VISUAL IMAGE ANALYSIS IN FORM OF CHINESE MING DYNASTY ARMCHAIR

TienLi Chen[a], WeiTing Liao[b] and PeiFen Hong[c]

[a] *Assistant Professor of Department of Industrial Design & Graduate Institute of Innovation and Design, National Taipei University of Technology, Taiwan, chentl@ntut.edu.tw.*

[b] *G*raduate student of *Graduate* Institute of *Innovation and Design, National Taipei University of Technology, Taiwan, pink_cynthia@msn.com*

[c] *Graduate Institute* of *Design Ph.D, National Taipei University of Technology, Taiwan, michelle.pei.fen@gmail.com*

ABSTRACT

The study is aimed at exploring the psychological experiences of different five represented armchairs. The research methodology is mainly in literature analysis and questionnaire survey. The research process first, by analyzing the literature to construct the characteristics of armchair. Then, using the SD questionnaire to survey the experiences of armchair shaped. Finally, measuring the experiences level by SPSS. The result shows that, Rose Chair and Shichutou Official's Hat Armchair is related to unsophisticated. Southern Official's Hat Armchair is related to stable. Round Chair is related to coordinated. Horseshoe Folding Chair is related to soft.

Keywords: Ming-style furniture, armchair, visual image

1.INTRODUCTION

The furniture is an indispensable article for human daily life, which can reflect the people's living environment, social background, economic conditions as well as local custom and practices. In China, since ancient times, each dynasty had its own distinctive form and style among various dynasties, due to different historical background, social environment, economic situation etc. During the period of Tang Dynasty, Chinese people had changed the habit of sitting on the floor gradually towards sitting on chairs, and the furniture form reached the peak during the period of Ming and Qing Dynasties, in which, the Ming-style furniture was one of representatives of classical Chinese furniture, for example: Rose Chair, Official Hat Armchair, Round Chair and Horseshoe Folding Chair etc., and each classical chair's external form and internal meaning was even more full of the richness of Chinese culture and philosophical implications. In 1932, a Denmark designer - Hans J. Wegner was inspired by the Chinese traditional Ming-style chairs, and utilized the harmonizing armrest form to create the Chinese Chair in 1943, and moreover, in 1950, he also introduced a classic of Y-chair, threat, its overall design not only preserved the prototype of traditional Chinese round arm, but also skillfully maximized the beauty of curved form by blending it into the Nordic's organic curves. In this design, the Y-formed back splat of the chair was used to replace the heavy traditional Chinese-style chair back, which was cleverly integrated into an

organic structure and hence successfully combining the abstract image of beauty with the ergonomic function, transforming the heavy Chinese chair into a more agile, alive, vogue and meaningful chair.

Up to now, there are many designers preferably applying the form elements in the external form of classical chairs to conduct their design developments, only that most of designers merely focus on the innovation of physical appearance or materials, and ignore the meaning of form of the chair itself as well as the connection with the time background when they engaged in designing. If designers are able to possess the characteristics and significance of overall form of each classical chair prior to the design development, then its future innovative design will get closer to the users' psychological feelings, meanwhile be able to possess the design focus of the classical chair. As stated above, this study aims at the external forms of the Ming-style armchairs to explore the form characteristics of Chinese Ming-style armchairs as well as the image feelings of its form characteristics.

2.LITERATURE REVIEW

2.1.Literature related to the image

Nowadays, the literatures related to the furniture can be partitioned into the several issues, such as form image, product image, visual image, establishing the tools of image evaluating etc., and in a term of form image, wherein, T.L Chen, P.F Hong (2009) utilized a questionnaire survey to study the style hobby and image of the industrial craft furniture visitors, finally understood the feelings of the industrial art furniture style image to another different ethnicity hobby. With regard to establish the tool of estimating the image, C.J Barnes, S.P Lillford(2007) established a "toolkit" by the product experience of consumers, to be the design references of design working in the future. As the issue of product image, M.J Chuang, Y.C Ma(2001) discussing the experience of electronic product between consumers and designers whether identical or not. Then, to summarize the element of five image experiences as well as the design principles; H.Y Chen, Y.M Chang(2008) utilized the value definition as basic approach(NDSA). To improve the he directly value was produced to defined the form of product; J Su, F Li(2007) applied the frame and Kansei Engineering Theory to establish the neural network. It creates the principles to estimate the product image which succeeds the procedure of product design. As for the visual image, J.F Petiot, B.Y(2004) provide a set of tool to comprehend the meaning of products, and set up the ideal prototype as well to the designers. Quantified and estimated the hard-expressing product meaning. Y.W Chen, S. Sobue, X. Huang(2008)utilized the SD questionnaire to discuss the relationships between color and human perception. In view of above results, it could be found that there is a lack of researches focusing on the analysis of image feelings of Ming-style armchairs up to now. At this point, this study, thus, aims at the analyses of the form characteristics of appearance of the Ming-style armchairs, and in addition, explores the psychological feelings after viewing.

2.2.Expolring of Ming-style chair

Following with the economic prosperity, the promotion of scientific and technological books, the fruitful overseas trades, the new constructions of residential and landscape architectures, the literati's aesthetic tastes, so that the development of Chinese furniture was tending to peak during the Ming and Qing dynasties (Jing-Feng Liu, 2005), and the development of Chinese furniture till the period of Ming and Qing dynasties, its patterns, forms were almost complete, except its functionality would meet the needs of daily living, both the furniture structure and framework design generally tended to fine and thorough, and the furniture form had been constructed towards the fresh and elegant, bright and simple style, which had also enriched the artistic quality of furniture, and hence forming the unique characteristics of Chinese furniture (Zong-Shan Li, 2001; Yao Yang, 1986). And Shixiang Wang (1989),

in one of his publications, i.e. "A Study of Ming Furniture", attempted the narrow and broad definition of the Ming-style furniture. In terms of the broad definition, the furniture made in the Ming Dynasty, no matter what kind of wood, might be known; while the narrow definition was deemed to the furniture with fine forms which were made during the period from the Ming Dynasty to the early Qing Dynasty.

However, this study will only focus on the Ming-style furniture in line with the narrowed meaning. Furthermore, it can be found according to related literatures of the Ming-style furniture, it can be classified according to its main function, which comprised the five principal classifications of stool, console table, bed, cabinet, and others etc. And the stool classification includes six categories including: foot-stool, barrel stool, folding stool, long stool, chair and throne etc.; among them, the "Chair" can be further partitioned into four categories comprising: side chair, armchair, round chair and horseshoe folding chair. As stated above, the said chairs can also be summarized in accordance with their external forms, where the largest difference between above four chairs, i.e. side chair, armchair, round chair and horseshoe folding chair, simply lies in the inclusion of armrest or not, and instead it can generally be divided into two primary categories, such as the side chair (without armrest) and armchair (with armrest), here, after the process of sample collection, classification and statistics, this study has removed the side chair (without armrest) that has a small number of samples, and hence, only analyzes the form characteristics of armchairs particularly.

2.2.1. The form characteristics of Ming armchair

According to the book written by Shixiang Wang (1989), the most popular Ming-style armchairs comprised the Rose Chair, Shichutou Official's Hat Armchair, Southern Official's Hat Armchair, Round Chair and Horseshoe Folding Chair etc., which had been largely spread all over the country at that time. The detailed description of the form characteristics of each chair will be revealed as follows (Table 1):
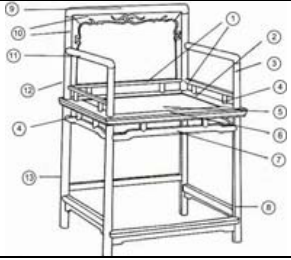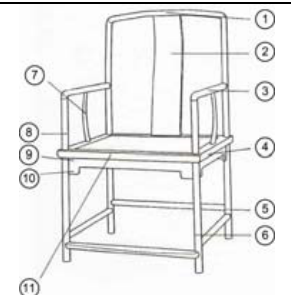
The "Rose Chair" was also known as the literati chair due to the literati's fondness for this chair. Because the seat board, armrest and back splat of this chair were low and straightened, which would make people feel uncomfortable while relying on it, so it was suitable for writing only? Having a smaller form with sparse, slender, timber, its overall form looked more compact and beautiful. The "Official's Hat Armchair" acquired its fame because of its form similar to the government official headgear, which could be classified according to its form into the "Shichutou Official's Hat Armchair" and "Southern Official's Hat Armchair". Whereat, the "Shichutou Official's Hat Armchair" was famous for the forms of protruding head and armrest. This chair consisted of straight lines and curve rails, in which, the goose-neck posts was spread out straightforward to construct a trapezoid, while the back splat was bent towards a S-formed element with no-carving or simply with minimal decoration, the overall form was leaving a slight depression; and thereat, the "Southern Official's Hat Armchair" did not have the projections of official's hat and armrest, but acquired the fame due to the said elements were bent toward and crossed with its front, rear legs. The seat board commonly consisted of straight lines and curve rails, and the head, armrest and goose-neck were curved, wherein, the goose-neck posts was spread out straightforward to construct a trapezoid, while the back splat was gently decorated with reliefs, engraved, or hollowed designs. Normally it was higher than the Rose Chair.
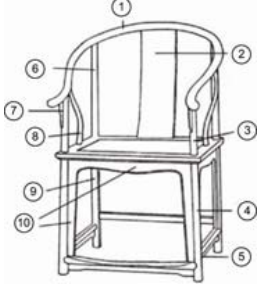
The "Round Chair" acquired the fame for its circular frame members. The circular back links the armrest as soon as from high to low to fully support the person's shoulders and arms, and it seldom linked with the goose-neck posts. This chair had a circular seat frame along with the S-formed back splat to partially accommodate reliefs, engraved, or hollowed decorations. The front, rear legs were spread out to construct a cube trapezoid, while leaving the overall expression of smooth, rich, solid and stable feelings. Additionally, the "Horseshoe Folding Chair" was foldable and also known as the folding chair. The legs of
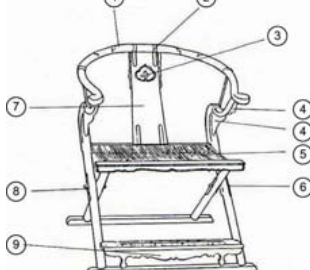
this folding chair were made into cross-formed parts and were secured with attractive metal fasteners for reinforcement in addition to the function of beauty. The end form of curved frame of the folding chair was usually looked like a Ruyi (i.e. a symbol of good luck). Especially, the back splat of this chair had the open-carving decoration on it. The crossed chair was extending into the center of the hall room indicating that it had been reserved for the head of a family or an emperor.

It can be found, therefore, according to above analyses of the form characteristics, that these five armchairs were mostly named in line with their form characteristics, for instance: The circular arm and frame used for the Round Chair and the Official Hat Armchair acquired its fame because of the form similar to the government official headgear etc. In addition, each chair can be distinguished from one another by the form of its head, frame, armrest, back splat, front/rear legs etc. along with the decorations depending on the user's needs and hobby. In addition to the perception of a beautiful form, it also emphasized the ergonomic function in order to change the form and make it becoming more suitable to current environment and functionality thereof., for instance: to adjust the height of back rest of the Rose Chair for the purpose of easy writing.

Table 1: The form characteristics of Ming-style armchairs

1. Rose Chair

Labels		Characteristics
①Zhang zih ②Mo tou ③Front leg-upside ④Ai lao ⑤Seat ⑥Da bian ⑦Luo guo jhang	⑧Front leg-downside ⑨Da nao ⑩Jyan kou ya zih ⑪Armrest ⑫Back leg -upside ⑬Back leg-downside	•Northern known as Rose Chair, while Southern known as Wun Chair, due to the favorite of the literati. •The form is smaller, light and beautiful-shaped with thin material. •Shape is mainly square: ⑤seat, chair back, armrest. •Chair back is vertical with: ⑪armrest, and ⑤seat. •Owing to the low back, ⑨da nao reaches one's back only. While relying on it which would cause uncomfortable. So the size is good for writing.

2. Shichutou Official's Hat ◯Armchair

Labels		Characteristics
①Da nao ②Back board ③Back leg-upside ④Armrest ⑤Mo tou ⑥Da bian ⑦Ya tiao	⑧Ya tou ⑨Back leg-downside ⑩Lian bang gun (or Lian dao ba) ⑪E bo (front leg-upside) ⑫Jyan kou ya zih ⑬Front leg-upside	•Official's Hat Armchair is named because of the similar shape of officials' hat. •①Da nao and ④armrest both reveal out, which known as Official's Hat Armchair or Shichutou Official's Hat Armchair. •①Da nao reveals out, curves shaped, and uppers the end-side, which are similar with the jhan jiao of official hat. •④Armrest and ②back board are similar to the front and back of official's hat. •Most of ②back boards have no embossment, and less element of decorations in the chair. •Curves and straight lines are comprised to the chair. ⑪E bo also straightly extend outwards. It shows the beautiful harmony. •②Back board curves in S-shape. •③⑩⑬ Front and back legs extend outwards into a ladder cube. It makes the chair stable.

3. Southern Official's Hat Armchair

Labels	Characteristics
①Da nao ②Back board ③Armrest ④Mo tou ⑤Back leg ⑥Front leg ⑦Lian bang gun (or lian dao ba) ⑧E bo ⑨Ya tiao ⑩Ya tou ⑪Da bian (su hun mian)	•Official's Hat Armchair is named because of the similar shape of officials' hat. •The height of Southern Official's Hat Armchair is higher than Rose Chair. •①Da nao, ③armrest don't reveal out and bend at the intersection of ⑤ back leg, ⑥front leg, which is called Southern Official's Hat Armchair. •There are embossments, engraves, and hollowings on ②back board. •The①da nao, ③armrest, and ⑧e bo are curved. •Curves and straight lines are comprised to the chair. •⑤⑥Front and back legs extend outwards into a ladder cube. It makes the chair stable.

4. Round Chair

| | ①Chair circle(yue ya fu shou)
②Back board
③E bo (front leg-upside)
④Front leg-downside
⑤Ya tiao
⑥Back leg-upside
⑦Jiao ya
⑧Lian bang gun (or lian dao ba)
⑨Back leg-downside
⑩Jyan kou ya zih | • ①Chair circle is circle-shaped.
• The material is mainly circle.
• ①Chair circle and ③e bo of Round Chair seldom crossed.
• ①Chair circle is along the elbow and the shoulder down, which could easily rely on it.
• ②Back board curves in S-shaped.
• Chair is simple, and most of ②back boards have the decorations like embossment, engrave, hollowing.
• ③④⑥⑨Front and back legs extend outwards into a ladder cube. It makes the chair stable. |

5. Horseshoe Folding Chair

| | ①Chair circle(yue ya fu shou)
②Metal decoration
③Embossment kai guang
④Jiao ya
⑤Ruan ti
⑥Jhou ding
⑦Back board
⑧Hu yan cian
⑨Ta chuang (or foot step) | • It was also called folding chair.
• It known as Horseshoe Folding Chair because of the cross-shaped chair legs. While they stretching, it would be steady.
• Using the ②metal decorations to decorate and strengthen the part of ⑥ jhou ding and ⑧hu yan cian.
• Most of Horseshoe Folding Chairs located in the center of the hall to represent the status and position, especially the circle back board has great status and position.
• ①Chair circle curves freely. And the shape in the end just like Ruyi.
• Most of ⑦back boards have the decoration of embossment kai guang. |

Resource: Wang Shixiang "Ming shih chia chü yen chiu"

3. RESEARCH METHODOLOGY, PROCEDURES AND ANALYSES

This study aims at the survey of visual image for the external forms of the Ming-style armchairs. Firstly, this study will review the literatures related to the external forms of Ming-style armchairs, and secondly, this study will use the expert validity to extract the adjective terms available for the Ming-style armchairs, and finally adopting the Semantic Differential Scale (SDS) to analyze the subjects' feelings of external forms of the Ming-style armchairs.

3.1. Study samples

As to the representative samples of this study, firstly, total 74 samples were collected from relevant literatures of the Ming-style furniture, which would be further partitioned into two primary categories, such as the chair with armrests and the chair without armrest. However, due to the small number of samples of chairs without armrest, hence, this study only analyzed the armchairs particularly and classified the armchairs pursuant to their form characteristics. Finally, five representative samples were picked out in line with relevant literatures as well as the experts' opinions, which comprised: Rose Chair, Shichutou Official's Hat Armchair, Southern Official's Hat Armchair, Round Chair, and Horseshoe Folding Chair (Table 2). This study focused on the human visual perception of the form image, disregarded the impact of colors and textures, and emphasizing the form characteristics only; where the selected samples in black and white color would finally present through efficient image processing. The patterns of samples were shown as follows:

Table 2: The representative samples

Rose Chair	Shichutou Official's Hat Armchair	Southern Official'Hat Armchair	Round Chair	Horseshoe Folding Chair

Resource: Wang Shixiang "Ming shih chia chü yen chiu"

3.2. Preparation of questionnaires and tests

This study primarily tried to find out the subjects' image feelings of Ming-style armchairs through a questionnaire survey, where a total of 100 questionnaires were distributed to the general public and 100 subjects completed questionnaires, giving a response rate of 100%, and 97 valid questionnaires were recovered by deleting 3 copies of invalid questionnaires. In the process of a structured questionnaire survey, the statistic results were as follows: of these subjects, the female-to-male ratio was 1:1; thereat, the majority of the subjects' ages ranged from 21 to 30 years (92%); most subjects (54%) did not have a background related to the designing field; and there were about 52% of subjects having a master degree in this survey.

The adjective terms of external form, 137 in total, adopted firstly in this study were the adjectives used to describe the external forms of Ming-style furniture in relevant books and literatures, which were screened initially by language experts (with more than 10 years experience in teaching Chinese language) and resulted in 61 adjective terms in line with the description of external forms, again, the said 61 adjective terms were selected by another ten furniture specialists who had over 5 years of furniture design experience along with the knowledge of furniture history, and wherein, total 15 appropriate adjective terms were selected through a selection procedure among 20 adjectives for more than 6 times, which would be adopted in the questionnaire finally. Where the said adjective terms were organized as a five-point semantic differential scale for the purpose of measurement and statistical analysis; and thereat, the term difference would be assessed with a 5-point scale ranging from strong feeling to no feeling according to the sense. The center score in this scale was 0, and it was extended to both sides respectively including either 1, 2 or -1, -2, thereby, 0 indicated ordinary feeling, 2 or -2 indicated a strong feeling, for example: Historical $\boxed{2}\ \boxed{1}\ \boxed{0}\ \boxed{1}\ \boxed{2}$ modern, indicating a strong historical feeling.

3.3. Statistical methods

The statistical methods used in this study to conduct the analysis procedures included Mean, Single Sample T-test and Independent Sample T-test etc., which could be described as follows:

(1) Mean

Mean was used to determine the image feeling in this study, firstly in consideration of the statistical presentation, numeric value, therefore, would be transformed from ▨▨▨▨▨ into 5-1, thereat, values obtained from the relevant operations were corresponding to the perception level indicating by the transformed values, so if the mean was smaller than the median 3, its image tended to the right side, wherein, the smaller value, the stronger feeling of perception; if the mean was larger than the median 3, its image tended to the left side, wherein, the larger value, the stronger feeling of perception, for instance if the mean for the opposite term of "historical -modern" was 4.36 (M>3), it was indicating a more historical feeling.

(2) Single Sample T-test

Independent Sample T-test was adopted to compare the mean measured for two different samples. This study was trying to identify the difference of image between the tangential with radial section with the Independent Sample T-test.

4. RESEARCH METHODOLOGY, PROCEDURES AND ANALYSES

In light of the research objectives, this study firstly looked into the overall image feelings of these five representative samples, and then analyzed the most significant sample for individual image, the research results were described as follows:

4.1.Analysis the form image on each armchairs

In this section, this study would conduct the analysis of psychological feelings for each armchair with One-single T-test (P<.05) (Table 3), thereat, the imagery feeling of each armchair (Figure 1) could be revealed as follows:

The "Rose Chair" looked thinner, compact and beautiful, simple but elegant without additional decorations. Therefore, overall image only the opposite "soul- secular" wasn't reach to obvious standard (P>.05), the others reached to the obvious standard (P<.05). Most tended towards to the positive image, especially in "unsophisticated" (M=4.69) image which is the best. Secondly is "elegant" (M=4.43), and the third is "plain" (M=4.34). That means, the form image of Rose Chair has significant images in unsophisticated, elegant, and plain to people.

The Shichutou Official's Hat Armchair The style of "Shichutou Official's Hat Armchair" looked skilful, generous and plain, and seemed more stable with the projecting legs. Therefore, the overall images only the opposite "rhythmic-stable" wasn't reach to the obvious standard, which the others have reach to. Most tended towards to the positive image, especially in "unsophisticated" (M=4.26) image which is the best. Secondly is "historical" (M=4.14), and the third is "clean" (M=4.09). That means, the form image of Shichutou Official's Hat Armchair has significant images in unsophisticated, historical, and clean To people.

The form of "Southern Official's Hat Armchair" consisted of straight lines and curve members, with small changes on the overall form. Therefore, the overall images the opposite "soul- secular", "meaningful-dull" wasn't reach to the obvious standard, which the others have reach to. Most tended towards to the positive image, especially in "unsophisticated" (M=4.26) image which is the best. Secondly is "elegant" (M=4.12), and the third is "clean" (M=3.99). That means, the form image of Southern Official's Hat Armchair has significant images in unsophisticated, elegant, and clean to people.

The form of "Round Chair" looked more smooth and rounded shape, solid and stable, threat, the end of its frame was bent upward while the legs were extending outward to achieve the beauty sense of balance and harmony. Therefore, the overall image the opposite "refined- unrefined", "plain-decorated" wasn't reach to the obvious standard, which the others have reach to. Most tended towards to the positive image, especially in "coordinated" (M=3.91) image which is the best. Secondly is "unsophisticated" (M=3.85), and the third is "meaning" (M=3.84). That means, the form image of Round Chair has significant images in coordinated, unsophisticated, meaning to people.

The shape of the "Horseshoe Folding Chair" was largely decorated, and the crossed legs were fastened with metal members, which was foldable. Therefore, the overall image tended towards the unrefined, soft, incongruous, clean, rhythmic, meaningful, and decorated. The "rhythmic" (M=3.57) is the best. Secondly is "meaningful" (M=3.26), and third is "clean" (M=3.18). That means, the form image of Horseshoe Folding Chair has significant images in rhythmic, meaningful, and clean to people.
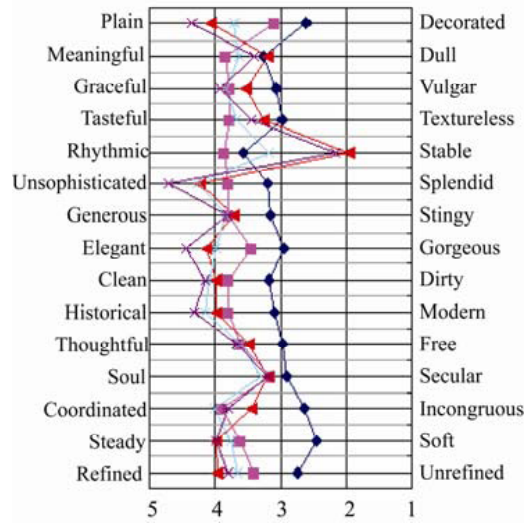
Figure 1: Line chart- visual image of Ming-style armchair

Table 3: Single Sample T-test on the image of armchairs

Armchair	Visual image	M	t	P	Armchair	Visual image	M	t	P
Rose Chair	refined- unrefined	3.79	7.80***	0.000	**Southern Official's Hat Armchair**	refined- unrefined	3.96	9.11***	0.000
	steady-soft	3.98	10.06***	0.000		steady-soft	3.98	8.83***	0.000
	coordinated -incongruous	3.80	7.56***	0.000		coordinated -incongruous	3.44	3.67***	0.000
	thoughtful -free	3.67	5.98***	0.000		thoughtful -free	3.48	4.75***	0.000
	historical -modern	4.31	13.84***	0.000		historical -modern	3.98	10.64***	0.000
	clean- dirty	4.14	12.12***	0.000		clean- dirty	3.99	12.29***	0.000
	elegant –gorgeous	4.43	19.53***	0.000		elegant –gorgeous	4.12	12.26***	0.000
	generous -stingy	3.82	8.38***	0.000		generous -stingy	3.72	7.02***	0.000
	unsophisticated - splendid	4.69	32.13***	0.000		unsophisticated - splendid	4.22	14.39***	0.000
	rhythmic-stable	2.16	-8.56***	0.000		rhythmic-stable	1.97	-11.26***	0.000
	tasteful-textureless	3.44	4.88***	0.000		tasteful-textureless	3.27	2.75**	0.007
	graceful-vulgar	3.92	11.69***	0.000		graceful-vulgar	3.54	5.42***	0.000
	meaningful-dull	3.40	3.49***	0.001		plain-decorated	3.96	9.11***	0.000
	plain-decorated	4.34	17.15***	0.000					
Shichutou Official's Hat Armchair	refined- unrefined	3.65	7.18***	0.000	**Round Chair**	refined- unrefined	3.40	4.11***	0.000
	steady-soft	3.75	7.92***	0.000		steady-soft	3.62	5.65***	0.000
	coordinated -incongruous	4.01	12.10***	0.000		coordinated -incongruous	3.91	8.87***	0.000
	empty –lattice - civil	3.30	3.24**	0.002		empty –lattice - civil	3.62	5.15***	0.000
	thoughtful -free	3.62	6.83***	0.000		thoughtful -free	3.80	6.55***	0.000
	historical -modern	4.14	12.68***	0.000		historical -modern	3.81	8.52***	0.000
	clean- dirty	4.09	14.22***	0.000		clean- dirty	3.44	3.52***	0.001
	elegant –gorgeous	3.99	10.45***	0.000		elegant –gorgeous	3.79	7.92***	0.000
	generous -stingy	3.83	10.48***	0.000		generous -stingy	3.79	7.28***	0.000
	unsophisticated - splendid	4.26	14.65***	0.000		unsophisticated - splendid	3.85	8.43***	0.000
	tasteful-textureless	3.67	6.92***	0.000		tasteful-textureless	3.77	8.48***	0.000
	graceful-vulgar	3.83	10.04***	0.000		graceful-vulgar	3.76	7.34***	0.000
	meaningful-dull	3.63	6.87***	0.000		meaningful-dull	3.84	8.47***	0.000
	plain-decorated	3.71	7.40***	0.000		plain-decorated	3.40	4.11***	0.000
Horseshoe Folding Chair	refined- unrefined	2.73	-2.54*	0.013					
	steady-soft	2.44	-5.57***	0.000					

	coordinated -incongruous	2.63	-3.59***	0.001
	clean- dirty	3.18	1.99*	0.049
	rhythmic-stable	3.57	5.35***	0.000
	meaningful-dull	3.26	2.77**	0.007
	plain-decorated	2.60	-3.23**	0.002

Note：*P<.05；**P<.01；***P<.001

4.2.Analysis on image experience and form of armchair

Through the One-sample T-test (Table 4), In terms of the image with a relative significant adjective terms (p<.05), the opposite image of "refined- unrefined" and "steady-soft", to the form image, except the Horseshoe Folding Chair, the rest of four chairs have significant images. The results reveal: refined (M=3.96 and steady (M=3.98) both have the significant image in Southern Official's Hat Armchair. Moreover, unrefined (M=2.73) and soft (M=2.44) have the significant image in Horseshoe Folding Chair. In addition, except the Horseshoe Folding Chair, the six opposite image of "thoughtful –free", "historical –modern", "clean- dirty", "elegant –gorgeous", "unsophisticated – splendid", "graceful-vulgar" which have significant images to the rest four chairs. It tend towards the thoughtful, historical, clean, elegant, and the Rose Chair is the best(M=3.67、4.31、4.14、4.43、4.69、3.92).

To the form image, the rest of the four armchairs have the significant image in the opposite images of "coordinated –incongruous" and "generous –stingy", Horseshoe Folding Chair is exceptional. The result reveals: coordinated (M＝4.01) and steady(M=3.83) both have the best significance in Shichutou Official's Hat Armchair, and the incongruous(M=2.63) has the significant image in Horseshoe Folding Chair. Moreover, the opposite image "soul- secular" tend towards the soul (M=3.30) image which Shichutou Official's Hat Armchairis the best. The Round Chair has the significant rhythmic (M=3.85) image in the opposite image "rhythmic-stable", on the other hand, the Southern Official's Hat Armchair has the significant image in stable(M=1.97). the Round Chair has the significant tasteful(M=3.77) image in the opposite image of "tasteful-textureless". In addition, the Round Chair has significant meaningful(M=3.84) image in the opposite image of "meaningful-dull". At last, the Rose Chair has the significant plain(M=4.34) image in the opposite image of "plain-decorated", on contrary, the Horseshoe Folding Chair has the significant decorated(M=2.60) image.

Table 4: –Single Sample T-test on the image of armchairs

	Visual image	Armchair	M	t	P		Visual image	Armchair	M	t	P
1	Refined	Rose Chair	3.70	7.80*	0.000	9	Generous	Rose Chair	3.82	8.38*	0.000
		Shichutou Official's Hat Armchair	3.65	7.18*	0.000			Shichutou Official's Hat Armchair	3.83	10.48*	0.000
		Southern Official's Hat Armchair	3.96	9.11*	0.000			Southern Official's Hat Armchair	3.72	7.02*	0.000
		Round Chair	3.34	4.11*	0.000			Round Chair	3.79	7.92*	0.000
	Unrefined	Horseshoe Folding Chair	2.73	-2.54*	0.013						
2	Steady	Rose Chair	3.98	10.06*	0.000	10	Unsophisticated	Rose Chair	4.69	32.13*	0.000
		Shichutou Official's Hat Armchair	3.75	7.92*	0.000			Shichutou Official's Hat Armchair	4.26	14.65*	0.000
		Southern Official's Hat Armchair	3.98	8.83*	0.000			Southern Official's Hat Armchair	4.22	14.39*	0.000
		Round Chair	3.62	5.65*	0.000			Round Chair	3.79	7.28*	0.000
	Soft	Horseshoe Folding Chair	2.44	-5.57*	0.000						
3	Coordinated	Rose Chair	3.80	7.56*	0.000	11	Rhythmic	Round Chair	3.85	8.43*	0.000
		Shichutou Official's Hat Armchair	4.01	12.10*	0.000			Horseshoe Folding Chair	3.57	5.35*	0.000
		Southern Official's Hat Armchair	3.44	3.67*	0.000		Stable	Rose Chair	2.16	-8.56**	0.000
		Round Chair	3.91	8.87*	0.000			Southern Official's Hat Armchair	1.97	-11.26*	0.000
	Incongruous	Horseshoe Folding Chair	2.63	-3.59*	0.001						
4	Soul	Shichutou Official's Hat Armchair	3.30	3.24**	0.002	12	Tasteful	Rose Chair	3.44	4.88*	0.000
5	Thoughtful	Rose Chair	3.67	5.98*	0.000			Shichutou Official's Hat Armchair	3.67	6.92*	0.000
		Shichutou Official's Hat Armchair	3.62	6.83*	0.000			Southern Official's Hat Armchair	3.27	2.75*	0.007
		Southern Official's Hat Armchair	3.48	4.75*	0.000			Round Chair	3.77	8.48*	0.000
		Round Chair	3.62	5.15*	0.000						
6	Historical	Rose Chair	4.31	5.98*	0.000	13	Graceful	Rose Chair	3.92	11.69*	0.000
		Shichutou Official's Hat Armchair	4.14	6.83*	0.000			Shichutou Official's Hat Armchair	3.83	10.04*	0.000
		Southern Official's Hat Armchair	3.98	4.75*	0.000			Southern Official's Hat Armchair	3.54	5.42*	0.000
		Round Chair	3.80	5.15*	0.000			Round Chair	3.76	7.34*	0.000
7	Clean	Rose Chair	4.14	13.84*	0.000	14	Meaningful	Rose Chair	3.40	3.49*	0.001
		Shichutou Official's Hat Armchair	4.09	12.68*	0.000			Shichutou Official's Hat Armchair	3.63	6.87*	0.000
		Southern Official's Hat Armchair	3.99	10.64*	0.000			Round Chair	3.84	8.47*	0.000
		Round Chair	3.81	6.55*	0.000			Horseshoe Folding Chair	3.26	2.77*	0.007
8	Elegant	Rose Chair	4.43	19.53*	0.000	15	Plain	Rose Chair	4.34	17.15*	0.000
		Shichutou Official's Hat Armchair	3.99	10.45*	0.000			Shichutou Official's Hat Armchair	3.71	7.40*	0.000
		Southern Official's Hat Armchair	4.12	12.26*	0.000			Southern Official's Hat Armchair	4.06	10.78*	0.000
		Round Chair	3.44	3.52*	0.001		Decorated	Horseshoe Folding Chair	2.60	-3.23*	0.002

Note：*P<.05；**P<.01；***P<.001

5.CONCLUSION

This study aims at the survey of image of external forms of the Chinese Ming-style armchairs, where the relevant literatures of Ming-style armchairs were summarized with a content analysis method and inductive analysis method, in addition, this study conducted the analysis of psychological feelings for each armchair by means of a five-point semantic differential scale, thereat, the research results were summarized as follows:

(1) Analyze the form image of armchairs

According to the analysis above, the result revealed that Rose Chair, Shichutou Official's Hat Armchair, Southern Official's Hat Armchair has significant "unsophisticated" image; in addition, the Rose Chair and Southern Official's Hat Armchair has significant "stable" image; the overall image of Round Chair has significant "coordinated" image; moreover, Horseshoe Folding Chair has significant "rhythmic" and "soft" image.

(2) Analyze the form and image

In the opposite adjective terms of image, thereat, the armchairs having significant "refined", "rhythmic", "steady" image was the Southern Official's Hat Armchair; the significant "unrefined", "soft", "decorated", "incongruous" image was Horseshoe Folding Chair; in addition, the significant "thoughtful", "historical", "clean", "elegant", "unsophisticated", "plain" and "graceful" was Rose Chair; moreover, the significant "coordinated", "soul", "steady" was Shichutou Official's Hat Armchair; the significant "tasteful", "meaningful" was Round Chair.

REFERENCES

1. Wang Shixiang(1989), *Ming shih chia chü yen chiu*, Taipei: Nan tien
2. Shi Daguang (2003), J*hong guo gu dian chia chü jia jhih huei kao (yi jyan)*, Shenyang: Liaohai
3. Pu Anguo(1999), *Ming qing su shih chia chü*, Hangzhou: Zhejiang she ying
4. Liu Jingfeng(2005), *Jhong guo gu dian chia chü shou cang yu jian shang cyuan shu (shang sia jyan)*, Tianjin: Tian jin gu ji
5. Pu Anguo (1998),*Jhong guo hong mu chia chü*, Hangzhou: Zhejiang she ying
6. Wang Shixiang (2003), *Ming shih chia chü chen shang*, Beijing: Wan wu
7. Yang yao (1986), *Ming shi jia ju yan jiu* , Beijing : Zhong guo jian zhu gong ye
8. Lee Zongshan(2001), *Jhong guo chia chü shih tu shuo*, Wuhan: Hubei mei shu
9. Chiou HawJeng(2006), *Quantitative research and statistical analysis in social & behavioral sciences*, Taipei: Wu nan
10. Chen ChiHsiung, Cheng YingPin (2005). A Study on Side and Arm Chairs of Ming Dynasty Using the Theory of Style. *Journal of Design*,10(4),87-106。
11. Chen TienLi, Hong PeiFen (2009). The Life Style and Product Form Image Preferences of Craft Furniture Visitors. *Journal of Design,* 14(2), 19-36
12. Chen WenPing(2008). A Comment on the Ming-Style Furniture and Its Artistic Characteristics. *Journal of Shanghai University (social Sciences Edition)*, 15(5), 112-117
13. C.J Barnes, S.P Lillford(2007). Affective design decision-making - issues and opportunities. *International Journal of CoCreation in Design and the Arts*, 3(1), 135-146
14. M.J Chuang, Y.C Ma(2001). Expressing the expected product images in product design of micro-electronic products. *International Journal of Industrial Ergonomics*, 27(4), 233-245
15. H.Y Chen, Y.M Chang(2008). Extraction of product form features critical to determining consumers' perceptions of product image using a numerical definition-based systematic approach. *International Journal of Industrial Ergonomics*, 39(1), 133-145

16. J.F Petiot, B.Y(2004). Measuring consumer perceptions for a better comprehension, specification and assessment of product semantics. *International Journal of Industrial Ergonomics*, 33(6), 507-525

17. The council for cultural affairs, *Cultural and Creative Industry Development Plan*. Retrieved May 13, 2009.Web site: http://web.cca.gov.tw/creative/