

## Shiseido Scientifically Verifies that Facial Skin Radiance Makes a Good Impression

- Research on cosmetics that resonate with the mind and skin -

Shiseido Company, Limited (“Shiseido”) has scientifically verified through joint research with the National Institute of Information and Communications Technology (NICT) that facial skin radiance influences facial attractiveness and gives a good impression to other people. It was also found that skin radiance in the face creates a younger impression; the age estimated for facial appearance is about three years younger than a face without skin radiance. Until now, it has been often thought that facial skin radiance gives a positive impression to others, as a glossy state representing healthy skin; however, there was no sufficient scientific evidence provided.

These study results can be applied to the future development of skincare and base makeup products that have a high emotional value of creating radiant skin, which gives a good impression to other people. Not only in real, face-to-face communication but also virtual communication via monitors and smartphones, a face with appropriate skin radiance can convey a healthier and more attractive impression.

The results of this study were published in the International Journal of Cosmetic Science (November 20, 2020).

### Research background

It is very important for us to lead daily lives fully of spirit and vigor, and the modest daily activity of cosmetic has the power to enrich and revitalize the mind as well as the skin. Today, people are spending more time at home and more likely to communicate via monitors and smartphones due to the COVID-19 outbreak, and amid such circumstances, the importance of skincare and the need for makeup has been recognized anew.

The emotional value of the impression given by facial skin radiance is a subjective and perceptual experience and was difficult to scientifically verify prior to now. Therefore, we conducted an evaluation in collaboration with NICT by applying our accumulated methods in affective science, psychological research, and psychophysical research, which is our strength.

### Facial skin radiance and impression evaluation method

#### (1) What is facial skin radiance?

In general, “radiant” skin is optically defined as “gloss with specular reflection of the skin surface and diffused reflection light from the inside”. It has been empirically perceived as giving a positive impression different from “oily and shiny” skin that also expresses glossiness. Thus, in order to objectively evaluate the emotional impressions of “radiant” and “oily and shiny” skin, we added gloss to facial images using an image processing technique under the following conditions for impression evaluation (Figure 1).



Figure 1. Facial images of “radiant” (left), “oily and shiny” (center) and “matte” (right)

- “Radiant”: a face with gloss both of specular reflection and diffuse reflection (an image that reproduces a glossy state of healthy skin)
- “Oily and shiny”: a face with gloss emphasizing the characteristics of skin with specular reflection (an image that reproduces a glossy state of skin with a lot of sebum)
- “Matte”: a face without gloss

## (2) Impression evaluation method

We asked 160 female participants in their 30s to late 40s to record their impressions in terms of 10 evaluation items\*<sup>1</sup> when presented with images of the face of the same woman\*<sup>2</sup> alternately showing “radiant”, “oily and shiny”, and “matte” faces. We then analyzed the impressions and ages estimated by the participants regarding the woman’s facial appearance for each gloss type (Figure 2).

\*<sup>1</sup> A total of 10 items consisting of positive impressions (attractive, happy, healthy, bright skin, etc.) and negative impressions (tired, etc.).

\*<sup>2</sup> Models of facial images were 10 females. Each subject was shown and evaluated facial images of one model of them.

### Evaluation items

1. Attractive	6. Healthy
2. Likable	7. Tired
3. Want to compliment	8. Radiant skin
4. Happy	9. Oily and shiny skin
5. Feminine	10. Bright skin

Figure 2. Impression evaluation items

### Impression evaluation by gloss type

- (1) The evaluation results showed that the “radiant” face was more positively received than the “oily and shiny” and “matte” faces (Figure 3). In addition, this result was notably recognized in seven out of seven items related to emotional impressions.
- (2) For ages estimated regarding facial appearance, it was found that the “radiant” face was evaluated as three years younger (Figure 4).

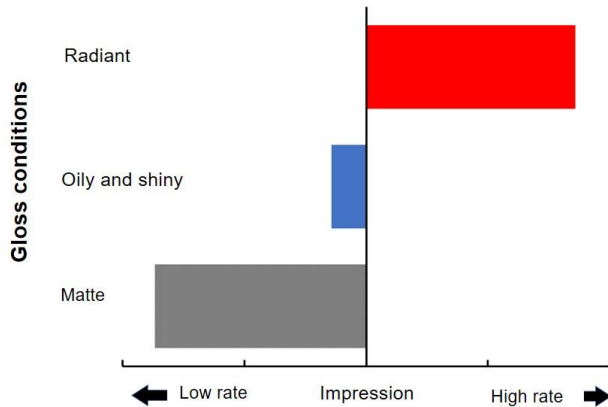


Figure 3. Difference in impression by gloss condition (total score of evaluation items 1 to 7)

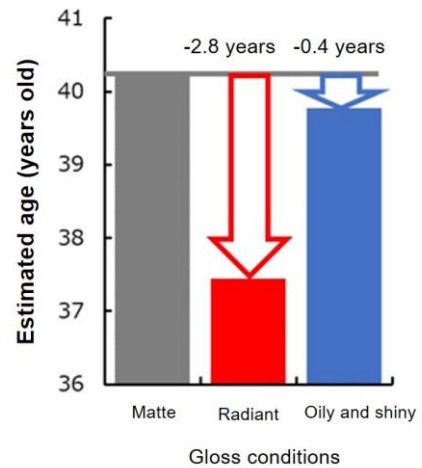


Figure 4. Difference in estimated age by gloss condition

### Summary and future development

These results revealed that a facial image with light reflection on the face representing a “radiant” face gives the most favorable impression to other people. This result is clearly different from the impression of an “oily and shiny” face, suggesting that not only specular reflection of the skin but also the nature of reflected light play a key role in reproducing a healthy, glossy state. Amid the current COVID-19 crisis, people are spending more time at home and the importance of skincare and makeup is being realized anew. In response, Shiseido will utilize these study results in the design of skincare and base makeup products that help create “radiant skin” and a positive impression in various communication scenarios, and continue to provide consumers with cosmetics that have high emotional value.

### Related research papers

Ikeda, H., Saheki, Y., Sakano, Y., Wada, A., Ando, H., & Tagai, K. (2020). Facial radiance influences facial attractiveness and affective impressions of faces. *International Journal of Cosmetic Science*.

<https://doi.org/10.1111/ics.12673>

Sakano, Y., Wada, A., Ikeda, H., Saheki, Y., Tagai, K., & Ando, H. (2021). Human brain activity reflecting facial attractiveness from skin reflection. *Scientific Reports* **11**, 3412.

<https://doi.org/10.1038/s41598-021-82601-w>