

Value Evaluation of Comprehensive Development of Woodblock New Year Prints Based on FAHP

Zhe Zhu^{1*}, Mengjun Cui^{2*}

¹ Art School, JangSu University, Zhenjiang, JiangSu, 212013, China

Abstract. Woodcut New Year pictures are the artistic creation of Chinese folks, bearing regional cultures in different areas and forming a variety of artistic forms. But nowadays, under the the environment of the collision of regional culture and economic market, its expansion faces dilemma of development. On the one hand, there is a gap between folk art and modern aesthetics. On the other hand, it faces the choice between traditional craftsmanship and modern technology. In such a complex environment, how to determine the development point of woodcut New Year pictures is the most important. Based on the previous research on woodcut New Year pictures in various places, the article constructs a comprehensive development value evaluation index system. Taking three places - Taohuawu, Yangjiabu and Fengxiang as examples, the paper evaluates the woodcut New Year pictures by using fuzzy analytic hierarchy process, expecting to pertinently put forward a new perspective and method for the development of woodblock New Year pictures.

1 The Current Status and Development Difficulty of Woodblock New Year Prints

1.1. Development of woodblock New Year pictures

Woodblock New Year Prints are an essential art variety in folk art. Most of their productions originate from folklore, historical stories, and folklore activities. Hence, they perform social production, aesthetic appeal, and concepts in various phases. The early Woodcut New Year Prints were principally adopted to expel evil spirits. During the development procedure, they slowly arose the functions of decoration and beautification and brought the blessing concept of people. In the Tang and Song Dynasties, because of the southward variation of the economic center, the transformation of ideology, and the progress of production technology, there were innovations in the form and theme of Woodblock New Year Prints. While it evolved into the Ming and Qing Dynasties, the creation of Woodblock New Year Prints in several places continuously made the center of the industry, and the marketing range scattered across the whole country and had a deep-felt influence. When the period of the Republic of China, under the impact of offset New Year Prints and lithographic methods, the juvenile painting creation center slowly diminished, but the annual output of Woodblock New Year Prints started by Hebei Wuqiang can still reach 32 million. After discovering the reason, firstly, Wuqiang's New Year Prints zealously acquired latest techniques and joined them into their production system. Secondly, to correspond with the requirements of the people, catch the news and current events, and generate innovative themes. Nowadays, Woodblock New Year Prints are also encountering development difficulties.

Apart from the previous dilemmas, how to build up its platform under burdensome protection policies, combining tradition with contemporary, and improving the heritage as resources are more worthy of study.

1.2. Development Difficulties of Woodblock New Year Prints

Under the background of the information age, production technologies in the design, printing, and communication industries have appeared iteratively. Woodblock New Year Prints, which to some extent still require to rely on handicrafts, slowly diminish. Linked with the diversification of contemporary lifestyles and diversified aesthetic tastes, Woodcut New Year Prints can no longer satisfy the aesthetic requirements of modern people and thus have progressively turned into the art products, which need to be preserved. For the industry of Woodblock New Year Prints, as an art form arising from the masses, it is out of connection with social production and differs from the mainstream aesthetics. It already lacks source and challenging to survive. Under the declining status quo, the government put forward protection and development policies in this regard. Thus, mobilize each level of society to engage in it, the academic community proclaims learning from foreign experience, from various viewpoints to investigate the protection and development mode, to offer a theoretical foundation for practice.

Currently, the research on Woodblock New Year Prints in the academic community is comparatively complete, so it is of considerable importance to how to present particular development techniques for Woodblock New Year Prints. Furthermore, it is favourable to the mixture of academic theory and resource development, supporting the industry of Woodblock New Year Prints to dispose of resources that cannot be developed. Meanwhile, the FAHP analysis approach is one of the more generally

*Corresponding author's e-mail: 1176655215@qq.com

applied techniques in the field of resource development. Moreover, it comprehensively adopts qualitative analysis and quantitative analysis techniques. Via a fuzzy comprehensive evaluation, decision-makers can correctly seize the complete degree of the objective. Particularly, in the range of tourism resource development, the use of this approach has been pretty mature, presenting theoretical assistance and administration for tourism development in several regions. By contrast, as a cultural resource that also belongs to the class of resource development, the application of this method is still uncommon, and the development research in the range of Woodblock New Year Prints is nearly empty. Also, the estimation of the development of cultural resources, for example, Woodblock New Year Prints is itself a comparatively complex decision-making issue. Most scholars consider and advance strategic planning from a qualitative aspect. Given this, the research strives to create a scientific evaluation index system from the viewpoint of producers, merchandises themselves and purchase groups based on such analysis, beginning with resource development. Next, through the blend of qualitative and quantitative analysis, clarify the development value determinants at every degree, and investigate the inner logical connection between the higher value determinants. Later, via fuzzy analytic hierarchy method to estimate the pros and cons of the overall development value of regional Woodblock New Year Prints. Thus, it figures out the source difficulties in the development of Woodblock New Year Prints in contemporary circumstances and offers new research perspectives and research concepts for further relevant research.

2 The Construction of the Evaluation Index System of the Comprehensive Development Value of Woodblock New Year Prints

2.1. Analysis of Development Elements

2.1.1 Factors of traditional value in the comprehensive development: From the viewpoint of the producer, as an ancestral craftsman, how to bring forward the conventional value of Woodblock New Year Print is the core. First of all, from the prospect of development, the invention of paper-making in the Eastern Han Dynasty supported the growth of Woodblock New Year Prints. Next, with the maturity of block printing in the Northern Song Dynasty, the popularization of paper allowed mass production of Woodblock New Year Prints. Hence, it comprised multiple historical elements in the development procedure, and to some extent revealed the situation of material production at various times. Second of all, in the procedure of composing Woodblock New Year Prints, the generators have to satisfy the psychological needs of the buying group, no matter in the selection of themes or the form of expression. Besides, it demands that Woodblock New Year Prints require to grasp the cultural causes of various domains, so it has extraordinary cultural value in the content. Eventually, the method is the solution to

producing Woodblock New Year Prints. The general development of Woodblock New Year Prints has essentially experienced the transition from hand-painting to engraving and printing plates. Nevertheless, in the procedure of constant optimization in diverse fields, this collection of production processes has produced its individual production approaches. It can be understood that the technical methods in distinct areas are a concentrated expression of regional culture. Above all, this report considers that the convent value of Woodblock New Year Prints is principally shown in three perspectives: historical development, cultural heritage, and methods.

2.1.2 Factors of self-value in the comprehensive development: From the prospect of the Woodblock New Year Prints, we require to discover the constituent components that can have high development value in the current circumstances. At this moment, the academic investigation of Woodblock New Year Prints usually begins from the three perspectives of composition, form and color. This article adopts previous studies from former scholars, and consider the value factor of Woodblock New Year Prints is made of these three. Firstly, as folk art, Woodblock New Year Prints are art on paper, and they are known from the aspect of graphic design. For the screen size, the investigation of the composition form is the essential section. Meantime, the Woodblock New Year Prints are not complete images. Most of the texts in it are intimately associated with the picture, so the association between language and images is also a significant component. In various areas, the features in the Woodblock New Year Prints are also complex. The corresponding topic and the same type have diverse shapes, and the matching costumes and accessories are also different. Also, because of the variations in the theory of color setting in different regions, separately region has its own experience in color matching and color layout. The formulas invented in several areas are also very complex. Under this situation, the diversity of Woodblock New Year Prints in the market is further improved. In conclusion, the investigation of the composition level in this report largely causes from the three viewpoints of the image size, composition form, and language association. The study of the modelling degree largely originates from the appearance of modelling and the matching of clothes. Thus, the study of the color degree principally begins from the color layout and color matching.

2.1.3 Factors of market value in the comprehensive development: From a market prospect, for Woodblock New Year Prints, the decision of buyer is important. In most circumstances, the purchase behavior is because of the buyer's request. Earlier praying for blessings and exorcism required media to raise the appearance of the New Year Prints. In the following customs of life and social production, Woodblock New Year Prints used the platform as spiritual subsistence and daily necessities. Meantime, Woodblock New Year Prints are the outcome of the mixture of people's material and spiritual demands. In the current epoch, the change in the perspective of life makes it challenging for Woodblock New Year Prints to

appear in daily life as daily necessities. Accordingly, the request on the material level is steadily fading. And compared with the ancestral spiritual core of Woodblock New Year Prints, the artistic beauty connected to it is in line with people's pursuit of diversified beauty in this period. However, on the whole, material requirements, spiritual needs, and artistic demands are not ternary. Just set the Woodblock New Year Prints into the modern context, it has not been able to meet the needs of life, and achieve the contemporary mainstream aesthetic while conveying the classical culture. The study of the value of the market is according to the previous three points. Firstly, the Woodblock New Year Prints are known as daily necessities. The living conditions define the specifications of the Woodblock New Year Prints. The ancient Woodblock New Year Prints have emerged various genre specifications for the living circumstances of diverse places. There are more stove paintings, window, Kangtou paintings in the northern, likewise, there are more tribute notes, screen width, horizontal wrap, strip screen in the southern. Notwithstanding, the modern family living conditions has turned into a unified commercial apartment, appearing in a decrease in the material requirement for Woodblock New Year Prints. Consequently, the range of using Woodblock New Year Prints is one of the critical

features that influence market value. Secondly, the Woodblock New Year Prints are considered as works of art, depending on the production activities of the public, showing multiple viewpoints of life customs, ideas, etc. Additionally, there are numerous expressions of art with a pleasant flavor. It is in range with the aesthetic taste of the older people, so the solution to how to satisfy the aesthetic requirements of the market today. Ultimately, owing to the cultural variations of distinct sources, most of the Woodblock New Year Prints are modified to regional circumstances, and the range of communication is different because of the difference in recognition of Woodblock New Year Prints in distinct areas. Also, in the procedure of historical development, its scope of communication is improving. Under the current trading market, Woodblock New Year Prints as products should be measured for their market value, and their impact should be considered. The range of transmission can view as their measurement standard.

2.2. Set Up Index System

According to the earlier analysis, a value evaluation index system for the comprehensive development of Woodblock New Year Prints was launched, as presented in Table (1)

Table (1) Index system for comprehensive development value evaluation of Woodblock New Year Prints

Target layer U	Standardized criterion layers Uk	Specific indicators	
Evaluation of the value of the comprehensive development of Woodblock New Year Prints	Traditional value	Technique and technology	
		Historical heritage	
		Folk custom concept	
	Self value		Image scale
			Diagram relation
			Composition form
			Modeling look
			Outfit matching
			Color layout
			Color matching
	Market value		Range of application
			Scope of communication
			Modern aesthetics

3 Model construction of comprehensive development value evaluation of Woodblock New Year Prints

3.1. Establishment of index system weight

Table (2) 1-9 ratio scale approach

Scale	Meaning
1	Bi and Bj are equally important
3	Bi is slightly more important than Bj
5	Bi is significantly more important than Bj
7	Bi is more important than Bj
9	Bi is more important than Bj
Reciprocal	$B_{ji} = B_{ij}$
2,4,6,8	The importance is somewhere between the above bases

3.1.1 Construct a judgment matrix: Based on the installed comprehensive value evaluation index system, it is separated into U, U_i and U_{ij} from top to bottom. Beginning from the U_i layer, the judgment matrix $B = (b_{ij}) n \times n$ is formed by consulting specialists to compare each other. Among them, b_{ij} depicts the relevant meaning of b_i to b_j for B. The assignment standard utilizes Saaty's 1-9 ratio scale approach (see Table 2).

3.1.2 Measure the index weight value:

① Measure the product P_i of the i -th row component of the judgment matrix.

$$P_i = \prod_{j=1}^n b_{ij}$$

② Measure P_i 's n th root Dn_i .

$$Dn_i = \sqrt[n]{P_i}$$

③ Weight estimation. Normalize the vector Dn_i , and receive the weight value.

$$W_i = \frac{Dn_i}{\sum_{i=1}^n Dn_i}$$

④ Consistency test. The consistency index CI of the judgment matrix, where λ_{max} is the biggest eigenvalue of the judgment matrix.

$$CI = \frac{\lambda_{max} - n}{n - 1}$$

⑤ Random consistency ratio calculation

$$CR = \frac{CI}{RI}$$

If $CR < 0.1$, the judgment matrix is supposed to have satisfactory consistency, otherwise the judgment matrix must be modified.

In the formula, RI is the average random consistency index, which can be seen by Table (3).

Table (3) RI average random consistency index

Matrix order	1	2	3	4	5	6	7	8	9	10	11
RI	0	0	0.52	0.89	1.12	1.26	1.36	1.41	1.46	1.49	1.52

3.2. Construct a fuzzy matrix of FAHP

3.2.1 Determine the index set of the main factor layer as $U_k = \{U_1, U_2, \dots, U_k\}$: define the index set of the sub-factor layer $U_{ki} = \{U_{k1}, U_{k2}, \dots, U_{kn}\}$

3.2.2 Define the comment set as $V = \{v_1, v_2, \dots, v_m\}$: where v_j ($j = 1, 2, \dots, m$) means the comments from each degree. In this article, $m = 5$ is picked. For the evaluation

of the comprehensive development value of Woodblock New Year Prints, the comment level is 1. Good (v_1); 2. Better (v_2); 3. Fair (v_3); 4. Poor (v_4); 5. Poor (v_5); Thus, the review set of the rating set built by the evaluation is $V = \{v_1, v_2, v_3, v_4, v_5\}$.

3.2.3 Build a fuzzy judgment matrix: Where r_{kij} ($i = 1, 2, \dots, n; j = 1, 2, 3, 4, 5; k = 1, 2, 3$) depicts the i -th sub-factor index U_{ki} in the k -th principal determinant for the j -th level. The degree of affiliation of reviews v_j is the ratio of sub-

evaluation determinants U_{ki} to obtain reviews of v_j ($j = 1,2,3,4,5$). The value of r_{kij} can be defined as below, statistically sort out the expert evaluation outcomes, and arrange v_{i1} v_1 reviews, v_{i2} v_2 reviews, ..., v_{i5} v_5 reviews for the indicator U_{ki} .

3.3. Estimation of the comprehensive evaluation

3.3.1 Measurement of the first level of the comprehensive evaluation: The fuzzy evaluation matrix R_k of the sub-factor layer index U_{ki} belonging to various principal determinant layers is adopted to implement fuzzy operations to receive the level of membership of the principal determinant R_k for the j -th review v_j . Integrating the membership level of the review set V of every principal determinant layer, the fuzzy comprehensive evaluation matrix R is received.

3.3.2 The second level operation of the comprehensive evaluation: The primary factor weight vector $A = (a_1, a_2, a_3)$, and then make a second comprehensive evaluation operation on R based on the fuzzy mathematical evaluation model to receive the membership vector of the objective layer index U for the comment set V

Normalize B to obtain $B = (b_1, b_2, b_3, b_4, b_5)$

3.3.3 Evaluation outcomes: where b_1, b_2, b_3, b_4, b_5 mean the level of membership of U for reviews v_1, v_2, v_3, v_4, v_5 . After negotiating with experts, established a weight value $f_j (j=1,2,3,4,5)$ for every level of reviews $v_j (j=1,2,3,4,5)$. It is adopted to show the consequence of the review at this level, and the weighted average of every element b_j in B (marked as W) can be received as the last evaluation outcome.

W measures the final evaluation result. Thus, W is a weighted average, which depicts the last evaluation score of the comprehensive development value of woodblock New Year pictures in a particular region, the higher the score. It explains that the general performance of the

Woodblock New Year Prints in this section on every evaluation symbol is better. Besides, the higher the value of the comprehensive development of Woodblock New Year Prints in the region.

4 Case Study - Take the Tongzi Woodblock New Year Prints of Peach blossom Castle, Yangjiabu and Fengxiang as examples

According to the former calculation model and the particular evaluation steps, we selected the Tongzi Woodblock New Year Prints in Peach blossom Castle, Yangjiabu, and Fengxiang to estimate the overall value, and based on the outcomes of the model, and we executed reference estimations.

4.1. Measure the Index Weight

Through interviews with six experts who are involved in the New Year Prints industry or researching the field of New Year Prints, the 1-9 scale approach was adopted to compare the indicator layers at each level. Furthermore, based on the steps of the aforementioned analytic hierarchy process, reach the eigenvalue, weight and consistency test. The comprehensive weight of the first-level indicator U is $A=(a_1, a_2, a_3)=(0.5610, 0.2860, 0.1529)$; the comprehensive weight of the second-level evaluation indicator is $A_1=(0.2101, 0.4573, 0.3326)$; $A_2=(0.0437, 0.0596, 0.3239, 0.2837, 0.1199, 0.0645, 0.1047)$; $A_3=(0.2890, 0.1276, 0.5835)$

4.2. Construct a Fuzzy Relation Matrix

We requested ten industry experts, under the three determinants of traditional value, own value and market value for the Woodcut New Year Prints. Moreover, its second-level indicators are calculated individually, and probability statistics are performed to achieve a fuzzy comprehensive evaluation matrix, for instance, Table (4); Table (5); Table (6).

Table (4) the matrix of the fuzzy comprehensive evaluation of Yangjiabu

Standardized criterion layers U_k	Specific indicators	Membership matrix				
		Good	Better	General	Worst	Worse
Traditional value	Technique and technology	0.3	0.7	0	0	0
	Historical heritage	0.8	0.1	0.1	0	0
	Folk custom concept	0.6	0.2	0.1	0.1	0
Self value	Image scale	0.1	0.7	0.1	0.1	0
	Diagram relation	0.3	0.5	0.1	0.1	0

	Composition form	0.7	0.2	0.1	0	0
	Modeling look	0.6	0.2	0.1	0.1	0
	Outfit matching	0.6	0.3	0.1	0	0
	Color layout	0.4	0.3	0.2	0.1	0
	Color matching	0.6	0.2	0.1	0.1	0
Market value	Range of application	0.3	0.3	0.2	0.2	0
	Scope of communication	0.1	0.5	0.3	0.1	0
	Modern aesthetics	0.6	0	0.3	0.1	0

Table (5) Matrix of Fengxiang's fuzzy comprehensive evaluation

Standardized criterion layers U _k	Specific indicators	Membership matrix				
		Good	Better	General	Worst	Worse
Traditional value	Technique and technology	0.4	0.4	0.2	0	0
	Historical heritage	0.7	0.3	0	0	0
	Folk custom concept	0.3	0.5	0.2	0	0
Self value	Image scale	0.3	0.4	0.1	0.2	0
	Diagram relation	0.1	0.5	0.3	0.1	0
	Composition form	0.4	0.5	0.1	0	0
	Modeling look	0.4	0.3	0.2	0.1	0
	Outfit matching	0.3	0.7	0	0	0
	Color layout	0.2	0.3	0.5	0	0
	Color matching	0.4	0.5	0.1	0	0
Market value	Range of application	0.1	0.4	0.4	0.1	0
	Scope of communication	0.4	0.3	0.3	0	0
	Modern aesthetics	0.3	0.2	0.2	0.2	0.1

Table (6) Matrix of the fuzzy comprehensive evaluation of Peach Blossom Castle

Standardized criterion layers U _k	Specific indicators	Membership matrix				
		Good	Better	General	Worst	Worse
Traditional value	Technique and technology	0.4	0.4	0.2	0	0
	Historical heritage	0.7	0.3	0	0	0
	Folk custom concept	0.3	0.5	0.2	0	0
Self value	Image scale	0.3	0.4	0.1	0.2	0
	Diagram relation	0.1	0.5	0.3	0.1	0
	Composition form	0.4	0.5	0.1	0	0
	Modeling look	0.4	0.3	0.2	0.1	0
	Outfit matching	0.3	0.7	0	0	0
	Color layout	0.2	0.3	0.5	0	0
	Color matching	0.4	0.5	0.1	0	0
Market value	Range of application	0.1	0.4	0.4	0.1	0
	Scope of communication	0.4	0.3	0.3	0	0
	Modern aesthetics	0.3	0.2	0.2	0.2	0.1

4.3. Estimation of the fuzzy comprehensive evaluation

Based on the fuzzy evaluation matrix calculation process above, through two comprehensive evaluation operations, the weighted average of the three areas can be achieved individually.

Woodcut New Year Prints of Tongzi Yangjiabu
Measurement of the first-level of the comprehensive evaluation

$$B1=A1*R1=\{0.6284,0.2593,0.0790,0.0333,0\}$$

$$B2=A2*R2=\{0.5798,0.2582,0.1065,0.0556,0\}$$

$$B3=A3*R3=\{0.4495,0.1505,0.2711,0.1289,0\}$$

Calculation of the second level of the comprehensive evaluation

$$B=A*R=\{0.5871,0.2423,0.1162,0.0542,0\}$$

Weighted average
W=B*FT=0.11742963

Woodblock New Year Prints of Tongzi Fengxiang
Measurement of the first-level of the comprehensive evaluation

$$B1=A1*R1=\{0.5039,0.3875,0.1085,0,0\}$$

$$B2=A2*R2=\{0.3528,0.4500,0.1541,0.0431,0\}$$

$$B3=A3*R3=\{0.2550,0.2706,0.2706,0.1456,0.0583\}$$

Calculation of the second level of the comprehensive evaluation
Calculation of the second level of the comprehensive evaluation
B=A*R={0.4226,0.3875,0.1463,0.0346,0.0089}
W=B*FT=0.08452995

Woodcut New Year Prints of T Tongzi Taohuawu
Measurement of the first-level of the comprehensive evaluation

$$B1=A1*R1=\{0.5704,0.3420,0.0875,0,0\}$$

$$B2=A2*R2=\{0.4900,0.3038,0.1736,0.0327,0\}$$

$$B3=A3*R3=\{0.3294,0.2711,0.3577,0.0416,0\}$$

Calculation of the second level of the comprehensive evaluation
B=A*R={0.5106,0.3202,0.1535,0.0157,0}
Weighted average
W=B*FT=0.10211565

4.4. Conclusion and Analysis

By comparing the weighted average of the three regions, it can be understood that Yangjiabu's Woodcut New Year Prints have the most precious comprehensive development value, and Peach Blossom Castle area has exactly resulted. The Fengxiang region lags significantly behind the above two areas. Besides, it reveals that in the current circumstances, the development market perceives Yangjiabu and Peach Blossom Castle's Woodcut New Year Prints more. Meantime, it is a specific deviation from the contemporary theory of the protection and development of Woodblock New Year Prints in academia. According to the variations in regional cultures, the academic community is currently offering their own development strategies for multiple domains, desiring to accomplish a condition where several places go hand in hand and all flowers bloom together. But this analysis is from the prospect of resource development, aiming to clarify that Woodblock New Year Prints in those sections are not difficult to develop. Via the previous choice, we present theoretical support for the development process.

Estimating from the evaluation degree of various sectors, the old value of Yangjiabu region, its value and market value are the most important in the evaluation level of "good." In the area of Peach Blossom Castle, in the total of "good" and "better" evaluation degrees, the old value and market value both exceed that of Yangjiabu space, and the overall development value of Taohuawu area is more steady. In the Fengxiang state, the data shows the appearance of a similar evaluation. Accordingly, the conventional value and its value direct to be consistent in two evaluations of "good" and "better." Besides, the market value tends to be consistent in four evaluations of "good" and "better", "general" and "poor." On the one hand, this phenomenon may symbolise that the Tongzi' Woodblock New Year Prints in Fengxiang area does not have a good development view in the contemporary environment. On the other hand, it may mean that the public does not have enough knowledge of the Tongzi Fengxiang for Woodcut New Year Prints. Also, it points to a variation in the cognitive level, which exhibits the phenomenon of similar evaluation.

From the general data, the conventional value and self-value of the three sections all have a high-level evaluation. Among them, the most apparent data fluctuation is the market value. The evaluation of the region, which the weak phenomena are well-known in the three areas, and the Fengxiang region also includes weak grades. It can be understood from this that the most limited part of the general development determinant of Woodblock New Year Prints lies in the market value. In other words, from an industry prospect, in current increasingly fierce market competition, the most crucial assignment is to enhance the recognition of market value, principally from the next three phases. 1. By extending the range of application of woodblock New Year Prints, from a practical viewpoint, more people can enter the products of Woodblock New Year Prints. 2. Woodblock New Year Prints borrow the Internet to disclose the conventional mode of communication, expand the spread of woodblock pictures, and make more people comprehend about Woodblock

New Year Prints. 3. Continuously combine contemporary design components into the production process of Woodblock New Year Prints, and investigate methods to mix modern aesthetics with ancestral features of Woodblock New Year Prints.

5 Conclusion

There are several varieties of Woodblock New Year Prints and prominent regional features. Hence, the evaluation of the development value of Woodblock New Year Prints is a complex systematic program. This report sets the evaluation index of the comprehensive development value of Woodblock New Year Prints by investigating the influencing determinants of the comprehensive development of Woodblock New Year Prints and utilizes AHP to define the complete weight. Later, via FAHP to estimate the comprehensive development value of Woodblock Prints in various domains. In order to provide theoretical assistance for the development of such non-legacy Woodcut Prints by this evaluation model. Consequently, to provide some practical supervision in front of the sophisticated modern market, to better accomplish the promotion and regeneration of classical culture.

References

1. Bojadziev, G., Bojadziev, M., Lutz, J. (1995) Fuzzy sets, fuzzy logic, applications, vol 5. World Scientific, Hong Kong
2. Deng, H. (1999) Multicriteria analysis with fuzzy pairwise comparison. *Int J Approximate Reasoning* 21(3):215–231.
3. Chang, G. (1996) Applications of the extent analysis method on fuzzy AHP. *Eur J Oper Res* 95(3):649–655.
4. Chen, Y., Yu, T., Tsui, P. et al. A fuzzy AHP approach to construct international hotel spa atmosphere evaluation model. *Qual Quant* 48, 645–657 (2014).
5. Chang, C.W., Wu, C.R., Lin, H.L. Integrating fuzzy theory and hierarchy concepts to evaluate software quality', *Softw. Qual. J.*, 2008, 16, (2), pp. 263–276.
6. Chou, Y.C., Sun, C.C., Yen, H.Y. Evaluating the criteria for human resource for science and technology (HRST) based on an integrated fuzzy AHP and fuzzy DEMATEL approach', *Appl. Soft Comput. J.*, 2012, 12, pp. 64–71
7. Gu, Q., Li, J., Deng, J. et al. Eco-environmental vulnerability assessment for large drinking water resource: a case study of Qiandao Lake Area, China. *Front. Earth Sci.* 9, 578–589 (2015).