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Identification of Chinese Classical Painting Theories and Inquiry into Their Confucian Thought: Postprint

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Abstract

[Purpose/Significance] Classic painting theories and their embedded ideological concepts have exerted a dominant influence on the development of Chinese painting. Identifying these canonical texts from historical Chinese painting theory works and analyzing their ideological orientations constitutes an important issue in art historical research.

[Method/Process] Employing text reuse methodology, this study identifies citation relationships among historical Chinese painting theories through Latent Semantic Indexing (LSI), constructs citation networks in chronological order by dynasty, and identifies classic painting theories via network centrality metrics including node strength, betweenness centrality, closeness centrality, authority, and hubness. It subsequently analyzes the influence of Confucian concepts embedded in the citations of classic painting theories on painting history.

[Results/Conclusion] Based on node strength in the painting theory citation network, Su Shi's "Dongpo's Discourse on Painting", Guo Xi and Guo Si's "Lofty Ambition of Forests and Springs", Guo Ruoxu's "Preface to Experiences in Painting", and Zhang Yanyuan's "Excerpts from Records of Famous Paintings Through the Ages" occupy prominent positions in the citation network and can be identified as Chinese classic painting theories. These canonical painting theory works and their cited statements contain rich Confucian thought, reflecting the profound influence of Confucian ideology on ancient Chinese painting thought.

Full Text

Preamble

The Identification of Classical Chinese Painting Theories and the Inquiry of their Confucianism

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Abstract: [Purpose/Significance] Classical painting theories and the ideas they contain play a dominant role in the development of Chinese painting. Identifying these canonical texts from Chinese painting treatises across dynasties and analyzing their ideological orientations constitute an important issue in art historical research. [Method/Process] Using text reuse methodology, we identified citation relationships among Chinese painting theories across dynasties through Latent Semantic Indexing (LSI). A citation network was constructed following chronological order, and classical painting theories were identified via network centrality metrics including node strength, betweenness centrality, closeness centrality, authority, and hubness. The influence of Confucian concepts in the citations of classical painting theories on painting history was then analyzed. [Result/Conclusion] Based on node strength in the painting theory citation network, Su Shi's *Dongpo Lunhua*, Guo Xi and Guo Si's *Linquan Gaozhi*, Guo Ruoxu's *Tuhua Jianwen Zhi Xulun*, and Zhang Yanyuan's *Lidai Minghua Ji Jielu* occupy important positions in the cited network and can be identified as classical Chinese painting theories. These classical works and their cited statements contain rich Confucian thought, reflecting the profound influence of Confucian ideology on ancient Chinese painting theory.

Keywords: Chinese painting theory; citation network; Latent Semantic Indexing (LSI); Confucianism

1. Data Sources and Corpus Processing

The Chinese painting theory corpus primarily derives from Yu Jianhua's edited series *Zhongguo Lidai Hualun Daquan* (A Grand View of Chinese Painting Theories Through the Ages). This ten-volume series spans from pre-Qin to Ming-Qing periods, collecting over 800 painting treatises totaling more than 1.4 million characters. The selection of this corpus is based on several key features [4]: (1) Comprehensive coverage. The series preserves the original form of historical painting treatises, integrating painting principles, techniques, formulas, poems, critiques, catalogs, commentaries, and connoisseurship, serving as a supplement to earlier compilations such as *Shuhuayuan*, *Huayuan Buyi*, *Peiwenzhai*

Shuhuapu, *Gujin Tushu Jicheng*, and *Shuhua Chuanxi Lu*. (2) Chronological organization with thematic classification. The series arranges treatises by dynasty, covering most works from each period and providing a data foundation for tracing the evolution of painting concepts. (3) Authenticity and purity. The series distinguishes authentic from spurious treatises, marks questionable works, and excludes historical narratives to maintain theoretical purity. (4) Inclusion of colophons as painting theories. The Song, Ming, and Qing dynasties produced numerous colophons containing refined discussions of painting techniques, all of which are included to ensure corpus completeness.

To ensure corpus accuracy, we collated, compared, and supplemented the texts against Lu Fusheng’s edited *Zhongguo Shuhua Quanshu* (Complete Collection of Chinese Calligraphy and Painting). The treatises were then digitized using ABBYY FineReader, a powerful OCR tool that rapidly and accurately converts text from paper documents, PDFs, and images into editable and searchable electronic formats, supporting multilingual recognition and significantly enhancing document processing efficiency. The digitized treatises were saved in “author–dynasty–treatise” format to prepare the corpus for subsequent analysis. We have previously used this corpus to identify genetic concepts in Chinese painting theory, validating its effectiveness [5].

2.1 Text Reuse and Latent Semantic Indexing (LSI)

Text reuse is a computational technique for comparing source texts with potentially reused texts by calculating similarity. Common methods include sequence alignment and bag-of-words approaches. Sequence alignment compares the longest continuous characters between two texts character-by-character, using algorithms such as the Smith-Waterman local alignment algorithm [6] and BLAST [5]. However, it is sensitive to word order, and minor typographical errors or wording variations significantly reduce matching accuracy [7]. Bag-of-words methods disregard word order, comparing similarity based on word occurrence probabilities. Common techniques include Term Frequency-Inverse Document Frequency (TFIDF), Latent Semantic Indexing (LSI), and Latent Dirichlet Allocation (LDA). TFIDF enables routine sentence comparison but cannot distinguish polysemy or synonymy. For example, TFIDF would treat “The river is near the bank” and “money is near the bank” as similar, unable to differentiate “bank” as financial institution versus riverbank. LDA calculates text similarity through topic probability distributions, with higher topic counts yielding greater precision. It is suitable for large text comparisons but not for sentence-level matching [8]. LSI employs singular value decomposition to project terms and documents into a new space for sentence similarity comparison, preventing polysemous words from clustering due to identical forms and separating synonyms, thereby resolving TFIDF’s inability to handle homonymy and synonymy. Its advantage in processing short sentences overcomes LDA’s requirement for large texts [9], making it particularly suitable for Chinese painting theory sentence comparison.

LSI is an unsupervised learning algorithm that represents texts as document-term matrices, where rows constitute the complete vocabulary set across all documents and columns represent individual documents. Matrix entries contain word frequencies in each document, with zeros indicating absence. This document-term matrix is high-dimensional. To reduce dimensionality, singular value decomposition maps the sparse high-dimensional term vector space onto a low-dimensional latent semantic vector space, enabling similarity computation through low-dimensional latent semantic vectors [10].

2.2 Computational Process for Painting Theory Text Citation

This study applies LSI similarity calculation to Chinese painting theory citation analysis, constructing a computational framework illustrated in Figure 1 [Figure 1: see original paper].

Figure 1. Computational Process for Chinese Painting Theory Text Citation

As shown in Figure 1, the process involves: first, segmenting historical Chinese painting treatises into individual sentences using periods, question marks, and exclamation marks, then separating each character with spaces to construct a high-dimensional document-term matrix. Second, using the LSI model in Python's gensim package to perform singular value decomposition on vectors and build a similarity index [11]. Third, querying all Chinese painting theory sentences against this similarity index, selecting sentences with cosine similarity above a threshold determined by the median similarity value. Finally, compiling source sentences (citations), matched similar sentences (cited), source treatise authors, similar treatise authors, similarity scores, and other information into a data table sorted by similarity to output citation sequences for subsequent research.

3.1 Citation Network Construction

Since citation relationships in classical Chinese painting literature are dispersed across individual sentences, a citation network is required to present the overall citation patterns and identify classical painting theories. A citation network is a diachronic collection of documents connected by citations that effectively describes historical development and intellectual inheritance within a discipline [12]. Similarity-based citation relationships require temporal filtering to ensure chronological validity. This study establishes the following filtering rules for Chinese painting theory citations: (1) If Treatise A's dynasty (e.g., Song) post-dates Treatise B's dynasty (e.g., Tang), a citation link is established between A and B; otherwise, the connection is discarded, as earlier dynasties cannot cite later ones. (2) If Sentence A in Treatise A is similar to sentences in Treatises B, C, and D with chronological order $B < C < D$, A is linked only to the earliest

treatise B, omitting C and D to ensure citation source uniqueness. For example, when Qing dynasty treatises cite Xie He's "Six Principles" as recorded in Zhang Yanyuan's work, all such citations are attributed to Xie He's original *Guhua Pinlu* from the Southern Dynasties, not recorded as Zhang Yanyuan citations. (3) Similarity scores above a threshold (determined by median similarity) establish citation links for network construction.

After applying these rules, we display labels for painting theories with highest node strength while omitting weaker nodes. The four most prominent nodes are: Su Shi's *Dongpo Lunhua*, Guo Xi and Guo Si's *Linquan Gaozhi*, Guo Ruoxu's *Tuhua Jianwen Zhi Xulun*, and Zhang Yanyuan's *Lidai Minghua Ji Jielu*. The resulting network is shown in Figure 2 [Figure 2: see original paper].

Figure 2. Citation Network of Chinese Painting Theories

Network metrics reveal a clustering coefficient of 0.147, average degree of 4.23, and average path length of 5.1, indicating "small-world" characteristics in painting theory citations. The clustering coefficient suggests close connections among painters, exhibiting a typical "six degrees of separation" phenomenon.

3.2 Measurement and Identification of Classical Painting Theories

Based on Zhao Wei and Xie Na's criteria that classical literature exhibits typicality, authority, and traditionality [1-2], we analyze multiple network centrality metrics to measure and identify classical painting theories. Node importance is primarily established through node strength, supplemented by betweenness centrality, closeness centrality, authority, and hubness to comprehensively reflect classical status in painting history.

(1) Node Strength: Measures node embeddedness in the network [13], calculated as:

$$= \sum_j w_{ij}$$

where w_{ij} represents edge weight. Node v_i 's strength depends on the sum of edge weights connecting it to other nodes, offering advantages over degree centrality. While degree centrality only counts connections, node strength emphasizes both connection quantity and weight magnitude. A painting theory becomes more important when cited by more treatises and with higher frequency, as exemplified by Su Shi's *Dongpo Lunhua*, likely because Su Shi initiated literati painting and scholar-official painters frequently cite his statements.

(2) Betweenness Centrality: Measures the number of shortest paths between all node pairs that pass through a given node [14], calculated as:

$$) = \sum_{i,j} \frac{sp_{ij}(v)}{sp_{ij}}$$

where g_{jk} represents the geodesic (shortest path) between nodes j and k , and $g_{jk}(n_i)$ counts geodesics between j and k that include node i . Higher betweenness indicates more central positioning. Painting theories addressing methodological issues that cannot be bypassed, such as *Linquan Gaozhi's* “Three Distances” method or *Bifa Ji's* “Six Essentials,” occupy betweenness-central positions and are frequently discussed in treatises focusing on painting methods.

(3) Closeness Centrality: Measures how “close” a node is to others in the network [15], calculated as:

$$dnn$$

where d represents inter-node distance. High values indicate a node can reach many others efficiently. Art historical works exemplify such nodes, as painters consistently reference them first; Zhang Yanyuan’s *Lidai Minghua Ji* is widely cited by numerous painting theories.

(4) Authority and Hubness

High-authority nodes attract incoming links, while high-hub nodes connect to authoritative nodes [16]. Authority and hub values are interdependent. A node’s authority equals the sum of hub values from all nodes linking to it:

$$= \sum qP \in to$$

A node’s hubness equals the sum of authority values from all nodes it links to:

$$= \sum qP \in from$$

A painting theory with connections to many high-hub treatises becomes high-authority; conversely, a theory linking to many high-authority treatises becomes high-hub. Su Shi’s *Dongpo Lunhua* exhibits both high-authority and high-hub characteristics.

In Figure 2, node strength measurement identifies four prominent nodes: Su Shi’s *Dongpo Lunhua*, Guo Xi and Guo Si’s *Linquan Gaozhi*, Guo Ruoxu’s *Tuhua Jianwen Zhi Xulun*, and Zhang Yanyuan’s *Lidai Minghua Ji Jielu*. To further demonstrate their classical status, we calculated specific centrality values for selected treatises, presented in Table 1 .

Table 1. Network Centrality Metrics for Selected Painting Theory Nodes

| Treatise (Dynasty- Author-Title) | Node Strength | Betweenness Centrality | Closeness Centrality | Authority | Hubness |
|---|------------------|---------------------------|-------------------------|-----------|---------|
| Song-Su Shi-Dongpo Lunhua | High | High | High | High | High |
| Song-Guo Xi & Guo Si-Linquan Gaozhi | High | High | Low | High | Low |
| Song-Guo Ruoxu-Tuhua Jianwen Zhi Xulun | High | Medium | High | High | Medium |
| Tang-Zhang Yanyuan-Lidai Minghua Ji Jielu | High | High | High | High | Medium |
| Ming-Dong Qichang-Sibai Lunhua | Medium | Low | Medium | Medium | Medium |
| Song-Deng Chun-Hua ji Zashuo Jielu | Medium | Low | Medium | Medium | Low |
| Song-Mi Fu-Huashi Jieben | Medium | Low | Medium | Medium | Low |
| Song-Chen Yuyi-Jianzhai Lunhuamei | Low | Low | Low | Low | Low |
| Southern Qi-Xie He-Guhua Pinlu | Low | Low | Low | Low | Low |

The results show that Su Shi's *Dongpo Lunhua*, Guo Xi and Guo Si's *Linquan Gaozhi*, Guo Ruoxu's *Tuhua Jianwen Zhi Xulun*, and Zhang Yanyuan's *Lidai Minghua Ji Jielu* exhibit high node strength, indicating their importance. Su Shi's *Dongpo Lunhua* ranks first in both node strength and authority, reflecting his advocacy of literati painting. Since the Song dynasty, literati painting has remained painters' spiritual pursuit, with Su Shi as the leading figure. His concept emphasizing spiritual resemblance over formal likeness and prioritizing emotion propelled painting from artisanal craft to scholarly art, making it a vital medium for literati to express feelings and ideas. *Linquan Gaozhi* ranks second in node strength. This crucial Northern Song landscape painting treatise summarizes Guo Xi's lifelong practice, proposing aesthetic values, subjective cultivation requirements for painters, and the "Three Distances" methodology that provided methodological foundations for later landscape painters. Its high node strength, betweenness centrality, and authority, combined with lower closeness centrality and hubness, reflect both the originality of Guo Xi's thought and its acceptance among painters. *Tuhua Jianwen Zhi Xulun* and *Lidai Minghua Ji Jielu* are

art historical works whose materials became primary sources for later painters. *Lidai Minghua Ji Jielu* surpasses *Tuhua Jianwen Zhi Xulun* in betweenness centrality, closeness centrality, and authority, confirming its higher status in painting history. This aligns with historical facts: just as *Records of the Grand Historian* founded Chinese historiography, *Lidai Minghua Ji* pioneered painting history. Yu Shaosong observed: “This work is the ancestor of painting history and the finest among them. Though later works abound, they either compile reference materials (like *Huashi Huizhuan*) or are limited in scope and period. Even comprehensive works covering all dynasties mostly follow established patterns, none matching this book’s originality and unique insights—it is truly a masterpiece” [17]. The literati orientation of Chinese painting, the brushwork spirit of landscape painting, and the accessibility of art historical materials make Su Shi, Guo Xi, Guo Ruoxu, and Zhang Yanyuan’s treatises indispensable, with quantitative results largely consistent with art historical practice.

4. Confucian Thought Embedded in Citations of Classical Painting Theories

Classical Chinese painting theories contain rich Confucian thought, a topic extensively discussed by scholars. Yang Zhikai argues that landscape painting theory was determined by Confucianism [18]; James Cahill identifies Confucian factors in Chinese painting theory, judging literati painting a product of Confucian influence [19]; Jin Guantao discovers connections between Confucian scholar self-cultivation and painting, locating the impetus for landscape painting in Song-Ming Neo-Confucianism [20]. These studies interpret Chinese painting’s Confucian orientation through speculative logic from contemporary perspectives, exhibiting subjectivity. Extracting quotations from earlier painters cited by later ones and analyzing their Confucian content offers a more objective approach from historical actors’ viewpoints.

In citation networks, ego networks—comprising a core node and its directly connected nodes—best demonstrate ideological transmission of classical painting theories. We selected the four key treatises *Dongpo Lunhua*, *Linquan Gaozhi*, *Tuhua Jianwen Zhi Xulun*, and *Lidai Minghua Ji Jielu* as sample documents, visualizing citation content through ego network mapping to further measure the Confucian art thought transmitted by classical painting theory citations, as shown in Figure 3 [Figure 3: see original paper].

Figure 3. Ego Network of Chinese Painting Theories

Through close reading of cited statements in Figure 3, we examine the Confucian thought embedded in and transmitted by these four classical treatises.

4.1 Confucian Thought in *Dongpo Lunhua*

Su Shi’s painting theory is considered the “manifesto” of literati painting, eliciting responses from many later painters. His advocacy for literati painting trans-

mitted Confucian spirit. In the ego network, Ming-Qing painters connected to Su Shi are predominantly literati painting supporters. Ming painter Zhou Lüjing in *Tianxing Daomao* cites Su Shi's statement: "For gentlemen pursuing learning and artisans pursuing skill, completeness was achieved from the Three Dynasties through Han to Tang" [21:193-196]. The gentleman concept in *Analects* is debated against the "petty man"—not morally inferior but occupationally defined as artisans. Gentlemen focus on "learning" aiming at humaneness realization, while artisans focus on "skill" aiming at object creation, extending to the distinction between scholar-official painters and artisan painters. In painting orientation, scholar-officials emphasize expressive meaning (*xieyi*), while artisans stress formal resemblance (*xieshi*). Expressive pursuit brings painterly joy, whereas formal resemblance subjects painters to external constraints. Ming painter Wang Zhi in *Yian Tiba* cites Su Shi: "Gentlemen may lodge meaning in objects but cannot fixate on them. Lodging meaning brings joy; fixation becomes affliction" [22:28-30]. Ming painting master Dong Qichang in *Sibai Lunhua* cites Su Shi's verse: "If poetry must be about this poem, surely the poet is no poet. Judging painting by formal likeness shows childish understanding" [21:138-154], expressing the same sentiment. Viewing experiences also differ between literati and artisan painting, as seen in Qing painter Fang Xun's citation in *Shanjingju Hualun*: "Viewing scholar-official painting is like judging heavenly horses—one captures their spirit and intent. Artisan painters merely depict whips, fur, troughs, and fodder without any noble vitality, becoming tiresome within feet" [23:54-102]. Literati painting exhibits "noble vitality," and painters demonstrate effortless subjective freedom. Su Shi states in *Dongpo Lunhua*: "Wu Daozi is a painting sage, creating novelty within rules and lodging profound principles beyond boldness—truly one who wields the blade with room to spare and wields the axe with perfect skill." Ming drama theorist He Liangjun concurs, citing this statement as his own artistic pursuit [24]. Su Shi's preference for literati over artisan painting stems from integrating painting into the Confucian tradition of "poetry expresses intent" (*shi yan zhi*), where "intent" is the scholar-official's prerogative and spiritual requirement. Su Shi highly praised Wang Wei: "Tasting Wang Wei's poetry, there is painting within; viewing Wang Wei's painting, there is poetry within." This statement was frequently cited by later painters to show agreement. Su Shi's literati painting shifted painting from reproductive to expressive tradition, transforming landscape painting's meaning from outward nature representation to inward "lodging inspiration" (*yuxing*). As one scholar notes: "This new stylistic orientation successfully emerged because the specific literati group, though defeated in political struggles, occupied leadership positions in the national cultural sphere" [25]. Su Shi's painting theory exerted such influence precisely due to the Confucianization of painter identity.

4.2 Confucian Thought in *Linquan Gaozhi*

Guo Xi's *Linquan Gaozhi* expresses Confucian spirit identification by citing earlier treatises like *Kaogongji Lunhua*, *Lunyu Lunhua*, and *Huazan Xu*. Citing

Lunyu Lunhua's "The Master said: aim for the Way, base yourself on virtue, rely on humaneness, and enjoy the arts," Guo Xi accepts Confucius's value hierarchy for "arts" and embraces the earliest calligraphy-painting homology argument from *Huazan Xu*. Since calligraphy is a crucial self-cultivation component among Confucian six arts, Guo Xi's linking of painting with calligraphy internally accepts painting's Confucian mission, viewing it as "self-completion" learning [26]. His acceptance of "calligraphy-painting homology" effectively integrates "painting"—not among the six arts—into Confucian self-cultivation [27]. He articulates Confucian ethical principles in landscape painting thought, using personification to express painting success and failure [28]. These ideas were cited by later painters. For example, Qing painter Yun Ge in *Nantian Tiba* cites *Linquan Gaozhi*: "Those who accumulate murky qi and drown in it produce dim, vulgar forms—this is the flaw of spirit not coalescing. Those who approach with frivolous mind produce sketchy, incomplete forms—this is the flaw of lacking gravitas" [29:72-167]. Guo Xi's "Three Distances" method provides visual guidance for Confucian order, transmitted through later citations. Qing painter Hua Lin in *Nanzong Jue Mi* cites: "Mountains have three distances: viewing from mountain base to peak is high distance; from front to back is deep distance; from near to far mountains is level distance" [30:378-397]. Qing painter Wang Gai in *Xuehua Qianshuo* cites: "All compositions must harmonize heaven and earth. What are heaven and earth? On a one-foot half-scroll, leave space above for heaven and below for earth, then establish intent and settle composition in between" [30:253-270]. This ordering resonates with Song philosophy's search for heavenly principle order. Confucian "investigating things to extend knowledge" (*gewu zhizhi*) involves moving from concrete images to general principles. In landscape painting, understanding a thing's "truth" means grasping its essence across different spatiotemporal orders. Qing painter Tang Dai in *Huifa Weifa* cites *Linquan Gaozhi*: "In real mountain valleys, view from afar to capture momentum, view up close to capture substance" [30:220-252], embodying Confucian *gewu zhizhi* philosophy. These citation relationships reflect other painters' identification with the Confucian thought in Guo Xi's treatise.

4.3 Confucian Thought in *Tuhua Jianwen Zhi Xulun*

Guo Ruoxu's painting function and evaluation criteria derive from painter identity defined by Confucian standards. In *Tuhua Jianwen Zhi Xulun*, he cites Cao Zhi's *Huazan Xu*: "Viewers seeing the Three Sovereigns and Five Emperors feel reverence; seeing tyrants of the Three Eras feel sorrow; seeing usurpers feel indignation; seeing noble hermits forget to eat; seeing loyal martyrs raise their heads; seeing exiled ministers and rejected sons sigh; seeing lechers and jealous wives avert their eyes; seeing virtuous consorts and obedient empresses praise. Thus we know painting exists for admonition." Cao Zhi uses imperial viewing examples to illustrate painting's social admonitory function, reflecting Confucian emphasis on inner spirit and virtue that assigns painting a moral didactic role. Guo Ruoxu's statements—"noble scholar-officials who rely on humaneness and enjoy arts reaching perfection," "those of noble character who paint for self-

amusement,” and “those who achieve contemporary fame through painting”—were cited by He Liangjun, Zhou Lüjing, Tang Zhiqi, Li Xiuyi, Yun Ge, and others. This shifts painting evaluation from the work-centered “spiritual, marvelous, capable, untrammled” tradition to identity-based standards, effectively eliminating hierarchical grading [31]. Guo Ruoxu argues that scholar-official, noble, and famous painters are hierarchically ranked, with scholar-official painting as most esteemed: “When personal character is lofty, artistic spirit must be lofty; when spirit is lofty, vitality must be achieved. This is called spirit upon spirit reaching perfection. All paintings must achieve artistic spirit to be world treasures; otherwise, despite clever conception, they remain artisan work—though called painting, they are not truly painting.” This identity-based evaluation aligns with Su Shi’s perspective.

4.4 Confucian Thought in *Lidai Minghua Ji*

Since most pre-Tang painting materials and authentic works were lost, Zhang Yanyuan’s *Lidai Minghua Ji* preserved important theoretical sources [32]. In organizing these materials, Zhang proposed equating painting with the “Six Classics,” orienting painting’s value toward Confucianism. Citing *Erya Shihua* and *Guangya Shihua*, he rejected their definitions of painting as “form” or “likeness,” arguing instead that painting “fulfills moral education, clarifies human relations, exhausts divine transformations, measures subtle mysteries, and shares merit with the Six Classics.” This elevation of painting to the Six Classics’ status employs Confucian values. He states: “Calligraphy and painting share the same origin but later diverged. Without writing, meaning could not be transmitted; without painting, forms could not be seen.” This integrates “painting”—absent from the six arts—into the gentleman category. Gentlemen painters differ from artisans: “Painters must particularly avoid fully depicting forms, colors, and patterns with excessive detail revealing clever artifice.” For connoisseurship, he proposes: “Naturalness is highest of the high grade; spirit is middle of the high grade; marvelousness is lowest of the high grade; refinement is highest of the middle grade; meticulous detail is middle of the middle grade. These five grades encompass the Six Principles and penetrate all subtleties. Without divine insight and high discernment, emotional transcendence and mental acuity, how can one discuss painting?” Using naturalness, spirit, marvelousness, refinement, and meticulousness as standards, only “divinely insightful and emotionally transcendent” scholar-officials can comprehend painting’s subtleties. Later citations by He Liangjun, Tang Dai, Yu Ti, Qian Qing, and others reinforced Zhang Yanyuan’s Confucian orientation.

Conclusion

This study constructed a citation network for ancient painting theories using text reuse and LSI, identifying *Dongpo Lunhua*, *Linquan Gaozhi*, *Tuhua Jianwen Zhi Xulun*, and *Lidai Minghua Ji Jielu* as classical Chinese painting theories through network centrality metrics (node strength, betweenness centrality,

closeness centrality, authority, hubness). This citation network enables classical identification from historical actors' perspectives, resolving difficulties in identifying classics due to pre-modern citation practices.

Close reading of cited sentences reveals that classical painting theory authors were profoundly influenced by Confucian ideology: Su Shi's identification with literati painting, Guo Xi's integration of Confucian order into landscape painting, Guo Ruoxu's identity-based evaluation system, and Zhang Yanyuan's equation of painting with the Six Classics all manifest Confucian identification. The expressive spirit of literati painting rendering subjective freedom embodies Confucian "enjoyment in arts" (*you yu yi*). For example, the host-guest relationship among mountain peaks reflects Confucian hierarchical order; ranking painters as scholar-officials, noble persons, and famous artists establishes identity-based evaluation with Confucian scholar-officials at the apex. These reflect Confucian ideology's impact on painting.

This study has limitations. Due to Chinese art's calligraphy-painting homology, we did not incorporate historical calligraphy treatises, leaving intertextual relationships between calligraphy and painting theories and their philosophical implications for future research. Subsequent studies will digitize and visualize mutual citations between calligraphy and painting treatises across dynasties, expanding art historical dimensions, enriching humanists' methodological toolkit, exploring digital technology's research paradigm in Chinese art history, fostering symbiotic relationships between technology and humanities, and promoting healthy cross-disciplinary development in art history.

Dongpo Lunhua, *Linqun Gaozhi*, and *Tuhua Jianwen Zhi Xulun* are from Yu Jianhua's *Zhongguo Lidai Hualun Dagan: Di 2 Bian Songdai Hualun* (Jiangsu Phoenix Art Publishing House, 2015); *Lidai Minghua Ji Jielu* is from Yu Jianhua's *Zhongguo Lidai Hualun Dagan: Di 1 Bian Xianqin Zhi Wudai Hualun* (Jiangsu Phoenix Art Publishing House, 2015). Cited statements are from these works without additional annotation.

This refers to the theoretical sections in the standalone *Lidai Minghua Ji* edition, which *Zhongguo Lidai Hualun Dagan* excerpted as *Lidai Minghua Ji Jielu*.

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