Exploring the Role of Meaning in the Valuation of Art: The Case of Chinese Calligraphy

By

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Abstract

How does meaning making affect the perceived value of art? In this paper, we focus on a unique form of art, Chinese calligraphy, to explore the effects of literal meaning on the perceived value of art combining both words and aesthetic quality. After constructing a measurement scale dedicated to Chinese calligraphy, we find evidence based on a 2*4 between-subjects factorial experiment ($n = 451$) that the provision of transcriptions can have a positive impact on the works' perceived value. Specifically, our findings suggest that transcriptions enhance the appreciation of the value of the literal content and the perceived beauty of certain artworks. We also highlight an anchoring effect on price estimates when it comes to the perceived economic value. This paper contributes to a better understanding of the effect of meaning on the perceived value of Chinese calligraphy artworks, information supply on aesthetic experiences, and the value of Chinese calligraphy as intangible cultural heritage. Recommendations for stakeholders including policy makers and auction houses are provided.

Introduction

Some art pieces have the peculiarity of combining both aesthetic and literal content, offering one-of-a-kind artistic and cognitive experiences. In the information-processing model of aesthetic experiences proposed by Leder et al. (2004), the need to understand the meaning of an artwork is viewed as essential. Achieved at the stage of "cognitive mastering" and closely linked to "valuation", information is integrated into the processing of aesthetic experiences which results in aesthetic judgements and emotions (Leder et al. 2006: 492). Accordingly, any information that facilitates the interpretation of an artwork will play a key role in the aesthetic experience, thereby mediating the outcome of the evaluation. This information may take different forms, such as the title (e.g., Franklin et al. 1993, Russell 2003, Russell & Milne 1997), the art-historical context (e.g., Liu et al. 2022, Swami 2013, Specht 2010), or the name of the artist (e.g., Cleeremans et al. 2016, Hernando & Campo 2017). In some cases, it helps underline, clarify, or enrich the content of the visual artwork; in others, it reveals the artist's intention, denotes value, and determines the attitude of the viewer (Jucker et al. 2014, Kruger et al. 2004).

The supply of information not only has varying effects on aesthetic experiences, but it may also have implications on the broader art world, especially the art market where information issues abound. Characterised by quality uncertainty (Johnson & Levin 1985), cultural goods are subject to different kinds of information failure which affect the evaluation of art, including: i) asymmetric information (Akerlof 1970), when only one agent (usually the seller) is more informed about the good and may take advantage of it; ii) symmetric disinformation (Lupton 2005), when all agents have an equal but incomplete set of information; iii) asymmetric disinformation, where all agents have unequal and incomplete set of information (Angelini et al., 2022). In the information processing of the evaluation of an artwork, behavioural biases may also be present (Coate & Hoffmann 2022). People tend to use heuristics especially when processing complicated, abundant information, and one of the most common biases resulting from this is anchoring (Tversky & Kahneman 1974). According to this effect, first relevant or irrelevant information can influence the outcome. For instance, Graddy et al. (2022) highlight the anchoring effect of previous sales prices fetched by paintings sold at auction and provide evidence for endowment. Beggs & Graddy (1997) and Hong et al. (2015) suggest that ordering items in declining order of value maximises auction revenues. Mei & Moses (2005) reveal an upward price estimate bias for expensive paintings. Effort can also be used as a cue in quality judgements (Kruger et al. 2004). Some other factors, such as the hours of sunshine, can have a positive effect on auction prices as well (Kliger et al. 2010).

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

149

Arguably, paintings are predominantly used as visual stimuli in empirical studies on information effect. In this scenario, the information supplied, such as titles and artists' statements, can be regarded as supplementary to the artwork which is already a stand-alone entity. This engenders the possibility of playing around with different combinations between the artwork itself and the accompanying text, as well as interventions in the literal content of the texts (e.g., Jucker et al. 2014, Millis 2001, Specht 2010). But what about more complex artworks in which the meaning is an inseparable part of the art itself? In these cases, appreciating the artwork without knowing the inherent meaning would undermine the whole experience. For instance, in the masterpiece *The Dutch Proverbs* painted over 450 years ago, the Dutch master Pieter Bruegel the Elder wittingly elaborated over 100 Dutch proverbs in the seemingly plain, village scene. Once the meanings of the proverbs hidden in the painting are understood, viewers will be able to examine the intricacies of the painting more closely and thereby achieve an experience that is on a completely different level. Besides, there are a good number of contemporary visual artists who harness the power of language and engage the word and the image, such as René Magritte, Christopher Wool, Fred Eerdekens, and Xu Bing. What roles do the words in these artworks play in relation to the visuals?

The difficulty in studying word-image artworks lies in the intertwining relationship between the two. In the painting *The Treachery of Images*, the Belgian surrealist painter René Magritte provocatively writes the words "Ceci n'est pas une pipe" underneath an image of a pipe, where the rupture between the written message and the image prompts us to take a critical look at what we perceive and what things really are. If we replace the words, the meaning of the painting also alters accordingly, and vice versa. Therefore, in this paper, to study the effect of meaning on artworks that combine both images and words, we focus on a unique art form, Chinese calligraphy, in which the word is the image and investigate the effect of verbal information (transcriptions[1]) on the perceived value of art. Chinese calligraphy, as intangible cultural heritage[2] representative of the Chinese culture, is in nature both abstract and verbal art. All calligraphic creations are based on written Chinese characters, which in turn serves as the medium for the literal content in addition to the visual expressions. This duality of Chinese calligraphy is specifically what makes it distinct from traditional fine arts (Harrist 1999). At the same time, the close interdependence between its form and content makes the isolation of either one of them an intriguing subject to engage with.[3]

To date, the effect of the semantic meaning of words on the evaluation of visual arts has not yet been empirically studied. Moreover, a search in the anglophone literature revealed a notable paucity of empirical research focusing specifically on Chinese calligraphy. In addition, there is a growing need to raise awareness of

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

150

the significance of ICH-Intangible Cultural Heritage (Heredia-Carroza et al. 2021, Lenzerini 2011), especially for its empirical evaluation. To uncover the effects of transcription on the perceived value of Chinese calligraphy and gain a better understanding of the value of Chinese calligraphy as ICH, we designed a 2*4 factorial experiment (e.g., Auspurg et al. 2017) and collected 451 questionnaires online. Using ANOVA, we find evidence that supplying additional information has positive effects on both the understanding and the aesthetic experience of the artworks. Our findings suggest that the provision of transcriptions reinforces the appreciation of Chinese calligraphy, brings the artworks more vividly to viewers' mind, and induces different judgements on the beauty of the artworks.

The remainder of the paper is organised as follows: we first further embed our research question in the theoretical and empirical contexts, outlining our subject of concern and specific research goals. Subsequently, we explain the methodological considerations of the current study (e.g., data set, factorial experiment design). Then, we discuss the findings of the data analyses. We conclude the paper with reflections on the results, implications, and limitations of the study, and provide directions for future research.

State of the Art
Chinese Calligraphy as a Form of Art

Chinese calligraphy is the art of writing characters; however, it is more than just that. In China, it is one of the three perfections of Chinese art besides poetry and painting (Sullivan 1986). As early as the first century of the Han Dynasty (202BCE-220CE), it has been considered as fine art. Over time, as the status of Chinese calligraphy grew, it also became a lever for social purposes by helping to distinguish one social group from another or allowing individuals to position themselves within existing groups (Bai 2015). In the first Chinese dictionary *The Analysis of Characters as an Explanation of Writing* (Shouwen jiezi), Xu Shen (ca. 58-ca. 147) stresses that good writing is the foundation of good government. This is because during the Han Dynasty, China was no longer ruled by hereditary aristocracy as was the case for much of the rest of the world, ordinary taxpayers were selected to serve in the national bureaucracy which relied heavily on written documents. Thus, good calligraphy became one major requisite for succeeding in state examinations and employment in high government positions, which remained an unwritten rule in later dynasties.

Out of all those ancient civilisations of the world such as the Sumerian cuneiform scripts, the Chinese character system is the only surviving writing system that has continuous and continuing sustainment (Zhang et al. 2008). From oracle inscriptions of the ancient times, Chinese calligraphy has evolved through

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

151

thousands of years, transcended its primary function of recording information, and developed into dynamic writing styles that continue to evolve today. Through the manipulation of the ink brush, calligraphers embody their spiritual selves in the artistic expression, and thus from one's calligraphy, it is believed that one could see into their character and one's level of self-cultivation (McNair 1998). Aesthetics is reflected in the brush strokes, Chinese ideology and philosophy seamlessly merging in the characters (Ledderose 1984).

Chinese calligraphy is also considered one of the purest art forms (Yashiro 1936) and is the only major art form in the world that allows the viewer to retrace the creation of the finished artwork in all its consecutive phases through its temporal progression (Iezzi 2013). Watching a calligrapher write, one will remember what was observed a few seconds ago, and will know what happens next if they know the text. This means that they will not concentrate on *what* he writes but *how* he writes.[4] Because the writing of each character results from, and therefore results in, a prescribed sequence of brush movements, the viewer can re-imagine the movements of the writer by following the brushstrokes and re-create the moments of creation. As the art of Chinese character lies not only in the form but also in its profound meaning, the aesthetic object in experiencing Chinese calligraphy works of art comprises both the outer form and the inner quality, i.e., the literal content, and a text is always associated with the intended functions of the calligraphic work (Bai 2015). When the text of the calligraphic work is interesting and comprehensible to the viewer, reading and viewing become an integrated experience. Yet, appreciating calligraphy does not always require reading (Harrist 1999). Dubal et al. (2014) show viewers' sensitivity to the emotions expressed in Chinese calligraphy, irrespective of their inability to read Chinese or unfamiliarity with this form of art of calligraphy. Likewise, viewers appear able to perceive the artist's intention, since the stylistic and structural properties of art can facilitate in the aesthetic experiences (Cupchik et al. 2009).

Since the mid-1980s, a movement of modernisation has opened the gate of China to the rest of the world. This opening has posed new challenges to the classical strict rules of Chinese calligraphy connoisseurship,[5] including distinct movements of Chinese calligraphy that have drastically changed the traditional concepts of Chinese calligraphy (e.g., strong influences of Western art, blended methods, and new media). Coupled with digitalisation which increasingly makes handwriting obsolete, several studies on Chinese calligraphy point out the public ignorance of this form of traditional Chinese culture and deplore the low level of understanding of this traditional culture in a globalized context (e.g., Qi et al. 2013, Zhang et al. 2012, Zhou et al. 2013). Nevertheless, one may observe the recent revival of this traditional cultural heritage in China and in the rest of the world, with a growing recognition of its significance and aesthetic appeal (Lei &

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

152

Zhao 2022, Johnson et al. 2019). This phenomenon has accelerated thanks to the inscription of Chinese calligraphy on the ICH list since 2009, and the enactment of the Intangible Heritage Law by the Chinese government in 2011.

Information Failure in Auctions of Chinese Calligraphy Artworks

Consumers are constantly seeking information to make informed purchasing decisions about products. The information problem is more pronounced in the art market than for other consumer goods, due to the works' strong heterogeneity and the difficulty of establishing prices (Rosen 1974, Velthuis 2011). Additionally, the value of cultural goods is a controversial issue per se (Angelini & Castellani 2019, Klamer 2003, Throsby 2003, 2001). In auction houses, there is usually a board of experts who play an essential role in the legitimisation of artworks, supplementing and spreading information that is not fully understood by consumers. In practice, intermediaries are compelled to supply sufficient and reliable information. Yet, it is not unusual for consumers to encounter situations where the information for an important attribute is still missing, which compromises the accuracy of the evaluation (Johnson & Levin 1985).

A frequent observation with Chinese calligraphy, however, is that the transcription of the artworks is not always provided for prospective buyers. This means that a large proportion of the calligraphic works are traded by auction houses without buyers knowing the literal content of the writings except for some basic item information. This situation is worth noting since, as mentioned earlier, information failure is likely to create negative externalities on the art market (Anonymised 2019, David et al. 2013, Johnson & Levin 1985). One may suspect that these auction sales are primarily oriented towards Chinese art buyers who, supposedly, should be able read the literal content. Yet this is unlikely, given the fact that the writings of characters in most calligraphic works remain illegible[6] even to Chinese[7] viewers today (Shi 2020). If understanding the meaning of an artwork is vital in the aesthetic experience (Leder et al. 2004), then the absence of information on the literal content of Chinese calligraphy must have consequences on the aesthetic processing of the artwork.

Here we propose three assumptions that may explain why transcriptions of Chinese calligraphy artworks are rarely provided by auction houses. Firstly, auction houses may simply not see the necessity to account for the literal content of Chinese calligraphy artworks. They could either be holding the formalist view that appreciation is more about the visual or stylistic aspect than the content itself (Franklin et al. 1993) or be so complacent about the status quo that they are ignorant of the consumer needs. Secondly, auction houses may acknowledge the importance of content, but decide not to put efforts into obtaining that information for consumers because the research costs exceed the expected

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

153

returns. Thirdly, one may argue that literal content information is intentionally withheld from the consumers by the auction houses. This may stem from the fact that qualified auction houses should possess the expertise to identify the literal content information of the calligraphic artworks. Providing art buyers with this additional information could potentially bias the buyers' judgements on the artworks and therefore create uncertainty. Drawing upon insights from this study, we may compel auction houses to reflect on their current cataloguing practices.

The Effects of Verbal Information on the Evaluation of Artworks

Although no previous study has empirically addressed the question of the effect of transcription on the evaluation of Chinese calligraphy, there is a considerable amount of literature examining the effect of written information on the evaluation of artworks. For instance, Franklin et al. (1993) find that the change of titles affects viewers' interpretive readings of the paintings. Millis (2001) reveals that metaphorical titles, which give an interpretation of the artwork, enhance aesthetic experiences, compared to the untitled or descriptive ones. Park et al. (2021) show that a descriptive title negatively affects the auction price of a painting whereas a more elaborate title will affect it more positively. Examining the influence of the information on the artist's name on the assessment of artworks, Angelini et al. (2022) reveals a positive relationship between the artist's name as brand and artist-specific information, such as talent, fame, and popularity. Whereas the presence of an artist's name can signal value and quality (Cleeremans et al. 2016) and lead to better appreciation (Hernando & Campo 2017), Radermecker (2019) shows that, with anonymous works, buyers pay greater attention to other quality signals such as the degree of specification of the spatio-temporal designations. The more specific the designation in time and space is, the more it tends to positively affect the market value. Hoffman & Coate (2022) highlight that the gender of the artists also plays a role in the judgements of art prices and the artist's fame. Interestingly, this discrimination in gender does not affect personal preferences or taste.

Despite methodological variations across studies, most results suggest that the supply of work-related information can make a difference in viewers' aesthetic experiences, resulting in different attitudes, emotions, and brain activations (Brieber et al. 2014, Huang et al. 2011, Kirk et al. 2009, Noguchi & Murota 2013). This suggests that the compositional features of an artwork alone are not sufficient to create a complete aesthetic experience, and that the employment of a design stance is likely to lead to greater appreciation of the artwork (Bullot & Reber 2013, Swami 2013). If the prima facie meaningfulness of Chinese calligraphy is relatively low even for native Chinese, then it is therefore reasonable to believe that information that helps in the interpretation of a calligraphy artwork should

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

154

make a significant contribution to helping the viewer towards a satisfactory interpretation (Russell 2003).

Method

The primary goal of our study is to explore whether the presence (vs. absence) of a transcription influences the perception of Chinese calligraphy artworks. More specifically, we intend to capture aesthetic appreciation through the notion of perceived value, which is inherent to the spontaneous evaluation processes of consumption experiences (Sánchez-Fernández & Iniesta-Bonillo 2007). By developing a measurement scale pertaining to the case of Chinese calligraphy, we also contribute to the body of literature concerning the appraisal of ICH. Moreover, we attempt to give consideration to both cultural and economic value to obtain a fuller account of the perceived value (Throsby 2003), despite perennial tension between the two (Sagoff 1981, Throsby 2001).

We use a factorial survey experiment to reach large heterogeneous sample populations with surveys while retaining the causal explanation power of experiments (Mullinix et al. 2015). In our experiment (2*4), we simultaneously manipulated two dimensions to the transcriptions of Chinese calligraphy artworks: i) the presence / absence of the transcription, and ii) the different literal content of the artworks selected. In addition, we opted for a between-subjects design to reduce respondent fatigue and learning effects and to avoid social desirability issues which is common in surveys (Wallander 2009). The allocation of respondents to each experimental condition was completely random to avoid extraneous influences on the experiment outcome. We also measured the outcome variable (perceived value) consistently across all conditions. The main body of the questionnaire[8] followed the survey structure of contingent valuation studies (Snowball 2007, Throsby 2003), which is a standard approach in valuation of cultural heritage, and has three major parts: general questions, perceived value, and socio-demographics.

Materials

Stimuli. Four works of Chinese calligraphy were selected as visual stimuli for the study. These artworks were intentionally chosen to be of the same size, material, writing style, and created by a same artist, Dong Qichang, who is one of the most influential and renowned figures in Chinese art history. The reason for controlling for these factors is because, besides cultural value, we seek to examine the economic value of Chinese calligraphy artworks. Therefore, isolating extraneous influences in the selection process[9]—which are known to have a significant impact on prices (Zong 2013, Anonymised 2020)—allows for greater validity. Using the

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

155

information from the Chinese auction houses China Guardian,[10] we also obtained the information on the economic value of the artworks and their price estimates for our measurement of economic value.

Although transcriptions were not given by the auction house, we managed to obtain accurate transcriptions by accessing several online commentaries featuring the selected artworks. Each work contains a poem from the Tang Dynasty that depicts different scenes and conveys different meanings and emotions.[11] Transcriptions are available in Table 6 of Appendix B. Specifically, artwork 1 expresses fatigue from long journey and loneliness, artwork 2 describes a leisurely state and shows the joy of life, artwork 3 illustrates the delights of spring and happiness, artwork 4 is about nostalgia and empathy. Using artworks with different literal content (other physical features kept equal) allowed us to examine how different types of transcriptions might influence viewers. In the survey experiment, we provided participants with as much information as possible regarding the artworks to foster the evaluation process, but also to imitate the conditions under which artworks are usually presented by auction houses.

Perceived value. To develop the measurement items of the survey, we examined an extensive body of literature related to: i) the value of culture (e.g., Angelini & Castellani 2019, Throsby 2001), ii) evaluation of ICH (e.g., Su et al. 2020), iii) aesthetic appreciation (e.g., Hager et al. 2012), iv) and Chinese calligraphy appraisal (e.g., Zhang et al. 2008). Whereas *cultural value* was measured by considering ten dimensions, *economic value* was assessed through two dimensions. A full summary of the measurement items as well as their reference sources can be found in Table 7 of Appendix C.

Cultural value. We referenced the typology proposed by Throsby (2001), where *cultural value* is decomposed into six dimensions: *aesthetic value*, *spiritual value*, *social value*, *historical value*, *symbolic value*, and *authenticity value*, while comparing other relevant literature to account for the idiosyncrasies of Chinese calligraphy[12]. In addition, we introduced four dimensions of value: *revelation value*, *spontaneity value*, *emotion value*, and *literal content value*. The interpretation of the various dimensions[13] is as follows.

- *Aesthetic value* is defined as the artwork's beauty, harmony and other aesthetic characteristics that make someone desires it.
- *Spiritual value* is relevant to Chinese calligraphy for it is often viewed as an embodiment of Chinese philosophy and national spirit (Ledderose 1984, Su et al. 2020).
- *Social value* is another important dimension that contributes to a sense of connection and identity between people and society at large (Klamer 2017).

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

156

- *Historical value* in anchored in artworks as creations of the past and provides us with a sense of continuity between the past and present.
- *Symbolic value*[14] relates to art as a symbol that distinguishes its nation from others (Su et al. 2020, Zhang et al. 2008).
- *Authenticity value* is linked to the essential qualities of artworks such as originality, uniqueness, and genuineness.
- *Revelation value* suggests that through writing, the calligrapher's individuality, his/her feelings, spirit, and personality are revealed (Iezzi 2013).
- *Spontaneity value* is considered as an important element of Chinese calligraphy as self-expression lies in the rhythmic movement of the brush (Gulik 1958).
- *Emotion value* refers to the meanings and emotions conveyed in the literal content of each artwork (Hager et al. 2012).
- *Literal content value* is considered as an essential component because content as the medium of artistic expression lays the foundation for the visual aspects of the finished work (Shi 2020).

Economic value. While there seems to be a consensus on how to evaluate the *economic value* of a cultural good, i.e., through its market price, assessing economic worth empirically is a challenging endeavour as it makes little sense to ask people how much they would be willing to pay for a work even when they are established art collectors (Cleermans et al. 2016). In their assessment of paintings' economic value, Throsby & Zednik (2014) used two measurements. First, they asked respondents how much they would be prepared to pay per week if the painting could be hired for private use to measure the value (flow value). Second, they asked respondents how much they would pay if the painting were to be bought for a public gallery while the market prices of the paintings are given (stock value). Hernando & Campo (2017) asked participants to indicate their estimates of the market price and their willingness-to-pay among multiple price ranges. Considering the nature of the artworks in our study, we first examined *investment value* to see if people would consider investing in the artwork. Then, we asked people to indicate how much they believed the artwork presented to them was auctioned at (multiple-choices), their criteria for the judgements on price (checkboxes), as well as their opinions on the hammer price when it was eventually revealed to them (5-point Likert scales). The price ranges for people to choose from were constructed respectively on the price estimate for each artwork as recorded in the auction catalogues from the website of the auction house China Guardian.[15] When asked about what factors to consider for their evaluations,

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

157

people were free to provide their own answers besides the range of options we offered including common price determinants but also literal content.

Participants

The sampling method was primarily purposive, targeting people with an interest in Chinese calligraphy and art collecting. This methodological choice ensured the collection of sufficient data from relevant people within the timeframe. A series of pre-testing enabled us to refine the statements in the construction of the survey.[16] The online survey was then spread online for ten days (starting from May 6th, 2021) through various platforms and media, involving specialized groups on Chinese calligraphy and collecting Chinese art. The online survey was shared through several social media platforms on which groups dedicated to Chinese calligraphy are active, including Douban (a major Chinese social networking platform focused on arts and culture), and Facebook (currently Meta).

In total, 451 valid responses were collected, with comparable numbers of responses for each experimental condition (between 50 and 60). Table 1 in Appendix A reports some descriptive statistics related to our respondents' profiles, with females representing most of the sample (61.6%). Young people aged 18-24 represented the largest age group, with 194 participants (43.7%). Participants aged above 55 and below 18 accounted for the minority. Respondents predominantly had an education level of bachelor's degree (51.5%) or above. Students comprised a large proportion (37.9%) of the sample, next to the second biggest group of professionals (25.3%). Most of the participants were Chinese (94.5%, $n = 409$), 90.2% resided in China, and 95.0% had Chinese as their native language. At the same time, the largest proportion reported at least some knowledge about Chinese calligraphy, with 199 (44.2%) having a little knowledge, 162 (36.0%) having a moderate amount, and 60 (13.3%) having a lot. A fair share of our respondents (55.8%) acknowledged that they had a Chinese calligraphy artwork in their families. Despite only a small proportion (4.0%, $n = 18$) knew quite a bit about Chinese art market, the proportions of the other three groups about art market knowledge were all around 30%. A great majority (88.0%) of our respondents knew something about art, while 41.9% had purchased art before, and 21.1% had experiences with art auctions. 93.6% of the respondents could read Chinese, 14 (3.1%) knew a little and 15 (3.3%) knew nothing about the language.

Procedure

Participants took part in the study online individually and voluntarily. The first page of the questionnaire was a cover letter in which participants gave their informed consent to proceed and switched the language between Chinese and English. Then, participants were initially presented with some general questions

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

158

concerning past consumption patterns. Afterwards, they were randomly allocated to one of the eight experimental groups. For each case, each participant was shown one of the sample artworks accompanied by relevant information,[17] this was then followed by questions regarding the perceived value of the artwork. The Likert scale consisted of 20 items ranging from 1 (*strongly agree*) to 5 (*strongly disagree*).[18] The organization of the questions was randomised to counteract possible order effects. Subsequently, literal content value (two score ratings of 0-10 and one Likert scale) and price judgement (three questions) were assessed. Socio-demographic information was collected in the final section. Lastly, a debriefing page served to disclose the purpose of the study, to clarify the experimental design, and to thank participants for their contribution. On average, filling in the survey took the participants approximately 11 minutes. The survey questionnaire was constructed and randomly distributed using Qualtrics, all statistical analyses performed using IBM SPSS Statistics 24.

Results and Discussion

Descriptive statistics for the perceived value measured through a 5-point Likert type scales (where 1 being *strongly agree*) are reported in Table 2. An overview of the results shows that the responses were skewed to the left with mean values predominantly around 2, indicating the high degree of consensus among the respondents on the value of Chinese calligraphy. A closer look at the individual dimensions of value shows that *Symbolic value* had the lowest rating (1.70), suggesting that people very much consider Chinese calligraphy a symbol of Chinese culture. In general, people perceived the artworks as beautiful (1.78), harmonious (1.84), inspiring (2.25), thought-provoking (2.17), philosophical (1.91), creative (2.10), original (1.67), fascinating (1.90), skilfully done (1.82), rhythmic (1.80). The artworks also gave them a sense of identity (1.87), made them want to talk about them with others (2.24), supplemented historical records (2.23), and reflected the individuality of the calligrapher (2.00). When it comes to *emotion value*, people clearly reported more positive feelings (joy, curiosity) than negative ones (sadness, loneliness). Additionally, large groups of respondents were found to choose a neutral stand, especially for judgements of sadness (30.8%), loneliness (27.3%), and joy (33.0%). Table 3 displays some descriptive statistics for direct measures of literal content value. Participants understood the literal content of Chinese calligraphy artworks to a certain extent (2.45), they were interested in the literal content (2.18) and found it interesting (1.93). Table 4 gives us an overview of the measures used to assess economic value. An average value of 3.18 for price estimate indicate that people suspected the artworks to be sold slightly higher than the auction house pre-sale estimate[19] (2). When the hammer

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

159

price for each artwork was revealed, the respondents generally considered the price to be somewhat reasonable (2.33).

Measurement Item									
	Total n = 451	Calligraphy 1 (basic information) n = 60	Calligraphy 1 (basic information) x transcription n = 59	Calligraphy 2 (basic information) n = 56	Calligraphy 2 (basic information) x transcription n = 58	Calligraphy 3 (basic information) n = 56	Calligraphy 3 (basic information) x transcription n = 51	Calligraphy 4 (basic information) n = 54	Calligraphy 4 (basic information) x transcription n = 57
This artwork is beautiful (pleasant aesthetically).	1.78 (0.95)	1.65 (0.82)	1.76 (0.92)	1.93 (1.04)	1.97 (1.08)	1.54 (0.74)	1.84 (1.07)	2.02 (1.07)	1.56 (0.71)
This artwork is harmonious (agreeable as a whole).	1.84 (0.92)	1.72 (0.83)	1.80 (1.03)	2.04 (0.95)	1.86 (0.93)	1.79 (0.87)	1.90 (1.04)	1.81 (0.85)	1.81 (0.88)
I feel inspired (filled with the urge to do something creative) by this work of art.	2.25 (1.02)	2.00 (0.84)	2.34 (1.04)	2.38 (1.02)	2.29 (1.03)	2.36 (1.24)	2.33 (0.91)	2.17 (1.01)	2.16 (1.03)
This artwork is thought-provoking (stimulating careful consideration).	2.17 (1.03)	1.97 (0.88)	2.20 (0.96)	2.27 (1.09)	2.03 (0.88)	2.30 (1.25)	2.25 (1.11)	2.13 (1.08)	2.23 (1.00)
I think the way it was written reflects the spirit and philosophy of China.	1.91 (0.95)	1.68 (0.83)	1.83 (0.93)	2.00 (0.89)	1.95 (0.98)	1.96 (1.10)	2.00 (0.96)	2.11 (0.98)	1.77 (0.87)
This artwork gives me a sense of identity and belonging.	1.87 (0.95)	1.70 (0.89)	1.86 (1.03)	2.05 (0.98)	1.93 (0.99)	1.82 (0.99)	1.98 (1.01)	1.89 (0.88)	1.74 (0.81)
I would like to talk about this artwork with people.	2.24 (1.10)	2.05 (1.00)	2.32 (1.07)	2.18 (1.16)	2.36 (1.09)	2.29 (1.17)	2.29 (1.12)	2.33 (1.17)	2.11 (1.03)
This calligraphy work is a supplement to the deficiency of traditional historical records.	2.23 (1.07)	1.95 (0.93)	2.25 (1.09)	2.45 (1.11)	2.45 (1.10)	2.16 (1.08)	2.49 (1.19)	2.20 (1.02)	1.95 (0.92)
This calligraphy work is a symbol that distinguishes its nation from others.	1.70 (0.92)	1.63 (0.88)	1.59 (0.93)	1.93 (0.97)	1.71 (0.99)	1.63 (0.89)	1.75 (0.91)	1.74 (0.89)	1.63 (0.88)
This artwork features a high level of creativity.	2.10 (1.00)	1.98 (0.91)	2.25 (1.11)	2.23 (0.97)	2.05 (1.10)	2.07 (1.09)	2.06 (0.93)	2.11 (0.98)	2.00 (0.87)
I would prefer this original artwork to a printed copy.	1.67 (0.95)	1.53 (0.81)	1.71 (0.97)	1.77 (1.03)	1.71 (1.06)	1.84 (1.19)	1.65 (0.91)	1.52 (0.75)	1.67 (0.85)
I can tell the personality of the calligrapher from the artwork.	2.00 (0.98)	1.88 (0.80)	2.02 (0.94)	2.27 (1.15)	2.14 (1.07)	1.88 (1.01)	2.14 (1.06)	1.76 (0.78)	1.93 (0.94)
The artist's manner of writing is fascinating.	1.90 (0.94)	1.73 (0.82)	1.95 (0.90)	2.14 (1.00)	1.86 (0.96)	1.79 (0.93)	2.02 (1.07)	1.91 (0.94)	1.84 (0.90)
This calligraphy work was done skillfully.	1.82 (0.93)	1.73 (0.90)	1.97 (0.91)	1.84 (0.95)	1.83 (0.90)	1.79 (0.95)	1.92 (1.13)	1.80 (0.94)	1.70 (0.80)
There is a special rhythm (movement) to the writing.	1.80 (0.91)	1.58 (0.83)	1.83 (0.91)	1.82 (0.94)	1.97 (0.99)	1.68 (0.86)	1.92 (1.07)	1.81 (0.93)	1.77 (0.76)
This artwork makes me feel sad.	2.89 (1.15)	2.90 (1.12)	2.86 (1.17)	2.93 (1.04)	2.90 (1.15)	3.02 (1.29)	3.02 (1.24)	2.61 (1.09)	2.89 (1.10)
This artwork makes me feel lonesome.	2.77 (1.14)	2.62 (1.24)	2.83 (1.05)	2.63 (1.14)	2.60 (1.11)	2.98 (1.15)	2.84 (1.22)	2.81 (1.17)	2.84 (1.08)
This artwork makes me feel joyous.	2.32 (1.05)	2.13 (0.93)	2.34 (1.09)	2.46 (1.04)	2.50 (1.16)	2.27 (1.12)	2.35 (0.93)	2.28 (1.09)	2.21 (1.05)
This artwork makes me curious.	2.06 (1.02)	1.87 (0.91)	2.20 (1.01)	2.18 (1.11)	2.05 (1.02)	1.93 (0.99)	2.04 (1.04)	2.17 (1.06)	2.09 (1.02)
I would consider investing a large sum of money to buy this piece of art.	3.11 (1.25)	3.07 (1.16)	3.12 (1.25)	3.38 (1.20)	3.19 (1.21)	3.05 (1.35)	3.24 (1.39)	2.94 (1.27)	2.93 (1.16)

Table 2. Descriptive Statistics for Perceived Value Measured in Scale.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

160

	M (SD)								
Item	Total	Calligraphy 1 (basic information)	Calligraphy 1 (basic information) x transcription	Calligraphy 2 (basic information)	Calligraphy 2 (basic information) x transcription	Calligraphy 3 (basic information)	Calligraphy 3 (basic information) x transcription	Calligraphy 4 (basic information)	Calligraphy 4 (basic information) x transcription
I can understand its literal content.	2.45 (1.20)	2.62 (1.30)	2.36 (1.11)	2.64 (1.05)	2.33 (1.19)	2.89 (1.41)	2.25 (1.13)	2.54 1.11)	1.98 (1.04)
The literal content is of interest to me.	2.18 (1.12)	2.32 (1.23)	2.20 (1.16)	2.32 (0.99)	1.93 (0.97)	2.38 (1.18)	2.16 (1.24)	2.19 (1.15)	1.96 (1.02)
With regards to its literal content, I think this artwork is interesting.	1.93 (0.84)	1.98 (0.98)	1.81 (0.84)	2.00 (0.79)	1.81 (0.78)	2.00 (0.85)	1.94 (0.86)	2.06 (0.81)	1.82 (0.78)

Table 3. Descriptive Statistics for Literal Content Value.[20]

	M (SD)								
Measurement	Total	Calligraphy 1 (basic information)	Calligraphy 1 (basic information) x transcription	Calligraphy 2 (basic information)	Calligraphy 2 (basic information) x transcription	Calligraphy 3 (basic information)	Calligraphy 3 (basic information) x transcription	Calligraphy 4 (basic information)	Calligraphy 4 (basic information) x transcription
Speculation about the price range auctioned at	3.18 (1.36)	3.33 (1.40)	3.19 (1.33)	3.38 (1.29)	3.53 (1.34)	3.00 (1.35)	3.16 (1.35)	2.67 (1.37)	3.14 (1.34)
opinion on the auction price	2.33 (1.06)	2.27 (1.04)	2.25 (1.03)	2.48 (1.06)	2.36 (1.06)	2.41 (1.11)	2.51 (1.14)	2.37 (1.05)	2.00 (0.95)

Table 4. Descriptive Statistics for Separate Measures on Economic Value.

Table 5 shows what factors respondents took into consideration when they evaluated the economic value of the artworks of Chinese calligraphy. What stands out from the table are the artist's name ($n = 267$, 59.2%), and artistic quality[21] ($n = 217$, 48.1%). Price estimates tend to be trusted by people ($n = 110$, 24.4%) as indicators of the artwork quality. When it comes to our main variable of interest, literal content, one third of the respondents ($n = 126$, 27.9%) considered it important—a positive sign which substantiates our hypothesis that the literal content of Chinese calligraphy may have an impact on its evaluation. Regarding the artworks' properties, 22.0% of respondents paid attention to the artwork size ($n = 99$), 39.5% to the writing style ($n = 178$), 22.2% to its material ($n = 100$), and 12.4% to its seal ($n = 56$).

Factor	N	Percent	Percent of respondents
Artist name	267	22.8%	59.2%
Artwork size	99	8.4%	22.0%
Writing style	178	15.2%	39.5%
Material	100	8.5%	22.2%
Seal	56	4.8%	12.4%
Artistic quality	217	18.5%	48.1%
Literal content	126	10.7%	27.9%
Price estimate	110	9.4%	24.4%
Other	20	1.7%	4.4%
Total	1173	100.0%	260.1%

Table 5. Important Factors Taken into Consideration.

To further examine the effect of transcription on the perceived value of Chinese calligraphy, we conducted several factorial ANOVAs. Factorial ANOVA is the most common technique associated with factorial experiments, which is a linear model aimed at determining whether there is a statistically significant difference between the means of three or more independent groups. Individual measurement items were treated as dependent variables, and transcriptions as independent variables. Scores of measurement scales were reversed beforehand for convenience of interpretation.

We started by looking at the direct effect of transcriptions on measures of literal content value. Data analyses revealed significant effects of transcriptions on all three dimensions we measured: i) the *understanding* of the literal content of Chinese calligraphy ($F(1, 443) = 15.90$, $p = 0.00$, $R^2 = 0.035$), ii) the *interest* in the literal content ($F(1, 443) = 4.98$, $p = 0.03$, $R^2 = 0.011$), and iii) the extent to which people found the literal content *interesting* ($F(1, 443) = 4.20$, $p = 0.04$, $R^2 = 0.009$). These findings show that the supply of additional information on the literal content of Chinese calligraphy artworks consistently enhances viewers' understanding of the literal content even among respondents predominantly made up of Chinese people. Transcriptions mediate the evaluation process in an aesthetic experience, where it satisfies the need for understanding, reduces the inherent ambiguity, and feeds into the cognitive mastering process in the continuous interpretation and evaluation of the artwork (Leder et al. 2004). When the transcription is provided, people's interest in the literal content increases and they also find it more interesting. This in turn indicates that the provision of transcriptions reinforces the appreciation of the value of Chinese calligraphy, which corresponds with our initial finding where the literal content is recognised as one of the most important factors to consider.

Further examination shows an interaction effect between transcriptions and different artworks for the statement of beauty judgement ("This artwork is beautiful") ($F(3, 443) = 3.31$, $p = 0.02$, $R^2 = 0.022$). This interaction effect between the presence / absence of transcriptions and different artworks indicates that the

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

162

effect of transcriptions on judgements of beauty varies between artworks. We further explored the interaction using Independent Samples *t* tests applied to each artwork separately. One artwork out of four showed a significant transcription effect: the artwork 4 was considered more beautiful once the transcription was given ($t(109) = 2.664$, $p < .01$). Moreover, two main effects of different artworks were found on *historical value* ($F(3, 443) = 3.28$, $p = 0.02$, $R^2 = 0.022$) and *revelation value* ($F(3, 443) = 2.69$, $p = 0.05$, $R^2 = 0.018$). This may suggest that some distinctions between artworks exist. Post-hoc Tukey tests revealed that artwork 4 had higher historical value and revelation value than artwork 2 at $p < .05$, while no significant differences were found between other artworks. The findings of the above suggest that the literal content of artwork 4 made people value it more than the others. Considering the literal content of this artwork, we may gather that some salient features of it, such as nostalgia and empathy,[22] might have triggered this emotional resonance. This is consistent with the findings of prior studies. For instance, Specht (2010: 202) found in his study dedicated to the influence of artists' statements on the perception of artworks that statements containing emotionally arousing elements such as "sentimental" and "nostalgic" were more appealing than others. To account for the seemingly paradoxical direction of the effect, Menninghaus et al. (2017) suggest that people take pleasure in sad art since they are able to associate the artwork with the safe space it creates around them. There may have been other features in artwork 4 that differentiate it from the others, indeed, future empirical investigation is called for to make further clarifications.

The findings above are consistent with previous research demonstrating that verbal information may influence the way individuals perceive paintings. The present study, however, goes further by showing that in addition to information such as titles, artist names and statements, transcriptions of works for which words are an integral part can also influence the way viewers appreciate them. In addition, our results partially supported the effort after meaning theory (Bartlett 1932, as cited in Cupchik 1992) of Berlyne's theory which links hedonic value to ecological variables (meaningfulness and associative value), highlighting the association between hedonic value and meaningfulness. Our findings are similar to the previous study by Russell & Milne (1997) who tested the effect of titles as information source on the meaningfulness and hedonic value of paintings, although only the meaningful effect was found.

In addition, we also find that the *economic value*[23] people attributed to the artworks differed significantly ($F(3, 443) = 19.874$, $p = 0.00$, $R^2 = 0.132$). Post-hoc Tukey tests showed that the *economic value* of the artwork 4 differed significantly from the others at $p = 0.00$, and that the *economic value* of the artworks 1 and 3 did not differ ($p < .05$). A closer look at the mean differences of the *economic value* of the four artworks reveals that the ordering of the *economic value* corresponds with

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

163

the pre-sale estimates indicated by the auction house (Artwork 4 > Artwork 1 = Artwork 3 > Artwork 2). This testifies to presence of the so-called anchoring effect where, when faced with an uncertain estimation problem, people tend to anchor their answers on the basis of the given quantity (Beggs & Graddy 2009, Graddy et al. 2022, Tversky & Kahneman 1974). People adjust their answers in a certain direction until they are no longer certain they should move further. The finding in our experiment illustrates this phenomenon by showing that our respondents by and large made their estimation of the economic value of the artworks according to the pre-sale estimates. This is no surprising since the art market is characterised by a lack of information and thereby uncertainty prevails, and that we drew our sample from the general public where not everyone has sufficient knowledge in Chinese calligraphy. In fact, the anchoring effect is so powerful that it has been suggested even professional were almost as susceptible to it as novices (Kahneman 2011), although it would be interesting to see how this anchoring effect actually differs between art buyers and non-buyers in future studies.

Conclusion

Our study set out to establish whether and how transcriptions affect the perceived value of complex artworks containing both aesthetic and textual content, with a special focus on Chinese calligraphy. To do so, we contextualised the concept of perceived value with a review of multidisciplinary literature (art history, psychology, economics, sociology, philosophy), and designed a 2*4 between-subjects factorial survey experiment. Data was collected online from 451 respondents. We find that transcriptions can influence the way a viewer assesses an artwork. More precisely, when additional literal content information is provided, the value of literal content can immediately be appreciated by the viewers. Transcriptions enhance the aesthetic appreciation of Chinese calligraphy artworks by improving viewers' understanding and interest in the literal content, with viewers finding the work's literal content more interesting when transcriptions are provided. Further mediation by this additional information in the aesthetic experiences was reflected in the differences in the perceived beauty of Chinese calligraphy artworks where we detected an interaction effect, suggesting that the effects depend on the differences in literal content as well. In addition, we also found an anchoring effect in the estimation of the economic value of the Chinese calligraphy artworks.

Recall that this study was in part motivated by the observation that, at auction sales of Chinese calligraphy artworks, transcriptions of the literal content are hardly given, even when the writings are hardly recognisable for Chinese natives. The findings of the present study further shed some light on the intentions of auction houses as to why they may have chosen not to provide literal content

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

164

information of the works. Our empirical findings show that: i) There is indeed the demand for transcription and need for understanding the literal content, even for Chinese natives; ii) The meanings of the words in Chinese calligraphy do make a difference in the aesthetic experience; iii) The experience of the beautiful does require understanding. In addition, we find that the effects of transcriptions on the perceived beauty of the artworks relies on the different literal content of the artworks, which indeed, may be seen as a complication. Another important factor to consider in the sales of Chinese calligraphy is the level of expertise of the buyers, as for these experts, supplementary information on the literal content is more than necessary. However, it could be possible that there are other factors influencing their judgement of the value of Chinese calligraphy which are different from the non-experts (e.g., Cleermans et al. 2016), which also serves as an interesting avenue for future research.

Moreover, our study has unveiled potential of the information provision on the efficiency of the art market, and further research in this direction may also lead to policy implications for Chinese calligraphy. Since the literal content information can be appreciated by a general audience, auction houses may leverage the rich literal content information and turn it into a unique selling point. Not only will auction houses benefit from a better understanding of the effects of transcriptions on the evaluation of Chinese calligraphy, but the artists themselves, art dealers, galleries, museums, and other stakeholders will as well—and this may not be limited to Chinese calligraphy itself, but also other forms of art that integrate meanings of words with visuals. Accompanying transcriptions to Chinese calligraphy artworks meets the need for a better understanding of the artwork, legitimates the meaning of the artwork, and substantiates the significance of Chinese calligraphy as ICH. Nowadays, Chinese government has growingly recognised the soft power embedded in cultural heritage as well as its potential role in national economic development. Considering the importance that certain publics attach in knowing the literal content of those important historical works of art, the Chinese government could intervene, and for instance, enact some national standards and create obligations for national auction houses to provide literal content information on Chinese calligraphy artworks, alternatively, initiate public private partnership (PPP) programmes to ensure measures are effectively taken (Klamer et al. 2013). In addition, as the Chinese art market increasingly expands overseas, giving sufficient information about the content and the deeper meanings may provide an opportunity for Chinese calligraphy to be better understood by an international audience, and turn this art into a medium for global comprehension and communication.

The present study is not exempt from limitations. Although we did observe a significant demand for transcriptions, we would argue that the difference they

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

165

make on viewers' aesthetic experiences is rather nuanced, if not limited. To account for this, we suggest that the mere provision of this kind of information may not be sufficient, and whether the information is effective also depends on whether it is useful to the viewer (Jucker et al. 2014). If the increment by the information is relatively small, as argued in Russell (2003), this effect could be easily swamped by several other influences. The use of less conservative study design, i.e., within-subjects design, is therefore tempting to capture the effects of different evaluative conditions and future studies may consider this option. In addition, one clear limitation of the present study lies in its inability to afford investigation of differences extensively across a large number of visual stimuli. This concern, however, should be tempered by the fact that this study is one of the firsts to explore the effect of transcriptions on the perceived value while taking into account both cultural and economic value of Chinese calligraphy, and that the works of Chinese calligraphy were specifically chosen to represent differences on the literal content level only, after controlling for other influencing factors such as artist name, size of the artwork and writing style. In future attempts, if we were to refine our study and use more diverse visual stimuli, a calligrapher may be instructed to create artworks as per request; but then unfortunately, the economic value for the artworks may be difficult to infer, and thus other aspects of the study should be altered as well. Furthermore, on the participant level, we acknowledge the potential bias in the purposive sampling method by focusing on art lovers. Indeed, future studies are encouraged to test the findings of the present pilot study in a more general public and push the study further on the perceived value of Chinese calligraphy, or visual-word artworks.

Future studies are also encouraged to investigate the differences in the perceived value of Chinese calligraphy for people of more diverse cultural backgrounds as culture is shown to influence aesthetic experiences (Xu & Shen 2022). It would be equally enlightening if the effects of factors on the individual level are examined, such as socio-demographic factors, motivations, and personality traits. We recognise the need to incorporate qualitative studies, such as interviews, with not only participants to gain better insight into their interpretations of the Chinese calligraphy artworks, but also the experts such as those from the auction houses, to get first-hand information about their real motivations as well as the inner workings of the market segment. Furthermore, although our study in an innovative way engaged with the challenging social construct of value and contributed to a much better understanding to Chinese calligraphy as ICH, we are aware of the need for in-depth studies on separate dimensions of value since people may have different priorities when making their own evaluations.

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Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

166

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Endnotes

1   Transcriptions are the information on the literal content of the writings in a calligraphy work.

2   Hereinafter ICH. Chinese calligraphy has been inscribed on the UNESCO Representative List of the Intangible Cultural Heritage of Humanity since 2009, which acknowledges its significance as well as universal cultural value.

3   Form generally refers to all the technical aspects including writing style, art of composition and decoration, whereas content relates to the literary content as well as the natural overflow of emotion.

4   Indeed, the same holds true for other forms of art, in particular performing arts such as dance, live music, and theatre. What distinguishes Chinese calligraphy as a unique art form from the others is that it can be seen as cultural performance which in the end also results in a physical product.

5   For a coverage of an interesting debate on the traditional and innovative Chinese calligraphy, see Iezzi (2013).

6   This is based on one of the researchers' own experiences as a Chinese calligrapher as well informal conversations with respondents who are Chinese natives. Other studies such as Zhang et al. (2012) also highlight the presence of constraints (such as the ability to understand and identify the characters of and interest in Chinese calligraphy) in Chinese calligraphic experiences and suggest the provision of information and guidance to improve the readability and accessibility of calligraphy works and thus the spread of Chinese traditional culture.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

167

7   Indeed, as pointed out by one of the reviewers, Chinese calligraphy is, in most of the cases, written in traditional characters, which no longer enjoy popular usage in Mainland China and thus may be an obstacle for some of the viewers. Although there are similarities between simplified Chinese and traditional Chinese and people in mainland China are not entirely ignorant of traditional characters, an interesting avenue for future research is to see if Chinese calligraphy is better perceived in regions such as Hong Kong where the main written language is traditional Chinese, in relation to the mainland. The artistic aspects such as the varieties in the writing styles of Chinese calligraphy explain the unreadability of Chinese calligraphy as well and can to some extent influence the aesthetic experiences of Chinese calligraphy as shown in Xu & Shen (2022).

8   The full sample of the questionnaire is available upon demand.

9   Work selection was done by the authors one of which is a calligrapher herself, and the selection procedure was carefully done by collecting sales data of the Chinese calligraphy works by Dong Qichang at a same auction house China Guardian and then selected artworks based on our criteria.

10   China Guardian is China's oldest and largest art auction house and specialized in Chinese painting and calligraphy artworks (Financial Times 2012).

11   We acknowledge the potential subjectivity in interpreting the meanings and emotions. Yet we expect the respective literal content of the selected artworks to be sufficiently different from each other to make meaningful comparisons, and we also believe that any simple regularity in judgements is itself a subject of interest and worth noting (Throsby 2001).

12   Constrained by the number of items in a survey, in this study we intentionally simplified and avoided variations in visual stimuli to allow for comparisons between artworks with different literal content. However, as pointed out by one of the reviewers, in Chinese calligraphy art theory, there are some other important aesthetic categories which influence the whole experience and future studies are recommended to take them into account to diversify the visual stimuli, including arrangement (章法), brush property (用笔), character composition (结体).

13   Further elaboration on the additional dimensions is available upon request.

14   As suggested by one of the reviewers, the definition applied in this context is not the same as the one in Throsby (2001) where the emphasis was on the extraction of meaning in artworks by the viewer. By considering various sources on symbolic value (as mentioned in Table 7), here the consideration lies in the fact that Chinese calligraphy is literally the conveyer of meaning and that we will examine the value of meaning, i.e., literal content, separately in the dimension introduced "literal content value," and thus, we adopted the definition by other sources which treat this art form as symbolic of Chinese culture.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

168

15	Admittedly, by enabling the participants to build their own estimation of the economic value of the artworks in relation to the auction house price estimates, we introduce biases into the results, however, there is little alternative (Throsby & Zednik 2014).

16	For instance, the translation of theoretical concepts of cultural value into constituent dimensions and simple statements that capture the essence of each dimension without ambiguity is not easy. Also, to reach sufficient level of accuracy for the translation from Chinese to English so that both Chinese and non-Chinese participants could understand the content was a difficult task.

17	See Appendix D for an example.

18	Using response data, we calculated the value of Cronbach's alpha for the Likert scale and proved good reliability ($\alpha = 0.934$ for the entire scale).

19	Although technically, these four artworks have different market value in that they have different price estimates from the auction house and varying auction prices, the way the survey question and options of price ranges were constructed were comparable to a large extent, where price ranges were composed based on respective price estimates and the distances between numbers were ordered but unequal, which is similar to Likert scale items, making comparisons between artworks viable. The price estimate options are constructed around the price estimates, which are placed as option No. 2, from zero to lower price estimate is option 1, then options 3 to 5 represent higher price ranges respectively. For a more detailed description of the price estimate options of each artwork, please see Table 6 in Appendix B.

20	Note that results demonstrated here had undergone steps of conversion to match with other value measured in 5-point Likert scales (where 1 being "strongly agree"), because in the original measures the first two items adopted rating scales of 0-10, while the last one involved an option "not applicable." This is because, essentially, the measurement items of literal content value were not in the same forms as the ones in previous dimensions measured in Likert scales which were done intentionally for the convenience of the respondents. For detailed conversions, please see Table 9 in Appendix E.

21	Although artistic quality is put great emphasis on, it cannot be objectively assessed. Instead, factors such as the artist's name can be used as imperfect indicators of quality (e.g., Radermecker 2019, Hoffman & Coate 2022, Angelini et al. 2022).

22	More specifically, its literal content was a poem that not only vividly depicted an impressive but desolate picture of a lonesome watchtower on the edge of the country surrounded by the great Yellow River and endless mountains, but more importantly, it pointed at the nostalgia and homesickness of the soldiers who garrisoned the frontier, showed the author's empathy for them, and alluded to his resentment towards the tyrannical ruler.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

169

23   This value was approximated using the mean value of the price range the respondents chose.

24   Income information could not be included in the analysis because of the great proportion of invalid answers resulting from the sensitivity of the subject.

25   English version displayed, the item information as indicated in square brackets varies across vignettes

26   The conversion procedures for the first two questions were roughly the same, which consisted of two steps. First, combine options of a 11-point rating scale to a 5-point Likert scale, where 0 & 1 in the original scale are merged to 1 in the new scale, 2 & 3 merged to 2, 4 & 5 to 3, 6 & 7 to 4 and 8, 9 & 10 to 5. Second, reverse the scale. This is done so as to match the direction of the order of the other Likert-scales in the questionnaire, where 1 represents "strongly agree." For the third question, Likert scale options remained the same, only the "not applicable" option due to "cannot read" was recoded to a neutral option "neither agree or disagree."

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Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

170

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Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

171

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Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

172

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Appendix A.

Demographics		Total		General information		Total	
		Frequency / N	Valid percent / %			Frequency / N	Valid percent / %
Gender	male	163	38.4	Calligraphy knowledge	a lot	60	13.3
	female	262	61.6		moderate amount	162	36.0
Age	< 18	3	0.7		a little	199	44.2
	18-24	194	43.7		nothing	29	6.4
	25-34	72	16.2	Owning calligraphy	yes	251	55.8
	35-44	115	25.9		I don't know	66	14.7
	45-54	47	10.6		no	133	29.6
	55-64	7	1.6	Art purchase	yes	189	41.9
	65-74	3	0.7		no	262	58.1
	75-84	2	0.5	Auction goer	yes	95	21.1
	85+	1	0.2		no	355	78.9
Education level	< high school	25	5.6	Chinese art market knowledge	a lot	18	4.0
	High school	106	23.9		moderate amount	134	29.7
	Bachelor's	228	51.5		a little	138	30.6
	Master's	68	15.3		nothing	161	35.7
	Doctoral	16	3.6	Art knowledge	a lot	46	10.2
Occupation	Professional	112	25.3		moderate amount	184	40.8
	White collar	67	15.1		a little	167	37.0
	Service person	16	3.6		nothing	54	12.0
	Blue collar	11	2.5	Read Chinese	yes	422	93.6
	Student	168	37.9		just a little	14	3.1
	Retired	9	2.0		no	15	3.3
	Self-employed	50	11.3				
	Unemployed	10	2.3				
Nationality	Chinese	409	94.5				
	International	24	5.5				
Country of residence	China	387	90.2				
	Other	42	9.8				
Native Chinese	yes	415	95.0				
	no	22	5.0				

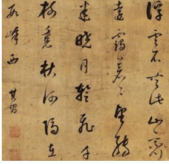Table 1. Description of the Sample.[24]

Appendix B.
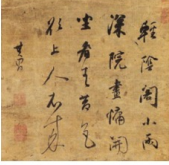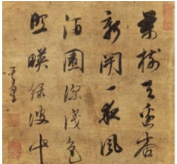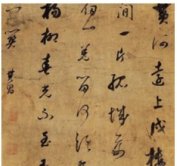
Calligraphy #	Picture	Item information	Transcription	Price estimate categories	Auction price
1		Poem in Seven-character Verse, Running Script by Dong Qichang Artist: Dong Qichang (1555 - 1636) Material: Ayamoto, mounted for framing Size: 25x26 cm (approx. 0.6 sq.ft) Seals: Dong Qichang, Taishiguan Auction: 46th China Guardian Quarterly Auctions (2016) Session: Chinese Painting and Calligraphy (II) Price estimate: RMB 5,000 - 8,000	The clouds in the sky can not be equaled with the mountain, and the mountains are more blurred in the distance.The crescent moon flies into the trees at dawn, and the Milky Way of the autumn night lies far to the west of several peaks.	0 - 5,000 (2,500) 5,000 - 8,000 (6,500) 8,000 - 15,000 (11,500) 15,000 - 25,000 (20,000) 25,000 + (30,000)	43,700
2		Poem in Five-character Verse, Running Script by Dong Qichang Artist: Dong Qichang (1555 - 1636) Material: Ayamoto, mounted for framing Size: 25x26 cm (approx. 0.6 sq.ft) Seals: Dong Qichang, Zhizhigao Rijiangguan Auction: 51th China Guardian Quarterly Auctions (2018) Session: Classical Chinese Paintings and Calligraphy (II) Price estimate: RMB 3,000 - 6,000	The drizzle had stopped and the sky was still slightly overcast. Even in the daytime, I was too lazy to open the gate. Sit down and look at the moss, which is so lovely and green that it almost stains your clothes.	0 - 3,000 (1,500) 3,000 - 6,000 (4,500) 6,000 - 10,000 (8,000) 10,000 - 15,000 (12,500) 15,000 + (20,000)	80,500
3		Poem in Five-character Verse, Running Script by Dong Qichang Artist: Dong Qichang (1555 - 1636) Material: Ayamoto, mounted for framing Size: 24x26 cm (approx. 0.6 sq.ft) Seals: Dong Qichang, Zhizhigao Rijiangguan, Xuanshangzhai Auction: 48th China Guardian Quarterly Auctions (2017) Session: Classical Chinese Painting and Calligraphy (II) Price estimate: RMB 5,000 - 8,000	In the riverside garden planted with tens of thousands of apricot trees, the overnight spring breeze drove the flowers to blossom, and the apricot flowers of different shades of color in the whole garden glittered in the ripples of the green river.	0 - 5,000 (2,500) 5,000 - 8,000 (6,500) 8,000 - 15,000 (11,500) 15,000 - 25,000 (20,000) 25,000 + (30,000)	112,700
4		Poem in Seven-character Verse, Running Script by Dong Qichang Artist: Dong Qichang (1555 - 1636) Material: Ayamoto, mounted for framing Size: 25x25 cm (approx. 0.6 sq.ft) Seals: Dong Qichang, Taishishi Auction: 47th China Guardian Quarterly Auctions (2016) Session: Classical Chinese Painting and Calligraphy Price estimate: RMB 8,000 - 15,000	The yellow sand uprises as high as a white cloud; The lonely town is lost amid the mountains proud. Why should the Mongol flute complain no willows grow? Beyond the Gate of Jade no vernal wind will blow.	0 - 8,000 (4,000) 8,000 - 15,000 (11,500) 15,000 - 25,000 (20,000) 25,000 - 40,000 (32,500) 40,000 + (50,000)	66,700

Table 6. Artworks Selected and Information.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

174

Appendix C.

Value	Dimension	Measurement item	Reference source
1. cultural value	1. aesthetic value	This artwork is beautiful (pleasant aesthetically). This artwork is harmonious (agreeable as a whole).	(Throsby 2001), (Hager et al. 2012)
	2. spiritual value	I feel inspired (filled with the urge to do something creative) by this work of art. This artwork is thought-provoking (stimulating careful consideration). I think the way it was written reflects the spirit and philosophy of China.	(Throsby 2001), (Hager et al. 2012), (Su et al. 2020), (Shi 2020)
	3. social value	This artwork gives me a sense of identity and belonging. I would like to talk about this artwork with people.	(Throsby 2001), (Klamer 2017)
	4. historical value	This calligraphy work is a supplement to the deficiency of traditional historical records.	(Throsby 2001), (Su et al. 2020)
	5. symbolic value	This calligraphy work is a symbol that distinguishes its nation from others.	(Throsby 2001), (Su et al. 2020), (Zhang et al. 2008)
	6. authenticity value	This artwork features a high level of creativity. I would prefer this original artwork to a printed copy.	(Throsby 2001), (Hager et al. 2012), (Abbing 2002)
	7. revelation value	I can tell the personality of the calligrapher from the artwork.	(Tezzi 2013)
	8. spontaneity value	The artist's manner of writing is fascinating. This calligraphy work was done skilfully. There is a special rhythm (movement) to the writing.	(Hager et al. 2012), (Gulik 1958)
	9. emotion value	This artwork makes me feel sad. This artwork makes me feel lonesome. This artwork makes me feel joyous. This artwork makes me curious.	(Hager et al. 2012), (Dubal et al. 2014)
	10. literal content value	Please rate your understanding of its literal content on a scale of 0 - 10. To what extent is the literal content of the artwork of interest to you on a scale of 0 - 10? With regards to its literal content, I think this artwork is interesting.	(Hager et al. 2012) (Shi 2020)
2. economic value	11. investment value	I would consider investing a large sum of money to buy this piece of art.	(Hager et al. 2012)
	12. price	Which of the following price (RMB) range do you think this artwork was most likely to have been auctioned at? Your decision on price was mostly based on? Multiple answers allowed. This artwork was actually auctioned at X. What do you think about the price?	(Snowball 2007)

Table 7. Measurement Items.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
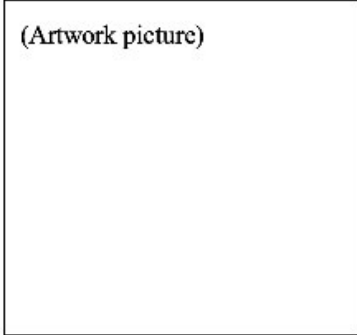Chinese Calligraphy

175

Appendix D.

(Artwork picture)

Item information
[Poem in Seven-character Verse, Running Script by Dong Qichang
Artist: Dong Qichang (1555-1636)
Material: Ayamoto, mounted for framing
Size: 25x26 cm (approx. 0.6 sq.ft)
Seals: Dong Qichang, Taishiguan
Auction: 46th China Guardian Quarterly Auctions (2016)
Session: Chinese Painting and Calligraphy (_II_)
Price estimate: RMB 5,000-8,000]

[Transcription:
The clouds in the sky cannot be equalled with the mountain, and the mountains are more blurred in the distance. The crescent moon flies into the trees at dawn, and the Milky Way of the autumn night lies far to the west of several peaks.]

Table 8. Example of Artwork Display.[25]

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

176

Appendix E.

#	Original	Rephrased
6	Please rate your understanding of its literal content on a scale of 0 - 10.	I can understand its literal content. (5-point Likert scale, 1 being "strongly agree")
7	To what extent is the literal content of the artwork of interest to you on a scale of 0 - 10?	The literal content is of interest to me. (5-point Likert scale, 1 being "strongly agree")
8	With regards to its literal content, I think this artwork is interesting. (5-point Likert scale, plus one "not applicable" option)	Kept the same, with the "not applicable" option changed to "neither agree or disagree"

Table 9. Conversions[26] of Questions Related to Literal Content.

Exploring the Role of Meaning in
the Valuation of Art: The Case of
Chinese Calligraphy

177