian embroidery. However, if the investigation was conducted to those who were ill informed of Bian embroidery products, it is hard to ensure that a right judgment could be given. Thus, we think that this assessment result is, to a certain degree reliable, for it is in rough conformity with the viewpoint of the general public and has passed the reliability test.

VII. CONCLUSION AND DISCUSSIONS

The result of fuzzy assessment on cultural value of Bian embroidery heritage is, in essence a fuzzy vector. It shows the degree of membership of cultural value of Bian embroidery heritage to each fuzzy category rather than being an accurate point value. Thanks to the rich information it supplies, the method applies better to an overall assessment of a single object.

The assessment level of cultural value of Bian embroidery is very high. In spite of that, the development trend of Bian art is more market-oriented, which will definitely result in the overlooking original nature as a pure art. What is worse, to maximize the profit, some modern producers and sellers throw themselves into earning money, paying no attention to artistic nature of Bian embroidery. Besides, it is not infrequent to find that a large number of producers mass produced Bian

embroidery products and then put them on the market, turning Bian products into popular consumer goods short of artistic value, style and taste though they are in conformity in form with the original Bian embroidery as a pure art.

The status quo stems from the people's overrating on economic value of Bian embroidery without a full knowledge of comprehensive value of Bian artwork. Taking these into consideration, the present study conducts the assessment of cultural value of Bian embroidery. Our study is of great necessity and practical significance because on the one hand, it can once more arouse attention to a new study on cultural value of Bian embroidery; on the other hand, provide food for thought concerning how people dig on a deeper level and create new cultural value of Bian embroidery and then find solution needed.

In the process of establishing the cultural value system, it is suggested that the choice of indicators be in reference to the existing literature. In addition, because the weight of indicators depends mainly in the opinions of experts whose knowledge systems subject to incompleteness, the results thus obtained will inevitably subjective.

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