

# Mandom’s research on “Impression of appearance”

- Creating and applying a standard face -

Mandom Corporation (headquarters: Osaka City, President & CEO: Motonobu Nishimura; hereinafter referred to as “Mandom”), through its evaluation of the impression of facial appearance, has established a new technique using the “standard face”. “New findings related to the impression of the facial appearance of men with many spots and wrinkles” have also been uncovered.

The results of this research were presented at the “64<sup>th</sup> Research Forum of the SCCJ” hosted in Osaka on June 17<sup>th</sup> 2009.

## 1. Proposal of a more accurate “Standard Face” system

To accurately evaluate the impression of facial appearance, a general face without instantaneous traits is warranted. An “Average face” can be used as a general face because dark areas such as spots and wrinkles, and irregularities of the skin can be averaged out. However, the skin of an “average face” appears smooth, shiny and very different from the actual surface of the skin (Figure 1). An average face may, therefore, appear younger than the subject’s actual face, and is thus an inappropriate method to accurately evaluate apparent age and impression of appearance, such as favorability.



Figure 1. Average face of a man in his 60s



Figure 2. Standard face of a man in his 60s

As a resolution, Mandom has proposed the “Standard Face” (Figure 2). A standard face is completed by statistically processing multiple real images of the subject, extracting an average distribution of spots and wrinkles (Figure 3: Example of the “spots” mask, Figure 4: Example of the “wrinkles” mask), adding this average to the average face, and varying the roughness of the texture by the subject’s age.



Figure 3. Example of spots mask



Figure 4. Example of wrinkles mask

To measure the accuracy of the standard face, we created five standard faces of subjects 20+ to 60+ years old, and evaluated apparent age of the faces as described below.

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**Method to evaluate apparent age**

**Evaluation panelists: 15 to 25 years old (y.o.) (young), 35 to 45 y.o. (middle), 55 to 65 y.o. (senior)**

**100 men and women in each level (total, 600 people)**

**Method of evaluation: Voluntary evaluation by people ranging in age from 10 to 99 y.o. using images posted online**

The results are presented in Table 1. As apparent ages almost match average age of the subjects used to create the standard faces, the standard face fittingly represents the aging characteristics of people in the corresponding age groups.

	20s	30s	40s	50s	60s
Average real age of people used to create the standard face (y.o.)	25.0	34.0	44.0	55.0	64.0
Result of apparent age of the standard face (y.o.)	25.5	32.1	43.4	55.3	67.8

Table 1. Evaluation of the age of a standard face from each age group

**2. High levels of spots/wrinkles appear in women, and spots particularly appear in young to old women**

Using the standard face system, we created four facial images where spots mask of the 40s age group were changed to the spots mask of the other four generations (between 20s to 60s). Similarly, we created four facial images where the wrinkles mask of the 40s age group were changed to the wrinkles mask of the other four generations. For each image, we evaluated the apparent age compared to the standard face of the 40s age group (45 y.o.).

Both male and female panelists were thought to be of higher ages as wrinkle masks increased the number of wrinkles for individuals in the 50s and 60s age group; female panelists were thought to be older than male panelists (Figure 5).

Similarly, when the spot mask was changed, women were thought to be older than men. However, unlike wrinkles, differences between women existed based on age groups (Figure 6). In other words, **increased number of spots lead to the perception of higher age, particularly for young women, when compared to other sex and age groups.**

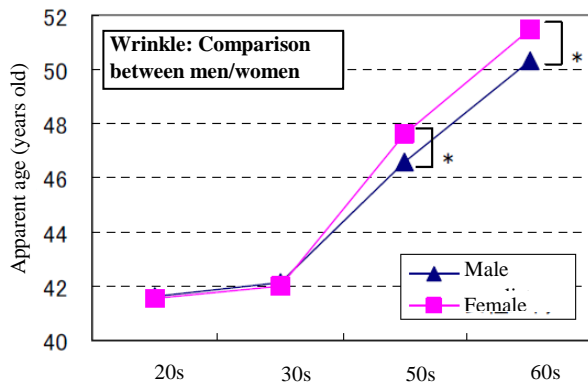


Figure 5. Evaluation of wrinkle mask-changed image (Comparison between panelist sex)

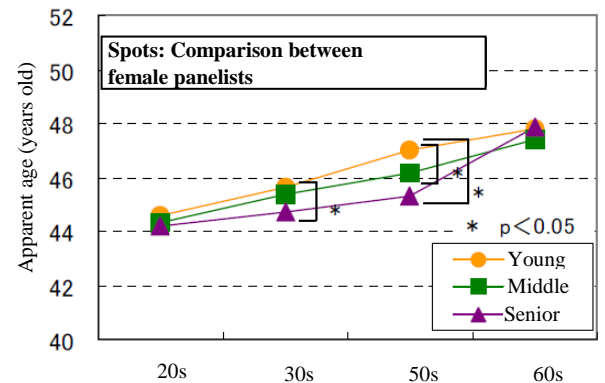


Figure 6. Evaluation of spots mask-changed image (Comparison by age group between female panelists)

**3. Low favorability from younger generations when many spots are present**

For the image of the 40s age group where standard face was changed to a 60s age group spots mask and wrinkles mask, we asked an evaluation panelist of the same age group to evaluate favorability (Female panelist: Scored between 1 to 5 points, with the favorability of 40s age group standard face = 3 points). In the young demography, favorability was low for the image that was changed to a 60s age group spots mask; however, for the middle and senior demography, favorability toward the image changed to a 60s age group wrinkles mask were even lower (Figure 7). Similar results were observed among male panelists. To summarize, **unlike other age groups, young people find people with many spots less favorable.**

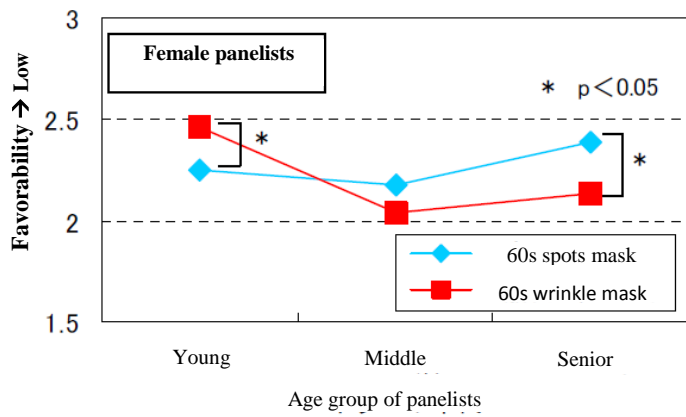


Figure 7. Evaluation of favorability of an image where the 40s age group standard face was changed to 60s spots/wrinkle masks

The standard face system is a system that works regardless of sex or age in image creation. Mandom hopes to elucidate the relationship between state and appearance of human skin by continued research using standard faces.

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