

Comparison of South Korean and Japanese Sensibility about Beauty of HIRAGANA*

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Abstract : Because hand-written characters, especially drawn by a brush can give readers various impressions, they are not only a communication method but also art works. Authors have already investigated the relationship between brush motion analytical results and sensory testing results obtained from Japanese hiragana and reported quantitative evaluation method for the beauty of hiragana. In this paper, sensory tests for South Koreans who cannot recognize the word are carried out, compared with sensory testing results of Japanese. The evaluation objects are 6 hiragana “あ” drawn by 4 beginners and 2 experts, Semantic Differential Method based on 30 paired evaluation words are used in the sensory tests. Therefore South Koreans also feel the beauty in hiragana drawn by experts, as compared with by beginners. On the other hand it was confirmed that South Koreans couldnt recognize the difference among beginners. Judging from the factor analysis results, both Japanese and South Koreans selected stability as the 1st factor, there is interesting difference in the following orders.

Key words : Hiragana, Brush, Sensory tests

1. Introduction

By advance the information technology rapidly, E-mail and chat are main currents as character communication tool. Therefore, their communication by hand-written characters has declined. For convenience, characters used in electrical media

are called as a digital character. However hand-written characters, especially drawn by a brush can give more impressions, beauty, power, and boldness and so on to readers, as compared with the digital characters. This indicates that hand-written characters are not only a communication tool but also a feeling transmission tool.

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Moreover a hand-written character has been considered to be an artistic production.

For example, hand-written characters have been used as package design tool that express the product images in various companies in Japan. In the digital characters field, various fonts have been also developed in order to express various impressions.

While many researches on character recognition and handwriting analysis have been reported, there are few researches on the technological clarification for the impressions against the hand-written characters.

Authors have investigated the relationship between sensory testing results for character written by a brush and brush motion analytical results as the first step of the quantitative evaluation method for the beauty of hiragana [1].

At first, brush motion was measured by the motion analysis system during the drawing. Then sensory tests were performed for the hiragana drawn. From the comparison between results, the quantitative evaluation method based on the motion analytical results for the beauty of hiragana has been proposed [2].

In the above researches, the targets were Japanese character hiragana and volunteers in the sensory tests were only Japanese. Exactly speaking, sensory testing results in other peoples in other countries must be also investigated. Because human sensual factors are made influence on inherent factors and acquired factors affected by living environments and cultural background [3-4].

The calligraphy education has been done in both Japan and South Korea. Drab entering, drab stop, drab turn down and drab brush off are common concepts and techniques in both the calligraphy. On the other hand, the target characters for calligraphy are naturally different in the two countries. Therefore the brush motions assumed to be correct are different in both the countries. For example, one of Japanese high techniques, renmen (drawing many characters continuously) is considered to be not good in South Korea. Square style, rudimentary technique in Japan is considered to be correct in South Korea [5]. In this paper, for a character drawn by a brush, the sensory testing results between Japanese who can recognize as a character and South Koreans who cannot recognize as a character are compared. The differences in impressions are systematically discussed.

Table 1. HIRAGANA characters

母音 子音	a	i	u	e	o
*	あ	い	う	え	お
K*	か	き	く	け	こ
S*	さ	し	す	せ	そ
T*	た	ち	つ	て	と
N*	な	に	ぬ	ね	の
H*	は	ひ	ふ	へ	ほ
M*	ま	み	む	め	も
Y*	や	(ゐ)	ゆ	(ゑ)	よ
R*	ら	り	る	れ	ろ
W*	わ	-	-	-	を
NN	ん	-	-	-	-

2. Method

2.1. Characters for evaluation

In the hiragana listed in Table 1, 'あ' was selected. This is derived from the following 3 points.

- (1) ‘あ’ is composed of the smooth curved lines.
- (2) The whole shape is a triangle, which is one of the beauty balances [6].
- (3) ‘あ’ involves the characteristic brush motions, drab brush off, drab turn down and drab stop.

Figure 1 shows 6 typed hiragana ‘あ’ used in the sensory tests. There are drawn by 6 volunteers, 4 beginners and 2 experts.

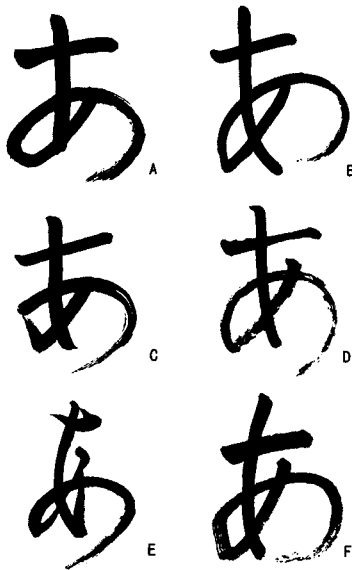


Figure 1. The character drawn in the 3-dimensional operation analysis experiment

2.2. Adjective pairs used for evaluate

Sensory tests based on the Semantic Differential Method for 6 typed ‘あ’ were carried out. In order to select the adjective pairs used in the tests, 341 evaluation adjectives were selected from some technical books [7-9] for brushed characters, articles published and experts comments. Then 35 words with high appearance frequency listed in Table 2 were selected. In the

sensory test, 7 levels evaluation (1.worst, 2.very bad, 3.bad, 4.neutral, 5.good, 6.very good, and 7.excellent) was used.

Table 2. Adjective pair of 35 used for sensory test

1	weak-strong	19	unskillful-skillful
2	unbalance-well balace	20	unsteady-steady
3	thin line-thick line	21	energetic-non energetic
4	ambiguous-define	22	Non artistic-artistic
5	unskylsh-stylish	23	withoug impact-with impact
6	without strengh-with strength	24	gloomy-fluent
7	soft-sharp	25	severe-tender
8	squeezed-comfortable	26	dull-light
9	discreet-audacious	27	rude-delicate
10	unstable-stable	28	fickle-calm
11	without movement-with movement	29	not profound-profound
12	random-careful	30	modulated-not modulated
13	confused-neat	31	drab entering-beautiful entering
14	unpleasant-pleasant	32	drab blurriness-beautiful
15	loose-tight	33	blurriness
16	quadrangular-circular	34	drab brush off-beautiful brush off
17	with power-without power	35	drab stop-beautiful stop
18	rougt-regular		drab tum down-betiful tum down

2.3. Experimental Subject

These facts concerning the brush technique is derived from the differences in both the culture backgrounds.

In the sensory tests, 45 Japanese volunteers, 22 calligraphy experiences and 23 beginners were used. Also 28 South Koreans, 9 experienced and 19 beginners were used.

3. Results and Discussion

3.1. Comparison of Semantic Profiles

Figure 2 constitutes average scores of each rating adjective pairs about hiragana ‘あ’ shown in Table 2.

Overall, the South Korean gives almost rating items 3-6 points though the Japanese give them 2-7 points. Both the Japanese and the South Korean gave E and F characters written by experts. The South Korean evaluated F written in

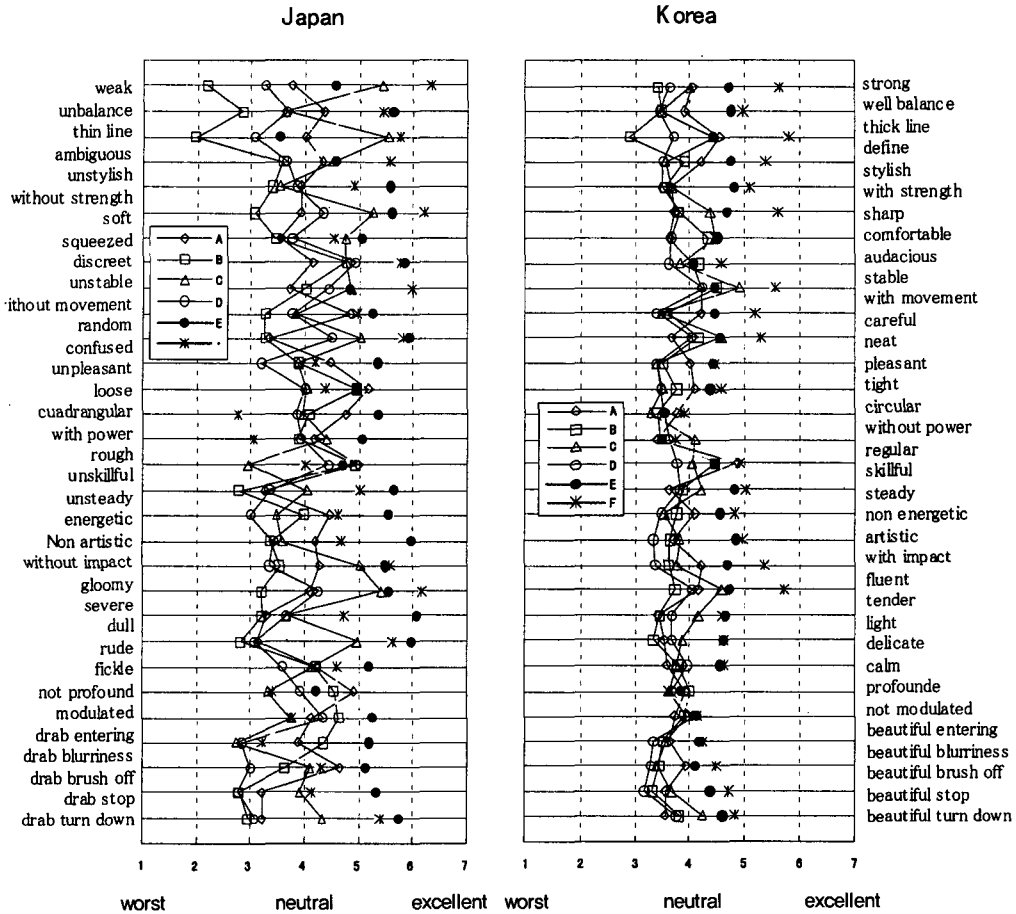


Figure 2. Semantic differential against the hiragana 'あ'

square style higher than E written in cursive style. On the contrary, the Japanese changed the evaluation ranking of E and F of by the rating item. The reason is thought that Chinese characters written in square are popular in South Korea.

On the other hand, there were differences between the evaluations to beginner's characters of A, B, C, and D by subjects of the two countries. About the item of "without power", for instance, the South Korean rated all of beginners characters as 'neutral' while the Japanese rated each character clearly different.

From these results, both of the South Korean

and the Japanese rated the experts characters higher than the beginners. However, there were rating items that the South Korean couldn't discriminate between the beginners characters though the Japanese could do. In addition, both subjects of two countries have the tendency to rate the evaluation items of "confused-neat" and "severe-tender" as 'neutral'.

3.2. Discussion by factor analysis

In order to clarify major factors that have much effect on beauty of hiragana 'あ' and to evaluate the beauty objectively, the rating averages of

Table 3. The result of factor analysis

Japan	Fac 1	Fac 2	Fac 3	Fac 4	Fac 5
stylish	0.85	0.20	0.17	-0.24	0.04
regular	0.85	0.13	0.27	-0.22	0.01
careful	0.80	0.04	0.30	-0.20	-0.04
skillful	0.80	0.24	0.25	-0.09	0.21
well balance	0.78	0.25	0.05	-0.15	0.06
stable	0.77	0.31	0.15	-0.02	0.23
calm	0.74	0.20	0.13	-0.11	-0.10
profounde	0.62	0.09	-0.02	-0.47	0.05
artistic	0.61	0.37	0.19	-0.12	0.21
steady	0.60	0.39	-0.06	-0.26	0.24
not modulated	0.59	0.34	-0.07	-0.53	0.17
define	0.56	0.51	-0.11	-0.17	-0.12
fluent	0.55	0.04	0.31	-0.52	0.11
comfortable	0.10	0.84	0.27	-0.12	0.04
with strength	0.27	0.83	-0.16	-0.08	0.03
audacious	0.12	0.81	0.04	-0.03	0.04
strong	0.17	0.73	-0.26	-0.21	-0.13
without power	0.42	0.56	0.08	-0.07	0.20
with movement	0.35	0.54	-0.16	-0.57	0.04
tender	0.29	-0.02	0.77	0.06	0.07
delicate	0.58	-0.03	0.61	-0.02	0.07
circular	0.46	-0.02	0.56	-0.16	-0.11
neat	0.46	0.23	0.52	-0.10	0.04
light	0.19	-0.03	0.53	-0.61	0.03
thick line	0.15	0.39	-0.57	-0.23	-0.16
with impact	0.44	0.45	-0.07	-0.57	0.13
non energetic	0.30	0.53	-0.31	-0.54	0.08
sharp	0.05	0.40	0.01	-0.43	-0.03
tight	0.05	0.00	-0.05	-0.14	0.82
pleasant	0.15	0.03	0.16	0.02	0.81
eigen value	12.5	4.1	1.9	1.4	1.1
contribution rate	41.6	13.7	6.3	4.8	3.6
cumulative(%)	41.6	55.3	61.6	66.4	70.0

korea	Fac 1	Fac 2	Fac 3	Fac 4
neat	0.87	0.12	-0.20	0.03
careful	0.81	0.12	-0.23	0.11
regular	0.76	0.17	-0.21	0.15
pleasant	0.75	0.22	-0.08	-0.03
stable	0.75	0.07	-0.18	0.39
skillful	0.73	0.38	-0.18	0.23
stylish	0.70	0.42	-0.14	0.04
well balance	0.70	0.16	-0.30	0.21
delicate	0.63	0.31	-0.13	0.10
define	0.61	0.21	-0.31	0.39
profounde	0.58	0.43	-0.27	0.20
calm	0.53	0.05	-0.21	0.41
circular	0.53	-0.04	-0.18	0.13
tight	0.46	0.31	0.07	0.02
comfortable	0.39	0.35	-0.13	0.30
without power	0.25	0.78	-0.17	0.13
not modulated	0.31	0.77	-0.11	-0.05
with movement	0.17	0.73	-0.20	0.20
non energetic	0.26	0.71	-0.05	0.41
with strength	0.28	0.70	-0.12	0.33
sharp	0.09	0.67	-0.13	0.05
audacious	-0.07	0.62	-0.20	0.37
artistic	0.54	0.57	-0.28	0.03
light	0.24	0.22	-0.86	0.06
fluent	0.21	0.24	-0.85	0.15
tender	0.33	0.02	-0.76	0.03
with impact	0.25	0.33	-0.75	0.15
thick line	0.18	0.32	-0.14	0.75
steady	0.51	0.29	-0.07	0.60
strong	0.11	0.51	-0.02	0.52
eigen value	13.4	2.8	1.9	1.2
contribution rate	44.7	9.5	6.4	4.0
cumulative(%)	44.7	54.2	60.6	64.6

each six character were used in a factor analysis system(by a general-purpose software; SPSS). Table 3 shows the results after the varimax rotation.

The Japanese 1st factor means stability of characters because of increasing the high factor loading, such as “ambiguous-define” and “rough-regular”. The 2nd factor means dynamics of characters because the evaluation items of “squeezed-comfortable”, “without strength-with strength” and “without movement-with movement” are increased and their factor loading is high. The 3rd factor shows sensitive of characters because

the items of “severe-tender”, “quadrangular-circular” and “thin line-thick line” show high factor loading. The accumulation contribution rates of five factors were 70%.

On the other hand, the South Korean 1st factor was included “confused-neat”, “rough-regular” and “unstable-stable”, and their factor loading was high. For this reason, it is thought that this factor means stability of characters. The 2nd factor means powerful of characters because the included items have “with power-without power” and “without strength-with strength”, and their loadings is high. The 3rd factor means airy

of characters because of high factor loadings of “dull-light”, and “gloomy-fluent”. The accumulation contribution rates of these five factors were 70.7%.

The 1st factor and 2nd factor were similar meaning about between the Japanese and the South Korean.

The Japanese 1st factor included “artistic”, “not modulated” and “fluent” while South Korean one included “neat”, “pleasant”, “delicate”, “circular”, and “comfortable”. In other words, there were differences of the elements composing the stability between the two countries.

The Japanese 2nd factor consisted of ability of “comfortable” and “strong”. On the other hand, South Korean 2nd factor consisted “without power” and “not modulated”, and “with movement” was included in the 4th factor. Therefore it is clear that the South Korean classifies the impression of dynamics into two points of movement and strong and rates by these viewpoints.

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The Japanese 3rd factor shows sensitive and the item “delicate” was independent while the South Korean 3rd factor means airy. The South Korean evaluated the item of “delicate” as the one of elements of 1st factor, stability .

4. Conclusion

In order to clarify the difference in impressions obtained from hiragana brushed between the Japanese and the South Korean, sensory tests using volunteers in both the countries are performed and investigated difference of two countries person’s sensibility. Therefore it was concluded that both the countries person had similar impression for hiragana drawn by experts, but there were different level of impression received from character drawn by beginners. Judging from sensory testing results, it was confirmed that both the countries person indicated stability as the 1st factor. As the 2nd factor Japanese and South Korean selected there is dynamics and powerful respectively. Moreover as the 3rd factor Japanese and South Korean selected sensitive and airy respectively. These differences are derived from the difference in both the countries culture background. However the relationship between factors selected and the culture background must be clarified in the future works.

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