How the traditional Chinese concept of time and space can be applied through digital moving images

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Premise

The digital concepts of time and space can be extended by an analysis from traditional Chinese philosophy and a critical comparison of four disciplines: calligraphy, painting, sculpture and media arts.

Abstract

In this thesis, traditional Chinese thought and manner of approaching art is appropriated onto a different platform: interactive media. This transformation expands the notion of time and space and forges new interdisciplinary correlations by addressing traditional Chinese philosophy, calligraphy, painting and relief sculpture. I investigate how the Chinese philosophy of *Dao*, the manner of handling time and space in early Chinese thought and art – i.e. in traditional Chinese painting, sculpture, and the fine art of Chinese calligraphy – and the idea of the Yellow Box can together provide a novel approach to the concepts of time and space for digital art history.

The thesis thus rests on three investigative pillars: (1) the history of Chinese and – to a lesser extent – Western art; (2) the possibilities of modern digital media art; (3) analysis and application of the Chinese philosophical tradition to elucidate and develop the interface between traditional Chinese and modern digital art (see Figure 1). What emerges from – and also motivates – the investigation is an understanding that digital art can be an appropriate and effective medium for the communication and deepening of Chinese cultural awareness.

In developing this thesis I first posit that the concept of time and space has been handled in traditional Chinese scroll painting & calligraphy through applications of multiple perspectives, binary visual modes, visible and invisible space, the passing of time, and non-linear narratives. When these potentials are reproduced by media artists and animators, novel insights, experiences and knowledge about space and time are not only expanded for their audiences, but the history of time and space tends to collapse. Third, when Chinese philosophy is applied to the digital arts, novel forms of interaction like the addition of 'delay' can affect the viewer's sense of time through 'non-linear sequences', an aspect that can deepen an audience's level of participation. Finally, digital 'animation potentials' can shift the viewer's understanding of movement over time by creating an overlapping of space through "real-time" interactions.

Through my seminal interviews with curators in China, Hong Kong and Taiwan, about the concept of the Yellow Box, it became apparent that they have not really encompassed or appreciated either new media art practices or the interactive relationships of these platforms with their audiences. This thesis therefore sets out to further analyse the subjects of time and space within my own media-art production process (custom software and hardware). It is hoped that other researchers and artists may benefit from my own attempts to illustrate Chinese art theories and to document and reflect upon different ways of perceiving the position and role of the audience, and that they may thus gain a unique insight into the incorporation of Chinese philosophy into media art practice.

Dao Gives Birth to One (2009-2012)

Figure 1: Title: Dao Gives Birth to One (version III); Video format: Digital; Full HD 1080 x 1920; Exhibition format: (6-12 monitors / projection version); Length: 20 mines looping; Sound: Stereo x 12 channels; Venue: the Hong Kong Museum of Art; Hong Kong, 2010.

My digital media artwork serries *Dao Gives Birth to One* (2009-2012) will serve here as a case study and practical experimentation project furthering the analysis of how the traditional Chinese concepts of *time* and *space* can be applied through digital moving images in a long scroll format (see Figure 1). In this work I attempted to demonstrate that (1) The concept of *Dao*, (2) the function of the scroll as a form, and (3) the four-dimensional construction of Chinese characters can create temporal and spatial experiences similar to those found in traditional Chinese painting and calligraphy. I am interested in integrating these traditional concepts via digital media technology so as to transform the role of the viewer away from the concept of the 'Yellow Box' into an interactive video installation platform.

The concept of *Dao*

My artwork aims to visualize the *cycle* of vigour and vitality [1] of *Dao* in the universe with the assistance of digital media technology – a topic that has not been broached before in relation to the concept of the 'Yellow Box' and digital media.

In addressing this issue I first explored the concepts of *sheng* (生 'gives birth') and *yi* (一 'one') as used in Chapter 42 of *Dao De Jing* and the question how they could be visualized through digital media technology. With reference to the research materials, translations made by different scholars generally reflect their different linguistic perspectives. Thus there are actually different interpretations of *sheng* (生 'gives birth'), including 'to create', 'to give birth'[2], and 'to generate'[3]. In fact, the concept of *sheng* tends to be even more abstract,

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[1] *Dao* is regarded as the 'primordial natural force' in nature and it contains unlimited 'potentiality' (潛藏力) and power of creation. But there will be an end, inasmuch as life is growing. However, 'the end' suggests the advent of another new life (Chen 2007, p.63).

[2] "The *Dao* (道) gives birth to One. One gives birth to Two. Two gives birth to Three. Three gives birth to all things. All things have their backs to the female and stand facing the male. When male and female combine, all things achieve harmony" (Mitchell, 1988, p. 48).

[3] "The Dao generated One; One generated Two; Two generated Three; Three generated the ten thousand things. The ten thousand things, carrying yin and embracing yang, used the empty vapour to achieve harmony" (Huang 2003, p.76). Huang's version is based on the Silk Texts A and B unearthed from the Han tombs near Changsha, Hunan Province in China in 1973.

spiritual and philosophical than any available translations. This led me to question how *sheng* could be reinterpreted and extended through visual representation in this digital era. To answer this question, I referred back to *Dao De Jing* and the ancient Chinese dictionary *Shuowen Jiezi*. According to *Dao De Jing*, *yi* (一 'one') reflects a philosophy of how the universe was created, namely through *yi* (一 'one') and *Dao*. Secondly, the most interesting issue that drew my attention was the Chinese character 一 . This is placed as the first word in the first chapter of *Shuowen Jiezi*, which states that the 一 originally created heaven and earth and then generated the whole universe [4]. *yi* (一 'one') thus represents the 'unity' of the universe. And this unity, according to *Dao De Jing*, generates ten thousand things which form their tracks in the universe. Everything (ten thousand things) grows in the beginning and will disappear in the end. This approach has not yet been considered as a visual representation platform using digital media.

The concept of long scroll

I aimed to apply 12 story lines into 12 screens as a storyboarding sequence in order to enact the process in which 'one' could be created / generated into 'ten thousands things' through interaction with human beings as expressed in the texts of Chapter 42 of *Dao De Jing* quoted above. In this endeavour, I first created 12 white digital screens and then inserted my custom-made 'Flying Animated Chinese Character' (FACC), composed from my animated brush strokes. The basic narrative sequence is as follows: The scene in 'screen 1' represents the beginning of the universe. I animated the three-dimensional 'one' as a 'FACC' flying alone in the universe (white virtual space) after serving as a function to divide the universe into heaven and earth (see Figure 2).

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[4] The ancient Chinese dictionary *Shuowen Jiezi* *'Explaining Simple* and *Analysing Compound Characters'*, defines 'one' thus: "Unity (一): It is, that starts the Great Begin of the Way is based upon Unity. It divides Heaven and Earth and forms the ten thousand creations" [sic] (*Shuowen Jiezi* 2008).
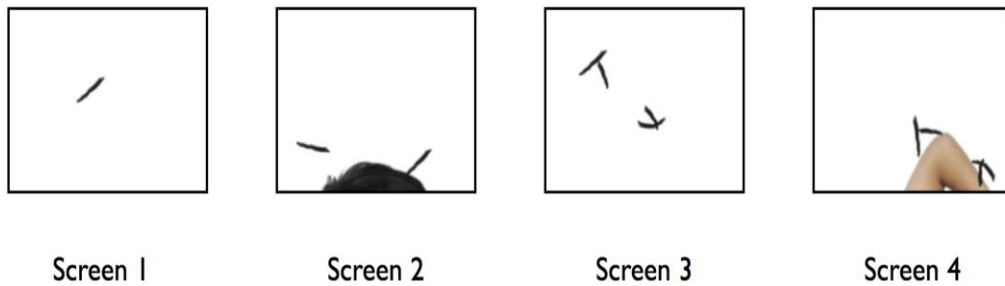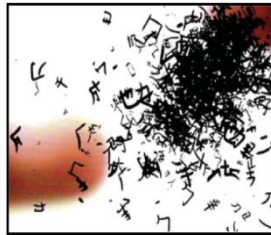
Figure 2. The first three scenes from screen 1 – 4 which indicate how the concept of 'one' is generated to 'two' and 'four' through its interaction with the human. Screen scenario of *Dao Gives Birth to One (version II)*; Hong Kong, 2009 (visualization by the author).

How, then, was 'two' (二, *er*) created ? The answer is that once human beings appeared in this universe, the form of the characters ('form imitation' [象形, *xiang xing*]) was expanded and created through their interaction. Thus 'screen 2' shows how, whenever any part of a human being (such as limb, nose, head) interacts with the 'FACC' 一 (*yi*, 'one'), this 一 will generate another and become 二, because (Chinese) linguistic characters are meaningless without human involvement [5]. Furthermore, in 'screen 3' and later screens, numerous 'FACC' are generated in such a way that they become brush stocks. Once these animated and flying brush stocks come across each other, they may associate certain combination of Chinese characters, word phases such as 'king' (王, *wang*), 'new' (新, *xin*) and 'big' (大, *da*), etc. In the last scene – 'screen 12', thousands of animated Chinese brush strokes and Chinese characters are flying in this universe, which is used to simulate the concept of 'a thousand things in the universe' (see Figure 3). Even though there are a large number of 'flying animated Chinese characters' in the last screen, they move on their own track with a certain system, which simulates our human activities in the chaos of the universe. The last few seconds of 'screen 12' (the last scene of this long scroll) is about everything returning to white (void) again with only one Chinese brush stock left, which implies the system of our human life cycle in this universe.

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[5] According to *Shuowen Jiezi*, one of the processes of creating Chinese characters can rest on the features of our bodies or on perceptions of objects from afar (see Chapter 1.1.4).

Screen 10   Screen 11   Screen 12

Figure 3. The last three scenes from screen 10 – 12 which indicate how the concept of 'a thousand things in the universe' suggested by *Dao* is transformed through digital visual representation. Screen scenario of *Dao Gives Birth to One (version II);* Hong Kong, 2009 (visualization by the author).

Furthermore, in *Dao Gives Birth to One* I attempted to transform the 2D plane surface to a 4D virtual space by reinterpreting the concept of *void* through digital technology, transforming the concept of empty space into a concept of virtual space. Traditionally, the white colour in the pictorial space of Chinese rice paper has been regarded as a *void* [6] — an empty space rather than a colour. Although paper is physically a two-dimensional plane, it is regarded as an infinite space with endless time. When these Chinese characters fly about in that virtual space, one almost has the impression of real beings racing back and forth in the universe. This virtual experience has a 4D sense to it.

I also sought to open a new approach for video and interactive art. As mentioned in Chapter 2 ('Yellow Box' theory meets digital technology), I questioned whether a long scroll format video installation could suggest a new direction for digital art in relation to the 'Yellow Box' concept. The result might help solve the problem raised by Professor Boris Groys, who has observed that viewers find it hard to appreciate video work in the exhibition space. In Groys' view

> *The images go on moving – but the audience also continues to move. One*
> *does not remain sitting or st*and*ing for any length of time in an exhibition*

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[6] The concept of *void* in traditional rice paper suggests not only a sense of endless time, but a sense of infinite space as well.

space; rather one retraces one's steps through the space again and *again, remains st*and*ing in front of a picture for while, moves closer or away from it, looks at it from different perspectives,* and *so on. (Groys 2008, p. 87)*

Groys further argues that the viewer's movement in such an exhibition space cannot be arbitrarily stopped because it is constitutive of the way perception functions within the art system: "An attempt to force a visitor to watch all of the videos or films in the context of a larger exhibition from beginning to end would be doomed to failure from the start – the duration of the average exhibition visit is simply not long enough" (Groys 2008, pp. 87-88). He sees this not as a problem of the length of the video, but of the expectations of the audience: the expectations of the visitor in relation to a video in the exhibition space are totally different from those relevant to the cinema/movie theatre. The visitor to a video installation basically no longer knows what to do. Should he stop and watch the images moving before his eyes as in a movie theatre, or, as in a museum, continue on in the confidence that over time, the moving images will not change as much as seems likely? (Groys 2008, p. 88). We (as artist and viewer) face both problems. In order to solve them in an innovative manner I first created and combined 12 digital video screens together to create a long scroll format. Each video screen displays different kinds of interactive and animated Chinese characters. The detailed method of the video installation is as follows:

I first invited different people to come to my studio to interact with my flying Chinese characters in front of my artwork. In the studio I could shift my focus to different parts of their bodies for the shooting. I then edited all the footage into different lengths and set all of these into the 12 videos as a long scroll screening format, creating 12 video screens with 12 different lengths of running time. Each screen shows how flying Chinese characters interact with humans. The first video lasts 3 minutes; the second lasts 8 minutes; the eighth lasts 21 minutes; and the last video lasts 5 minutes. Because the loop length of each video is different (see Figure 175), various narrative combinations are automatically created. Viewers need not worry about the time restriction of the video work, or which part of the videos they have missed, because the video loops run in overlapping phases anyway. In other words, people can come and go freely (see Figure 176). They are encouraged to perceive this long scroll video installation from different perspectives, viewing the screens one by one closely or from

a long distance; the most important point is that every one has his/her own time to observe and take in the video narration. The free and relaxed atmosphere encourages viewers to enter into the spirit of this video work and merge their minds in the exhibition space as a whole.

Figure 4: (Details) 12 videos screen with 12 different running times. Screen scenario of *Dao Gives Birth to One (version III);* Hong Kong, 2010 (visualization by the author).

Figure 5. Visitors sit freely at the exhibition space of *Dao Gives Birth to One (version III);* Venue: the Hong Kong Museum of Art; Hong Kong, 2010.

Chinese-character writing as a 3D and 4D experience

Time in character-writing

The *'Dao'* project used digital technology to simulate the reality of Chinese calligraphic characters in terms of *time* and *space.* The first step sought to give viewers a temporal experience by having them visualize the entire process of creating these animated characters as a flying sequence. Traditionally, calligraphy has been a completed work of art that gives

the viewer neither a physical nor a temporal experience. In general, therefore, viewers who face a work of calligraphy should try to imagine the process underlying the creation of the characters: for example the characteristics of the first brush stroke, the sequence of brush strokes, and the flow of movement connecting one character to another; this will enhance their appreciation of the work. However, my new approach for the digital era was to invite viewers to 'witness' and 'experience' the whole process of character writing through digital animation sequences.

To better understand this process, let's take a simplified Chinese character, 'horse' (马, *ma*), as an example. I not only animated the motion of the form of 马, but also visualized the character's underlying process of writing through sequenced images (see Figure 177). In other words, the viewer can see how this character was created from the first brush stroke to the final stroke in real time. At this point, the appreciation of Chinese calligraphy is no longer centred on a completed work of art; instead, comprehensive appreciation includes the concept of time, creating a sense of growth and duration, a temporal experience.
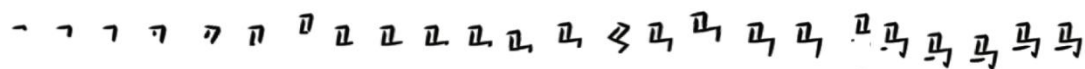

Figure 6. Animation sequence of the writing process from one brush stroke to the final Chinese character 马 (visualization by the author).

Space in character-writing

The second method that I used to engender a 4D experience of my artwork in viewers involved creating Chinese brush strokes (and characters) through digital technology. In this endeavour I revisualized the characters' three-dimensional forms by using such digital technologies as 3D modelling, interactive programming and video making. I contend that Chinese-character writing contains the seeds of 3D and 4D experience, which become manifest only when a traditional calligrapher controls the volume of ink and the pressure of

brushes on a 2-dimensional writing platform [7]. Here, I took the Chinese character for 'mouth' (口, *kou*) as an example of how a flying Chinese character could be visualized through a 360° view (see Figure 178). I designed the flying sequence of this character as a shape that, while in motion, flips from left to right. When the viewer watches this character zooming around in virtual space (void), the character's motion suggests a three-dimensional form, rather than a flattened, 2-dimensional image. When the characters 'mouth' (口, *kou*) and 'horse' (马, *ma*) are flying together, a distinct sense of spatiotemporal experience is engendered.

Figure 7. Animation sequence of a Chinese character 口 as visualized through a 360° view (visualization by the author).

Critique and comparison

Apart from my own 'animated flying Chinese characters', a number of different styles of digital text artwork have surfaced around the world in the last two decades. Several contemporary artists, such as Camille Utterback (1970-), Romy Achituv (1958-) and Lee Lee Nam (1969-) have applied motion to a text; but this—as opposed to creating a 3D temporal aspect—does not typically evoke a spatiotemporal experience. I saw *Text Rain* (1999) at Utterback's studio in San Francisco in 2006 and Lee's *Korean 8-fold Screen* (2007) at HKART Fair10, Hong Kong, in 2010.

Text Rain is an interactive installation with falling English letters forming lines of a poem about bodies and language (see figure 179). Participants and viewers can play with those

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[7] According to a visual analysis by the Koiso Design Institute, Nippon Design Center, standard script in the early Tang Dynasty was characterized by the Wan Xizhi movement's emphasis on vertical lift, which was regarded as the most significant aesthetic model in history (*Hidden Principles of East Asian Character Universe* 2006). For example, the character s*hu* (書, 'brush writing') shows how the shape of Chinese characters has evolved since the Tang Dynasty from a dynamic flow to a subtle and balanced visual presentation (ibid.). These analyses show that in the early Tang Dynasty some Chinese characters were originally treated as three-dimensional rather than flattened forms. I argue that such three-dimensional forms can be revisualized through digital technology.

falling letters by gesturing with their bodies. *Korean 8-fold Screen* is a digital video installation with 8 different LCD displays arranged vertically to simulate the appearance of traditional Asian folding screens (see Figure 180). These 8 videos show Korean and Chinese textual elements flying from left to right on the screen. However, although the textual elements (whether English, Chinese, or Korean) in these two works of art are animated, they lack literal depth; in other words, the animated textual elements are in motion but their shapes remain flat, on a 2D plane. This indicates that the artists did not consider connecting the textual elements to viewers' spatiotemporal experience.
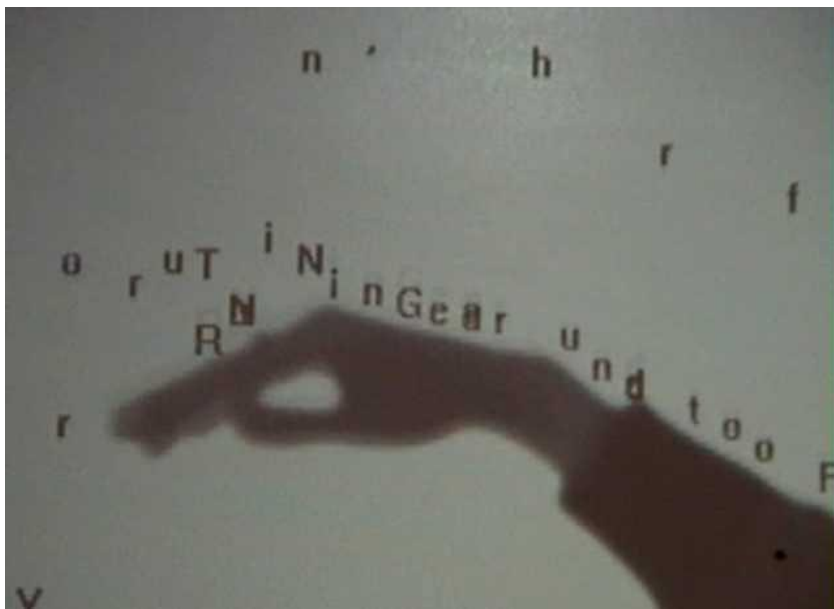

Figure 8. (Video clip) *Text Rain* (1999) by Camille Utterback & Romy Achituv (United States) (see video: http://camilleutterback.com/projects/text-rain/).

Figure 9. (Video clip) *Korean 8-fold Screen* (2007) by Lee Lee Nam (Karea)
(see video: http://thecreatorsproject.com/blog/tradition-and-technology-the-korean-folding-screen-
goes-high-tech).

In contrast, Chinese characters always have a dimension of *time* and *space* (for details, see
Chapter1.4. The perspective of *zi* (字, Chinese characters'), but this seems to be missing from
the work of such contemporary artists. In this sense, my 'animated flying Chinese characters'
in the '*BCSL*' and '*Dao*' projects show a new approach to viewing *time* and *space* in
character writing, with 3D Chinese characters that enable viewers to have an interactive
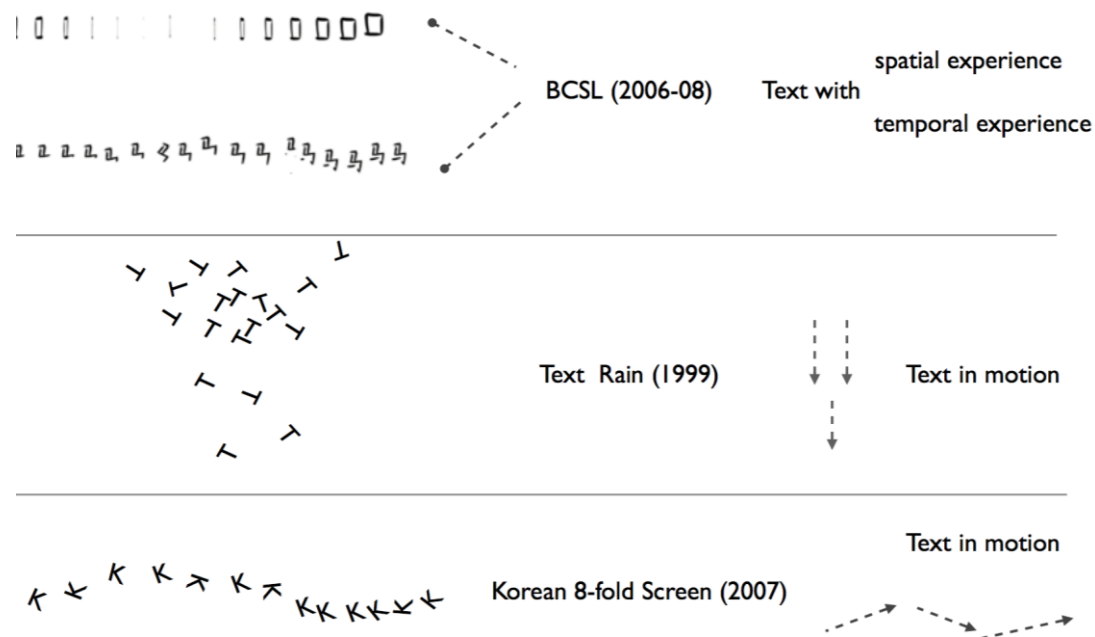spatiotemporal experience as well (see Figure 10).

Figure 10. Comparison of '*BCSL*' (2006-2008) / '*Dao*' project (2009-2012), *Text Rain* (1999), and
Korean 8-fold Screen (2007) (visualization by the author).

Exploring the concept of 'play-appreciation'

A further project step was to demonstrate that apart from my animated Chinese characters, traditional Chinese chairs, both as visual form and practical function, could also help to suggest a sense of 4D experience to the viewers.

Figure 11. Installation setting: *Dao Gives Birth to One (version III)* at Taipei Museum of Art, Taiwan, 2010-11.

Dao Gives Birth to One invites visitors to merge into the exhibition space through forty different styles of traditional Chinese chairs, which are placed right in front of the long scroll video screen. I take the shows in the Hong Kong Museum of Art (2010) and the Taipei Fine Art Museum, Taiwan (2010-11) [8] as exemplifying how the form of these chairs plays a significant role in my video installation in relation to viewers' temporal and spatial experience. The form of the chairs serves three functions: (1) to connect the virtual space (on the screen) to physical space (in the exhibition venue); (2) to build up a close and comfortable relation between viewers, artist and artwork in relation to the concept of 'play-appreciation'; (3) to merge viewers into the exhibition space (see Figure 12-14).

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[8] Dao Gives Birth to One (version III) was also invited to be shown for another exhibition Time Unfrozen (A white steed flitting past a crack): From Lau Kuo-Sung to New Media Art (白駒過隙·山動水行—從劉國松到新媒體藝) (2010) in the Taipei Fine Art Museum, Taiwan, from November 2010 to Jan 2011.

Figure 12. *Dao Give Birth to One (version III)* at the Hong Kong Museum of Art, Hong Kong, 2010.

Figure 13. *Dao Give Birth to One (version II)* at Jockey Club Creative Arts Centre, Hong Kong, 2009 (visualization by the author).
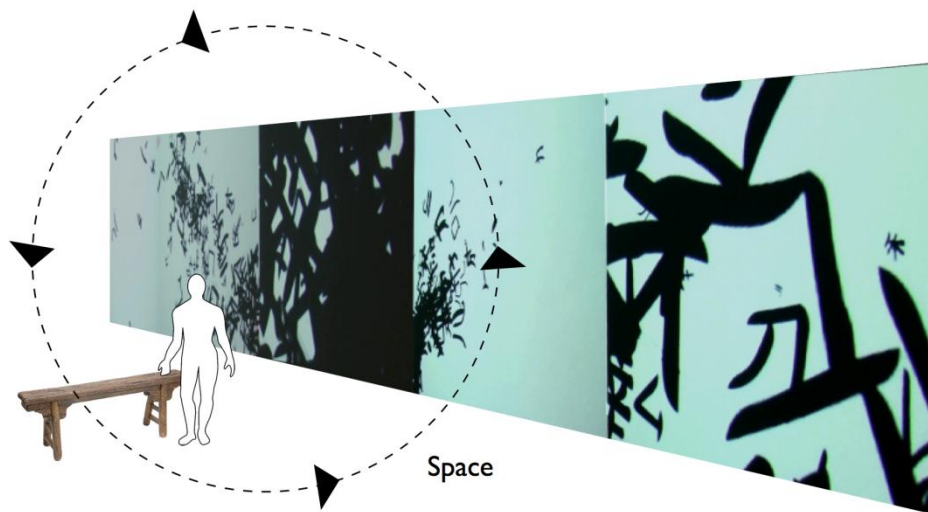
Figure 14. Merging viewers into the exhibition space (visualization by the author).

Inviting audience participation

In this sense my latest interactive version of *Dao Gives Birth to One (version IV)* (2012) may

be taken as an example of extending the concept of 'play-appreciation' through the role of the

audience. First of all, I created a tunnel with openings in two directions (one on the right, and

the other on the left) which served both as entrance and exit, with dim lighting, in order to

correlate the concept of the *cycle* from the installation—which is that there is no end or

beginning of the audience's visual journey. So they could choose to navigate the artwork

either from the left or right hand side. Secondly, I put the 12 monitors on the floor of the

exhibition venue rather than hanging on the wall. At the same time, I designed and custom-

made six sets of rectangular shaped cushions—soft seats, with sackcloth (hessian) material in

order to provide a comfortable and cosy feeling to the audience, allowing them to sit or lie

down in front of the artwork (see Figure 15), in order to create a sense of proximity and

three-way intimacy: (1) with the artwork, (2) with each other as audience viewing the artwork

and interactive screens, (3) in the activity of playing the interactive 'FACC' on the screens. Thirdly, I allocated four screens (out of the 12) to real-time interaction with the audiences in this cosy environment. Thus, on the one hand the audience could simply enjoy the spiritual atmosphere created by the video installation through viewing the movement of the flying characters. On the other hand, they could also act as participants, merging into the virtual space and interacting with the flying Chinese characters.

Figure 15. Members of the audience sitting on the cushions – soft seats in the exhibition venue; Venue: Chinese Arts Centre, Manchester, UK, 2012.

Lecture, workshop & exhibition

Furthermore, I organized a public lecture and workshop for the audience a week after the opening of my solo show '*Hung Keung: Dao Gives Birth to One*'[9] in the Chinese Art Centre, Manchester, UK (2012). First of all, in the lecture session (see Figure 16-19), I introduced

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[9] Title: *HUNG Keung: Dao Gives Birth to One*; Venue: Chinese Arts Centre, Manchester, UK; Date: 5 July 2012 – 1 Sept 2012.

and demonstrated how the concept of multiple viewpoints is applied in Chinese characters, and how Chinese characters are closely related to the human body and to objects that are themselves related to the human body. Then in the workshop session, I invited the audience to create their own text base of the philosophy of *time* and *space* in relation to Chinese characters. Afterwards, I took another two weeks to digitalize all their drawings into animated texts, and then programmed and integrated those new texts into my interactive artwork (see Figure 20). Then all the audiences were invited to come back to the exhibition venue to play with their 'artwork'. The response of the audience and the public was very positive.

Figure 16. The scene of 'Flip and Fly' - digital animation workshop of Chinese writing.
Venue: Chinese Arts Centre, Manchester, UK; Date: 05 July 2012.

Figure 17. Audience members practising the production of animated text sequences in the workshop. Venue: Chinese Arts Centre, Manchester, UK; Date: 05 July 2012.

Figure18. Audience members practising the production of animated text sequences in the workshop. Venue: Chinese Arts Centre, Manchester, UK; Date: 05 July 2012.

Figure19. (Video clip in sequences) Audiences are playing with their 'animated & interactive characters' at the exhibition space. Venue: Chinese Arts Centre, Manchester, UK; Date: 28 July 2012.

In this new direction, I attempted to extend the meaning of 'participant' from someone who plays an artwork through interaction to someone who creates their own artwork with the artist. Thus the audience was no longer passive as an audience but also actively engaged in creating and then playing with their own and the artist's artwork. Most importantly, audiences went through various steps: visiting the exhibition, attending the lecture, participating in the workshop, revisiting the exhibition, which together constituted a new and innovative platform of 'play-appreciation' connecting old and new experience with respect to the traditional concept of Chinese art and modern digital practice.
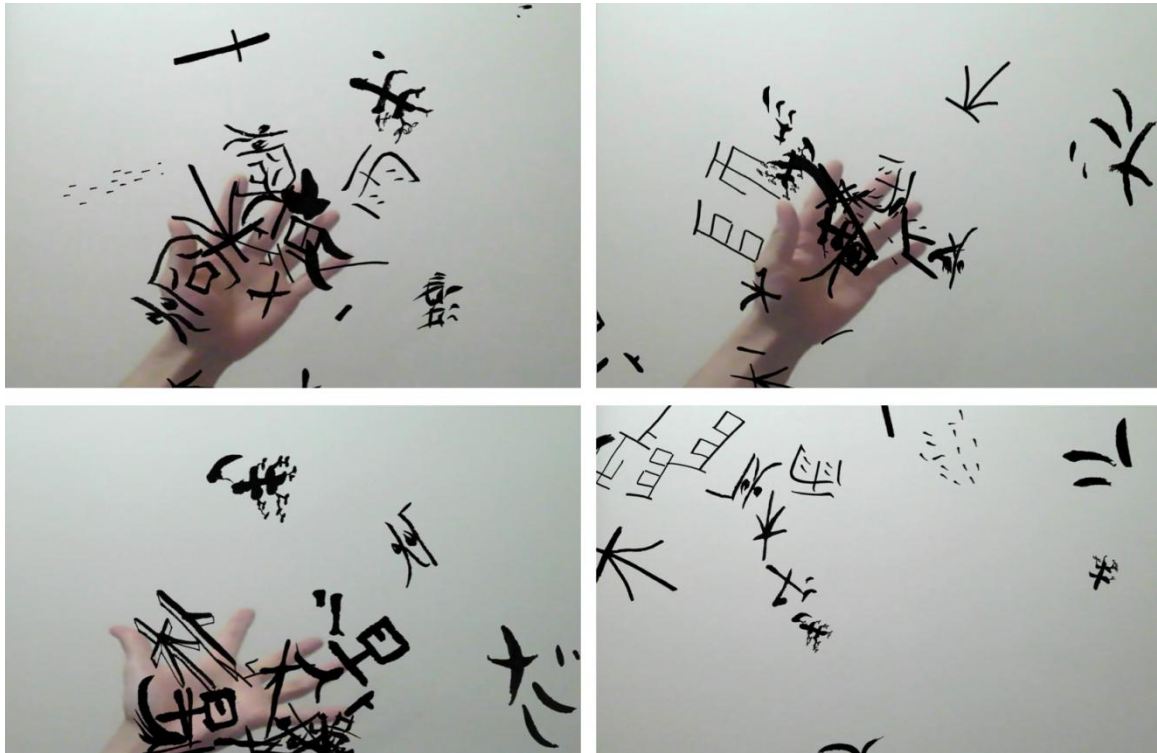
Figure 20. The audiences were invited to come back to the exhibition venue to play with their 'artwork'. Venue: Chinese Arts Centre, Manchester, UK, 2012 (visualization by the author).

Conclusion

The analysis undertaken in this chapter reflects the limitations of using and exploring *Shu hau* in both 2D and 4D practice today. The practice centres on the format of the scroll as commonly applied in both Chinese *shu* 'brush writing' (calligraphy) and *hua* 'painting'. 'Landscape-characters' suggested a new approach to combining *Shu hau* in a long scroll format as a visual representation platform. The 'Opening show of the Beijing Olympics' demonstrated how digital technology could implement the concept of long scroll format. However, the notion of 'play-appreciation' and a sense of intimacy through viewers' bodily engagement have not been considered deeply or realized to any significant extent in these works. So I embarked on the project *Dao Gives Birth to One* in order to demonstrate how the traditional concept of handling *time* and *space* could be represented through an interactive video sequence in a long scroll format. Further, through extending the function and the materiality of those old Chinese chairs to the exhibition space, the *Dao* project suggested a sense of intimacy between human beings, Chinese characters and the universe. Most

importantly, in comparison to 'landscape-characters' and the 'Opening show of the Beijing Olympics', *Dao Gives Birth to One* suggests a new visual representation platform for digital media art through applying the concept of the 'Yellow Box'. The role of the viewer has been shifted from observation (passive role) to participation (active role) or has even assumed part of the artist's role, from where it has become truly interactive. My research has, therefore, demonstrated how the traditional concept of *time* and *space* was applied, and shown a broad spectrum of connections between Chinese art and digital media. My own digital artwork suggests an alternative way of integrating the concept of the 'Yellow Box' with digital technology. The result may open a new way of perceiving concepts of *time* and *space* through shifting the role of the viewer from passivity to activity, and from there to interactivity.

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