

## *Retraction*

# **Retracted: A Visual Comprehensive Evaluation of Cultural and Creative Industry Projects Based on Improved Literature Measurement Method**

### **Mobile Information Systems**

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.


The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### **References**

- [1] J. Luo, L. Liu, and J. Su, "A Visual Comprehensive Evaluation of Cultural and Creative Industry Projects Based on Improved Literature Measurement Method," *Mobile Information Systems*, vol. 2022, Article ID 4997616, 10 pages, 2022.

## Research Article

# A Visual Comprehensive Evaluation of Cultural and Creative Industry Projects Based on Improved Literature Measurement Method

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The innovation of cultural and creative industries is not only helpful to improve the ability of independent innovation and optimize the industrial structure but also beneficial to the improvement of national competitiveness. The research on the innovation system of cultural and creative industry based on soft innovation can not only meet the needs of the development of the times but also will be an important mission of discipline innovation. Based on this, this paper makes multidimensional statistics and analysis of the literature on cultural and creative industry projects published in recent ten years through the method of literature measurement. At present, the research on cultural and creative industry projects in domestic university libraries has made some progress, but there are also some problems, such as small amount of papers, weak research force, wide and deep research, in order to provide reference for the promotion and evaluation of cultural and creative industry projects and promote the in-depth and effective development of cultural and creative industry projects.

## 1. Introduction

At present, the world culture is moving toward the interaction and combination of cultural creativity and economic and cultural creativity; Interaction and combination of culture, innovation, and science and technology; The interaction and combination of cultural creation and politics; The interaction and combination of culture, innovation, and society have developed and expanded [1]. Standing at a new historical starting point, studying the special law of cultural and creative industry innovation is to further strengthen and expand the cultural and creative industry and make it develop into a strategic industry shouldering the burden of national strategic deployment [2]. It is an important way to improve the spiritual outlook of the Chinese people and

realize the Chinese dream; It is the only way to enhance China's comprehensive national strength and realize cultural power; It is an important means to completely change the mode of economic growth, improve productivity and improve China's industrial system; It is also an inevitable choice to maintain ecological balance and promote social health, harmony, and sustainable development.

Mankind has entered a new economic era based on knowledge or mental labor. In the mid-1980s, the third wave marked by "experience economy" had a profound impact on countries under Globalization. The cultural and creative industry has entered people's vision and received attention thanks to the British cultural and creative industry task force, which was established in 1997 and has brought great economic benefits to the country in just a few years. The

contribution of the cultural and creative industry to the national GDP and national export economy has exceeded that of other industries in the UK, and the direct economic benefits it has created are still growing continuously [3]. Among Asian countries, Singapore is the one that attaches the most importance to the cultural and creative industry [4]. The government has vowed to build Singapore into a cultural center in Asia and even the world. Therefore, it has carefully formulated and promulgated the creative Singapore plan. Subsequently, Japan and South Korea also launched the slogan of "Asia's creative country" one after another, incorporated the cultural and creative industry as a key industry into the national strategic planning, and tried to take the lead in the new round of industrial competition.

China has always relied on low factor prices to obtain the export advantage of cultural and creative industries [5]. However, as a world power and major economy with a population of 1.4 billion, the consumption of cultural and creative industries accounts for only about 1% of the world every year. The public generally lacks the awareness of respecting, encouraging, and paying for original products and services, and the phenomena of "piracy" and "Shanzhai" are common, which restricts the formation of innovation atmosphere and the improvement of innovation ability of cultural and creative industry [5]. According to statistics, developed countries have about 80% of the global cultural and creative service market, accounting for 90% of the profits of the global cultural and creative industry [6]. As the main producer of cultural and creative products, developing countries spend a lot of manpower and resources, but only get less than 10% of the profits, which is at the bottom of the "smile curve". As the key technologies and links of the industry are in the hands of developed countries, most cultural and creative production enterprises of handicrafts, toys, clothing, and home furnishings do not have their own international brands, and their dependence on creative innovation is not obvious [7]. They can only consume their own means of production according to the design requirements of foreign countries and simply act as sweatshops for sample processing, which does not really realize the advantages of resource-friendly and high added value of the cultural and creative industry. Especially in the most active audiovisual trade at the high end of the global value chain of cultural and creative products, China's exports are almost zero [8]. It also accounts for a low proportion of Global trade in the fields of performance, art, and publishing.

Cultural and creative industry is an innovative economic development model with improved ecological model and employment promotion. The saturation of manufacturing industry, sick real estate and weak economic growth have further promoted the priority of resources and policies to the cultural and creative industry or other areas with innovative ability. As advocated by the "development pole" theory of Sowa Peru, we should concentrate the limited scarce resources to areas or industries with great development potential, eco-friendly, economies of scale and obvious investment benefits, so as to further release the needs of the people and create new space for economic growth.

## 2. State of the Art

The cultural and creative industry has no clear academic boundaries because of its similar names and connotations with the related concepts of innovation and creativity, culture, content, and copyright industry. This confusion has caused some peripheral problems of culture, technology, and economy [9]. Because these concepts have strong relevance, it is impossible to completely separate them in academic research. In fact, the research on the relationship between these interrelated concepts is of far-reaching significance and can provide theoretical guidance for the practical application of cultural and creative concepts. Scholars such as Biais B and Perotti E from abroad and Li Shuangjin from China have tried this research. Based on the existing literature, this paper combs the theoretical basis of cultural and creative industry innovation from four aspects: concept discrimination, industry structure, development mode, and industrial characteristics, which is helpful to understand the cultural and creative industry and its innovation connotation more clearly.

### 2.1. Concept Discrimination

*2.1.1. Culture and Creativity.* Culture is the greatest achievement created by mankind, and its basic elements can be finally abstracted into images. Images not only form a variety of cultural landscapes but also become a unique symbol of mankind. In a broad sense, culture includes both material wealth and spiritual wealth, both of which are produced in human production and practice. Culture can reflect social ideology and be reflected in the form of social system and organization [10]. According to the statistics of American cultural anthropologists Krupp and Clark Hong, there were 164 strict and standardized cultural definitions from 1871 to 1951; According to the statistics of French social psychologist Moore, before 1970, there were more than 250 cultural definitions in the world literature. The concept of culture in the modern context mainly originates from the West. Therefore, starting from the Western cultural concept will help us better grasp its meaning. The Latin root of "culture" is "clere", which expresses the meaning of farming, housing, and protection. It means to govern natural growth. From the end of the eighteenth century, culture itself began to transform into something. It refers to both the whole way of life (universal significance) and the special process of art and learning (discovery and creative activities). In addition, from a purely subjective perspective, it can also be generally understood as the overall values of society or some beliefs and customs, the common way people deal with problems and interpersonal relationships [11].

*2.1.2. Creativity and Innovation.* Creativity and innovation are the two most closely related concepts. The public is accustomed to regard creativity and innovation as one, and believe that both are the display of human imagination and creativity [12]. Compared with innovation, creativity has more subjective meaning and is considered to be an "idea" or

“idea” derived from personal creativity, skills, and talents [13]. Summarizing the views of the above scholars, this paper holds that although the innovation activities in science and technology will also integrate creativity, they are mainly creative activities that can be strictly logically demonstrated by the use of some new processes or new methods, and are committed to changing the functional structure or production process of products and services to improve the production efficiency of enterprises; Creativity is to improve the conceptual value of enterprise products or services through a unique “symbolic meaning” or unique experience [14].

*2.1.3. From Cultural Industry to Cultural and Creative Industry.* In fact, the terms of cultural industry and cultural and creative industry, which are related and similar to each other, describe “the space where cultural creativity and economy stir up each other” [15]. While revealing the richness and complexity of the concept of cultural and creative industry, researchers are unable to reach a consensus due to their different backgrounds. Even today, there are still many ambiguous documents [16]. In recent ten years, the concepts of cultural and creative industry, content economy, and copyright industry with more positive significance and policy influence have been put forward and widely popular. Culture and industry, two fields that are different from each other in the traditional vision, are closely combined by the development of modern economy and society, and have undergone three important changes (see Table 1).

It is an economic activity that carries out industrialized operation by means of creativity. Taking the origin of creative ideas as the core, he constructed the concentric industry system of cultural industry, and thus constructed the basic connotation and scope of the concept of cultural industry. See Figure 1.

For the needs of trade, development, and statistics, UNESCO (2009) established the statistical analysis framework of cultural industry (see Figure 2). In the following description, it is particularly emphasized that the conditions for the emergence of cultural industry are not cultural factors, but economic factors. Accordingly, the cultural industry can be defined as a series of production-related practical activities for the provision of cultural products and services. The industry includes production, storage, distribution, and other processes. Once this concept was put forward, it began to be widely used all over the world [17].

*2.2. Industry Structure and Development Model.* As for the connotation and extension of the concept of cultural and creative industry, the academic community has not been unified. In its actual development, the specific modes of developing cultural and creative industry are also different. On the basis of combing the influential theoretical and

practical research at home and abroad, this paper summarizes four types of mainstream structural systems and development models represented by DCMs, WIPO, e-content, and UNCTAD [18].

*2.2.1. British DCMs Mode.* In the UK, cultural and creative industries are used to being called creative industries. The concept comes from creative industries mapping document, which defines the creative industry for the first time, and clearly stipulates that the creative industry must be an industry developed based on personal wisdom and talent, an industry that uses intellectual property rights to create economic wealth, and has very broad employment potential. Table 2 shows the UK government’s detailed classification of creative industries [19].

*2.2.2. American WIPO Model.* The United States integrates cultural and creative industries into the conceptual system of “copyright industry”, thus forming a unique WIPO model in the United States. This model divides the cultural and creative industries into four categories and integrates them into the North American industrial system, which has been widely adopted by North American countries, as shown in Table 3. Art and business published by keffs studies creative industries from the perspective of economics [20]. The cultural and creative industries mentioned in the article include not only painting and sculpture, drama and dance, films, books and periodicals, but also toys and games, which is basically consistent with the view of Hawkins in the UK.

*2.2.3. United Nations UNCTAD Model.* The United Nations Conference on Trade and development (UNCTAD) put forward the following descriptive definition: cultural and creative industry is a series of processes that make full use of the potential value of intellectual property rights to manufacture and sell products and services. According to this definition, the creative economy report 2010 of the United Nations Conference on Trade and development divides the cultural and creative industries into 4 categories and 25 industrial sectors (see Figure 3).

### 3. Methodology

For a trained deep network, there are two main pruning-based algorithms to compress the network: convolution kernel-based pruning and channel-based pruning. The compression algorithm framework based on pruning strategy is shown in Table 4. Most compression algorithms based on pruning strategy define an importance index to delete unimportant convolution kernel, however, these algorithms are too direct and under considered. In some cases, the defined importance index cannot well judge the importance of convolution kernel.

TABLE 1: Historical evolution of cultural industry.

	1940s	1950s ~ 1970s	From 1980s to now
Industry status	Industrialization period	Period of change	Golden development period
Industrial background	Mass culture	Cultural diversity	Postmodern culture
Control center of gravity	Whole process control	Relax original control	Everything can be agreed
Technical status	Software is greater than hardware	TV defeats traditional media	Integration of computer technology and media
Analysis tools	Cultural criticism of Frankfurt school	Mass culture and cultural industry	Great culture

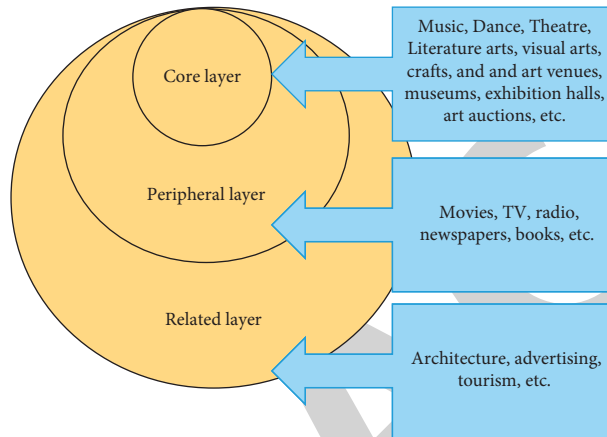


FIGURE 1: Schematic diagram of cultural industry concept.

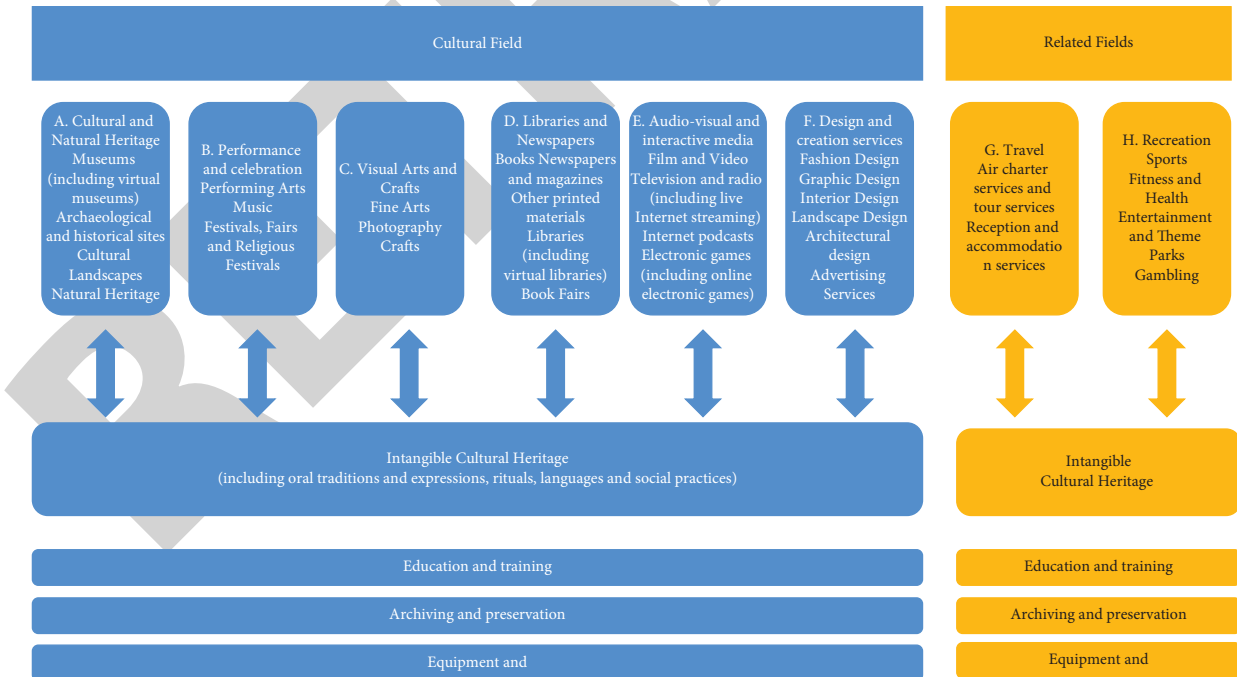


FIGURE 2: Statistical analysis framework of cultural industry.

3.1. *Deep Neural Network Visualization.* This section mainly introduces the visualization algorithm because it is the most commonly used visualization algorithm of neural network.

For each convolution kernel, the algorithm will generate an image to maximize the activation mapping of the corresponding convolution kernel, and then the main learning or

TABLE 2: Classification system of British cultural and creative industries.

General category	Subclass	Core activities
Production	Publishing	Original books are published periodicals, newspapers, magazines, digital content publishing
	Film and Video	Film script creation, production, distribution, and performance
	TV and Radio	Program production and supporting (database, sales, channel), broadcasting (program list and media sales), transmission
	Designer fashion	Fashion design, production, consultation, and distribution of clothing for exhibition
Services	Interactive leisure	Game development, publishing, distribution and retail
	Software	Software development: System software, contract, solution, system integration system design
	Design	Analysis, software architecture design, project management, basic design
	Services	Design consulting (services include brand identification, corporate image, information design, new product development, etc.), industrial parts design, interior design, and environmental design
	Advertising	Consumer research, customer marketing plan management, consumer taste and response identification, advertising creation, promotion, public relations planning, media planning, purchase and evaluation, advertising materials, production
Arts and Crafts	Music	Manufacturing, distribution and retail of recording products, copyright management of recording and education products and works, concert (nonclassical), management, reproduction and promotion, lyrics and composition
	Architecture	Architectural design, plan approval and information production
	Advertising	Original content, performance production, ballet, contemporary dance, drama, educational drama, pattern and other live performances, tourism, fashion design and manufacturing, lighting
Arts and Crafts	Advertising	Art and antique trading, women's clothing design (including jewelry), textile raw materials, antiques, weapons and bulletproof vehicles, metal products, books, binding, signature, map and retail channels (auction, gallery, expert on-site identification, specialty stores, warehouse stores, department stores and Internet retail)
	Advertising	Production of textiles, pottery, jewelry/silver, metal, glass, etc. Production and display

TABLE 3: Classification system of American cultural and creative (copyright) industries.

Classification	Core content
Core industries	Publishing and literature; music and theater production, opera; film and video; radio and television; photography; software and database; visual art and painting art; advertising services; copyright collective management association
Partial copyright Industries	Some articles in the industry enjoy copyright protection, especially clothing, textiles and shoes; jewelry and coins; other handicrafts; furniture; household goods, porcelain and glass; wallpaper and carpet; toys and games; construction, engineering, and surveying; interior design; museum
Nondedicated Support industries	To transmit and distribute copyrighted works to consumers in the form of wholesale and retail, such as bookstores, audiovisual products chains, libraries, cinema lines, Internet, and related transportation services
Interdependent Industries	The products produced and distributed are completely or mainly used in conjunction with copyright goods, such as TV sets, radios, video recorders, CD players, DVDs, tape recorders, cameras, video game equipment, and other related equipment

extracted features of the convolution kernel can be reflected from the generated image. In general, the activation maximization algorithm can be regarded as an optimization problem:

$$I^* = \arg_i \max_{s.t. \|I\|=p} f_{ij}(\theta, I), \quad (1)$$

where  $f_{ij}(\theta, 1)$  indicates the activation value of the  $I$  th convolution kernel of the  $j$  th convolution layer after the network input picture  $(\theta, 1)$  represents the trained network parameters, including convolution kernel weight and residual although formula (1) is a nonconvex optimization problem. Therefore, for a single convolution layer of a trained deep convolution network, our deletion strategy can be expressed as:

$$\min \left\| Z - \sum_{i=1}^n \beta_i h(I_i) \right\|_F^2 + \lambda \|\beta\|_0, \quad (2)$$

where  $\|\cdot\|_f$  represents the  $f$  norm, and  $I$  represents the picture generated by equation (11) which maximizes the activation of the  $i$ th convolution kernel

$$s.t. Z = \sum_{i=1}^n h(I_i), h(I_i) = \sum_{j=1}^{255} p_{j,k} \log p_{j,k}. \quad (3)$$

Represents the information entropy of the features captured by the  $i$ th convolution kernel. Here, we use the information entropy to represent the amount of information captured by the convolution kernel  $\|\cdot\|_0$  means  $l_0$  norm  $\lambda$  it

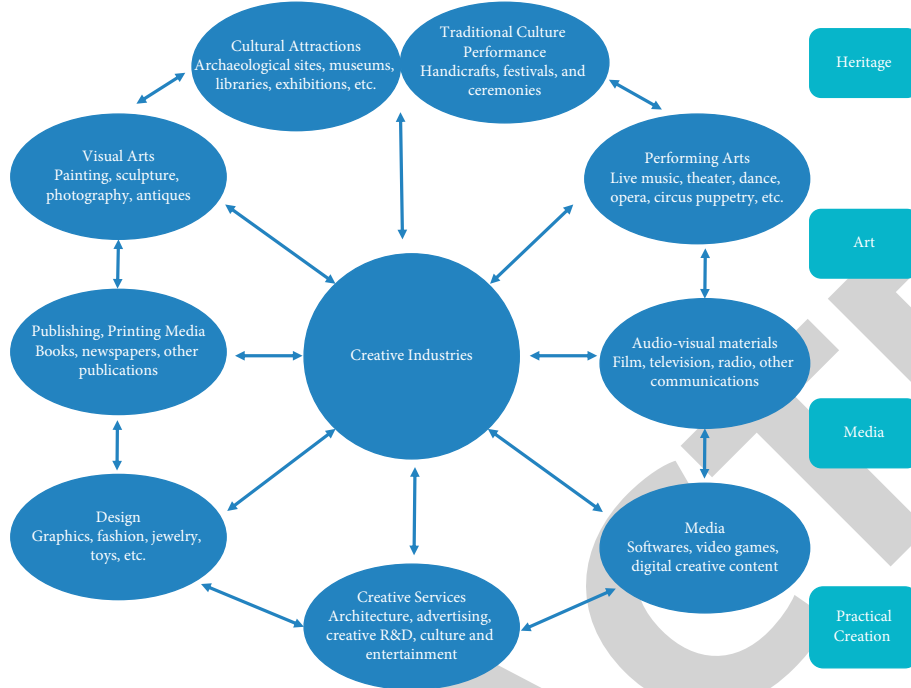


FIGURE 3: UNCTAD creative industries classification.

TABLE 4: Layer by layer compression results of vgg-16 network with compression rate of 50%.

Convolution layer	Number of convolution kernels (before/after deletion)		Flip (before/after deletion)		Weights Sum	Top1 precision (after deletion)		
	Car	Ours	Fine tuning	Car		Ours	Fine tuning	
Block1Conv1	64	32	$4.8 \times 10^6$	$1.3 \times 10^6$	0.7288	0.8	0.824	0.8718
Block1Conv2	64	32	$4.8 \times 10^6$	$1.3 \times 10^6$	0.637	0.3426	0.7471	0.8683
Block2Conv1	128	64	$4.5 \times 10^6$	$1.2 \times 10^6$	0.7175	0.6444	0.8014	0.8679
Block2Conv2	128	64	$4.5 \times 10^6$	$1.2 \times 10^6$	0.4676	0.5985	0.7764	0.867
Block3Conv1	256	128	$4.3 \times 10^6$	$1.1 \times 10^6$	0.7532	0.5134	0.8012	0.8665
Block3Conv2	256	128	$4.3 \times 10^6$	$1.1 \times 10^6$	0.6967	0.6574	0.7929	0.862
Block3Conv3	256	128	$4.3 \times 10^6$	$1.1 \times 10^6$	0.6926	0.5289	0.7529	0.8526
Block4Conv1	512	256	$4.3 \times 10^6$	$1.1 \times 10^6$	0.7483	0.5807	0.7709	0.8513
Block4Conv2	512	256	$4.3 \times 10^6$	$1.1 \times 10^6$	0.669	0.5604	0.7332	0.8498
Block4Conv3	512	256	$4.3 \times 10^6$	$1.1 \times 10^6$	0.5561	0.4674	0.775	0.8384
Block5Conv1	512	256	$1.1 \times 10^6$	$2.7 \times 10^5$	0.8086	0.5947	0.8253	0.8386
Block5Conv2	512	256	$1.1 \times 10^6$	$2.7 \times 10^5$	0.7695	0.5967	0.8208	0.8375
Block5Conv3	512	256	$1.1 \times 10^6$	$2.7 \times 10^5$	0.7583	0.5867	0.8262	0.8818

is used to balance the amount of information and redundancy.

$$\beta = (\beta_1, \beta_2, \dots, \beta_n), \beta_i \in \{0, 1\}. \quad (4)$$

$\beta$  I is a scalar coefficient,  $\beta$  when  $I=0$ , it means that the  $i$ th convolution kernel is deleted,  $\beta$  When  $I=1$ , it means that the  $i$ th convolution kernel is retained.

**3.2. Similarity Measurement.** As described earlier, we need to delete the convolution kernel with repeated functions. Therefore, we need to define a criterion to judge whether the function of convolution kernel is repeated. For each

convolution kernel, we can use formula (5) to generate a picture that maximizes the activation of the convolution kernel, which can reflect the information captured by the corresponding convolution kernel

$$S_{\text{colour}}(r_i, r_j) = \sum_{k=1}^n \min(t_i^k, t_j^k). \quad (5)$$

Similarly, the texture similarity of images  $I$  and  $J$  can be calculated by texture histogram:]

$$S_{\text{texture}}(r_i, r_j) = \sum_{k=1}^n \min(t_i^k, t_j^k). \quad (6)$$

Combining formula (5) and formula (6), we can calculate the final convolution kernel similarity matrix  $S$ :

$$S_{\text{final}}(r_i, r_j) = \alpha_1 S_{\text{colour}}(r_i, r_j) + \alpha_2 S_{\text{texture}}(r_i, r_j). \quad (7)$$

Among them  $\alpha \in (0, 1)$  is the weight coefficient.

**3.3. Proposed Fdnn Network Model Structure.** In Figure 4, we show the schematic diagram of our proposed fdnn network. The network mainly includes three parts: nonlinear enhancement module, multiscale feature recovery module, and fusion enhancement module. In short, our FDNN is a feedforward neural network, which contains 10 deconvolution layers. Let us introduce three modules in detail.

The nonlinear enhancement module is composed of a deconvolution layer whose deconvolution kernel size is  $1 \times 1$ .  $1 \times 1$  deconvolution and  $1 \times 1$  convolution is equivalent,  $1 \times$  The convolutional neural network was previously studied by Lin et al. [21], and extended by Szegegy et al. [22]. Net network can be googled for image classification. When the convolution step is 1,  $1 \times 1$  convolution or deconvolution can be expressed as:

$$\hat{H}_i = \omega_i H, \quad (8)$$

where  $\omega_i$  is a real number, representing the weight of the  $i$ th convolution kernel,  $H$  represents the output characteristic graph of the previous layer, and the size of  $h_i$  is equal to  $H$ . Suppose a  $w \times W$ -size image after  $K \times$ . After the convolution operation of  $K$ , the size of the output characteristic image is

$$\hat{w} = \frac{(w - k)}{s + 1}, \quad (9)$$

where  $s$  is the step size of convolution,  $\hat{W}$  represents the width of the feature image obtained by convolution, and  $\hat{W} \leq W$ . one  $w \times W$ -size image after  $K \times$ . After the deconvolution operation of  $K$ , the size of the output characteristic image is

$$\hat{w}' = (\hat{w} -)s + k. \quad (10)$$

Among them  $\hat{W}'$  is the size of the feature image obtained by deconvolution of the image, obviously  $\hat{w}' \geq w$ .

In Figure 5, we give the detailed schematic diagram of convolution operation and deconvolution operation. The upper part of the figure is the schematic diagram of convolution operation and the lower part is the schematic diagram of deconvolution operation. For the sake of fairness and better explanation, we set the parameters of convolution and deconvolution to be the same.

## 4. Result Analysis and Discussion

The research samples of this paper come from CNKI academic journal database and Chinese Social Science Citation Index (CSSCI) database. According to the research topic of this paper, we select "network reading" and "digital reading" as the search words, and select "title" and "keyword" as the search items and the subject range of all disciplines for fuzzy search. After manual screening, 1147 CNKI papers, 168

CSSCI papers, and 1026 citation data published in Chinese Mainland between 2001 and 2014 were obtained. The date of data retrieval and processing is February 20–21, 2015. This paper mainly uses the methods of literature information measurement and social network analysis, with the help of Excel.

**4.1. Distribution of Scientific Research Output.** The annual distribution of CNKI papers is shown in Figure 6. As can be seen from the figure, the number of documents issued generally maintained a steady growth trend year by year: initially, it increased slowly, increased sharply since 2005, reached the average annual level in 2009 (the average annual number of documents issued was about 82), and then continued to grow rapidly until reaching the peak in 2013.

**4.2. Discipline Field Distribution.** According to statistics, there are 383 journals from which CNKI papers come (as shown in Table 5), including 56 core journals, accounting for 14.5% of the total 62%, a total of 204 papers, accounting for 17.5% of the total papers 79%; There are 147 journals with at least two articles, accounting for 38.5% of the total number of journals 38%, with a total of 911 papers, accounting for 79.5% of the total papers 42%, indicating that the approximation conforms to the famous "28" distribution law; The subjects of CSSCI papers include library information and Philology (104), journalism and communication (24), Pedagogy (18), management (12), linguistics (5), culture and others (5). Statistics show that, at present, the domestic network and digital reading research involves a wide range of disciplines, and the library and information science community has always been the main academic position; A relatively stable core periodical group has been basically formed, while there are few papers with high academic reference value; Most scholars carry out research from the aspects of library service, school education, and reading audience, but lack diversified research from the perspectives of management, culture, society, and copyright; Interdisciplinary or interdisciplinary research and research on methods, technologies, and system development are slightly insufficient.

**4.3. Scientific Research Cooperation.** According to statistics, CNKI has 851 independent papers and 296 co-authored papers, with a co-authorship rate of 25.5% 81%; The number of co-authors and the number of papers were 5, 2, 4, 20, 3, 59, and 2, 215, respectively; The total number of authors of all papers is 1362, and the degree of CO authorship is 1 19; No scholars from Hong Kong, Macao, and Taiwan participated in the co-authorship, and only one foreign scholar (from the United States) co-authored the paper. The author co-occurrence network map drawn by UCINET is shown in Figure 7. According to statistics, there are 543 nodes and 48 connections in the core area of the network, and the central potential of the network is 0.5% 0001, the network density is 0 0085, network relevance 0 007, which shows that the



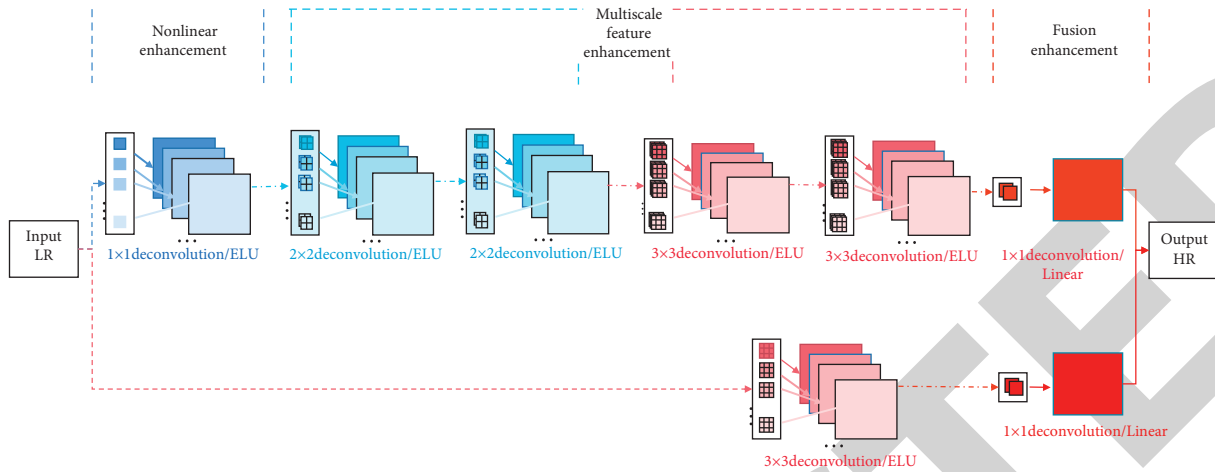


FIGURE 4: Network structure diagram of deconvolution neural network fdnn proposed in this paper.

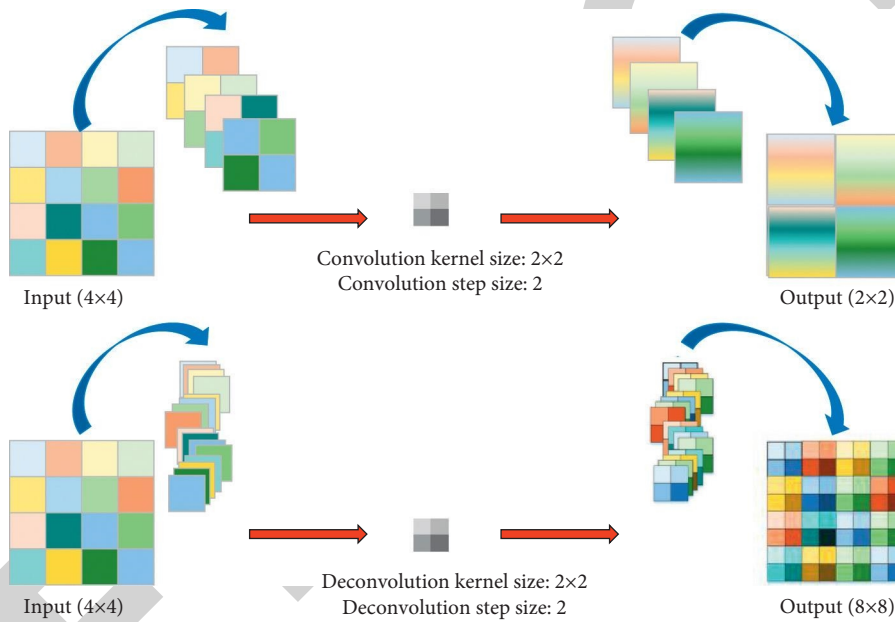


FIGURE 5: Schematic diagram of convolution operation and deconvolution operation.

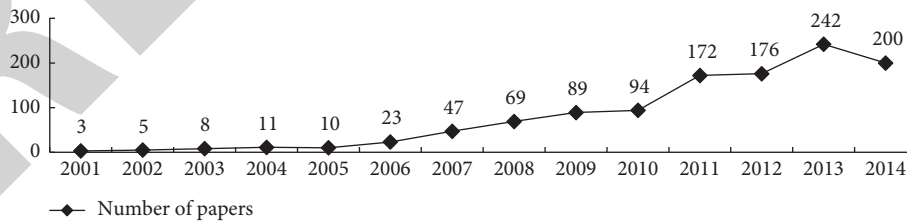


FIGURE 6: Annual distribution of research papers in the field of domestic cultural and creative industry projects.

internal nodes of the network are less cohesive and have obvious structural characteristics of “core edge”.

In the knowledge economy society, the essence of product competition is to lead, influence, or cater to the public’s ideology, values, and living habits through the culture advocated or embodied by products. Therefore, the conception, design, modeling, style, packaging, trademark,

and advertising of cultural and creative products condense certain cultural literacy, personalized experience, and aesthetic consciousness, representing the civilization level of the country and society. The great development and dissemination of cultural and creative industries is not only the only way to build an innovative country but also an important force to tell Chinese stories in the world language, export

TABLE 5: High-frequency keywords in foreign literature.

Frequency	Keyword	Year	Frequency	Keyword	Year
256	Language	1999	56	Instruction	2003
191	English	1999	54	Comprehension	2001
186	Acquisition	2000	50	Context	2004
151	2 <sup>nd</sup> language	2000	48	Foreign language	2003
137	Discourse	1998	41	Model	2001
121	Learner	2003	40	Repair	2005
120	Classroom	2000	40	Communication	2003
106	Student	2002	37	Negotiation	2002
92	Knowledge	2003	33	Perspective	2003
87	2nd language acquisition	2004	33	Fluency	2009
83	Conversation	2003	33	Recast	2005
59	Organization	2003	32	Vocabulary	2009

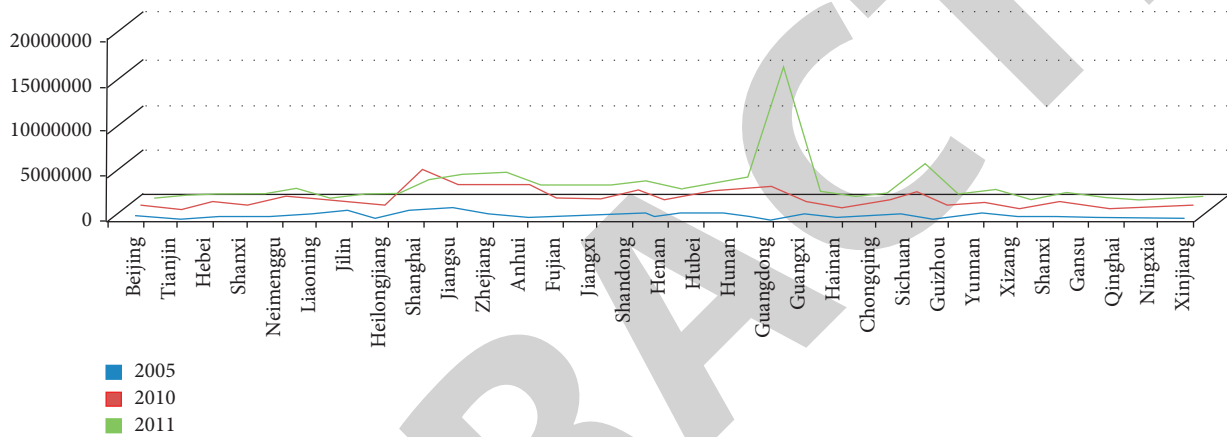


FIGURE 7: Comparison of total profits of cultural market scientific research cooperation institutions in various provinces from 2005 to 2011.

Chinese culture and values, and promote the diversification of world civilization. As can be seen from Figure 7, in recent years, the total profits of cultural and creative market operating institutions in various provinces have increased steadily, and the overall spatial distribution pattern is relatively stable. The more prominent cusps are Guangdong, Shanghai, Sichuan, Zhejiang, Jiangsu, and Hunan. During the Eleventh Five Year Plan period, the added value of Guangdong’s cultural and creative industry increased by 12.6% annually, showing a strong development trend. The individual GDP of many cultural and creative sectors is at the leading level in China, especially the industrial scale of cultural and creative sectors such as radio and digital television, printing and print media is the first in China. The total production value of Jiangshan and bichuang’s game industry accounts for only half of the total production value of Jiangshan and Guangzhou, while that of bichuang’s game industry accounts for only half of the global market.

In the R&D activities of cultural and creative industries, universities, government agencies, and enterprises play different functions in the network, cooperate with each other, and constitute the basic elements of the operation of China’s cultural and creative industry innovation system. Based on the data of all 318 undertaking subjects and regions of the three national top-level cultural and creative engineering projects from 2010 to 2013, this paper uses ucinet6.23 software to describe the social network map of the

main innovation system of China’s cultural and creative industry, reveal the status and functions of the three innovation subjects in the industry university research innovation network, and summarize the current situation of their cooperation.

### 5. Conclusion

To sum up, through the quantitative and qualitative analysis of relevant research literature, this paper investigates the current situation and trend of research and development in the field of domestic cultural and creative industries, and summarizes the basic characteristics and existing problems of research in this field. For example, it is mainly limited to the field of graphics and information, most of which have low research levels and lack of diversified research perspectives; The research focus is relatively concentrated, mainly involving the interdisciplinary intersection of network or digital culture management, technical economics, social psychology, economic geography, and so on; Scientific research cooperation at home and abroad is not extensive enough, lack of long-term systematic research, and interdisciplinary and wide-ranging research is not significant; The basic theoretical research is becoming more and more mature, the technology and system research and development are slightly

insufficient, and the cutting-edge and applied research needs to be deepened.

### Data Availability

The data used to support the findings of this study are included within the article.

### Conflicts of Interest

The authors declare that they have no conflicts of interest regarding the publication of this paper.

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