

# **Enhancing and Sustaining Skin Hydration Through the Proteus Effect: Toward an Intrinsically Motivated Cosmetic Support System**

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Maintaining skin moisture is crucial for both physiological health and psychological comfort. However, many people face difficulty continuing conventional physical interventions such as moisturizers or humidifiers due to environmental or practical constraints. This study explores a novel wellness support system that uses virtual avatars resembling the user (self-avatars) to promote intrinsic motivation for skincare. Based on the Proteus Effect, which suggests that avatars can influence user behavior and perception, we developed a virtual environment that visually simulates warmth (a sauna space) and compared it to a neutral space (a library). We evaluated four conditions: with or without self-avatars in each environment. Twenty participants created their own avatars using VRoid Studio, and viewed the virtual scenes passively. Physiological changes were assessed using thermal imaging of the face, and subjective impressions of skin condition and circulation were measured via Visual Analogue Scales. Results showed that the sauna space with a self-avatar led to notable increases in facial temperature and subjective feelings of warmth and circulation. Moreover, participants who viewed their self-avatar reported a greater sense of self-identification and immersion, with many expressing that they felt physically warmer when their avatar appeared flushed. These effects were less pronounced or absent in conditions without avatars. The findings suggest that visually observing one's own self-avatar in a contextually warm environment can evoke internal bodily responses related to skincare, potentially supporting self-motivated maintenance of skin health. This research highlights the practical potential of affective interfaces using virtual representations for everyday wellness.