

Data-Driven Skincare Product Development: Enhancing Personalised Self-Skincare UX

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ABSTRACT

This study aims to **enhance the self-skincare user experience** by developing a more professional and user-centric product solution. By identifying the skin-affecting factors and defining user needs for data-driven skincare solutions at home, it develops 13 user scenarios before, during, and after the self-skincare. This study shows that the new design proposal removed users' uncertainty about diagnosing their skin routine from personalised data-based advice. Therefore, this study contributes to discovering UX features for professional self-home skincare experience.

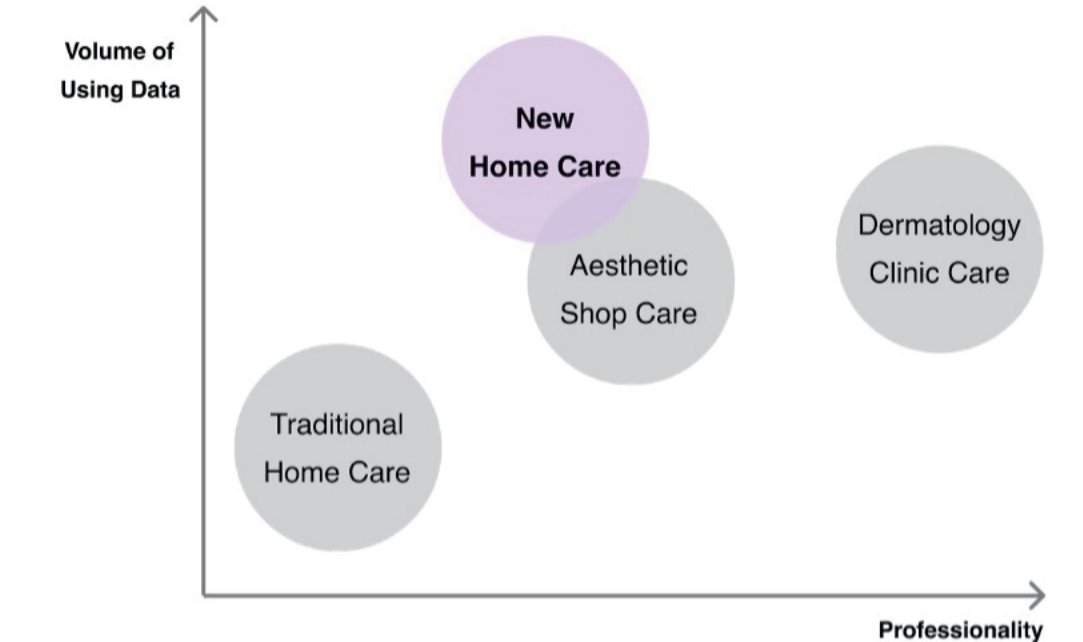
INTRODUCTION & BACKGROUND

To do professional skincare, collecting users' intrinsic, lifestyle and environmental data is critical. Also, existing solutions for self-skincare need to be integrated but separated, making it difficult for users to manage several apps for total skin care. However, self-home skincare users need help due to the **lack of knowledge to diagnose skin conditions** and feel **uncertain about choosing suitable care**.

Home skincare is less professional in analysing and diagnosing skin conditions than aesthetic shops or dermatologist clinic care. So, this study purposed to re-position self-skincare with a **higher professional UX design solution using data** to increase user experience.

Category	Intrinsic	Lifestyle	Environment
Factors	<ul style="list-style-type: none"> Age Genetics Ethnicity Anatomical Variations Hormonal Changes Health Condition 	<ul style="list-style-type: none"> Smoking Drinking Stress Nutrition Coffee Consumption Sleep Deprivation Frequency of Aerobic Exercise Exposure to UV Light Cosmetic Products Frequency of Colour Makeup Willingness of Skin Improvement 	<ul style="list-style-type: none"> Humidity Temperature Altitude Pollution
Data Types	Quantitative	Qualitative, Quantitative	Quantitative
Data Collecting Methods	Questionnaire, Photography	Questionnaire, Bio-data Measuring	GPS Tracking

Classification of Factors Affecting Skin Health



Service Positioning Mapping

RESEARCH METHODS

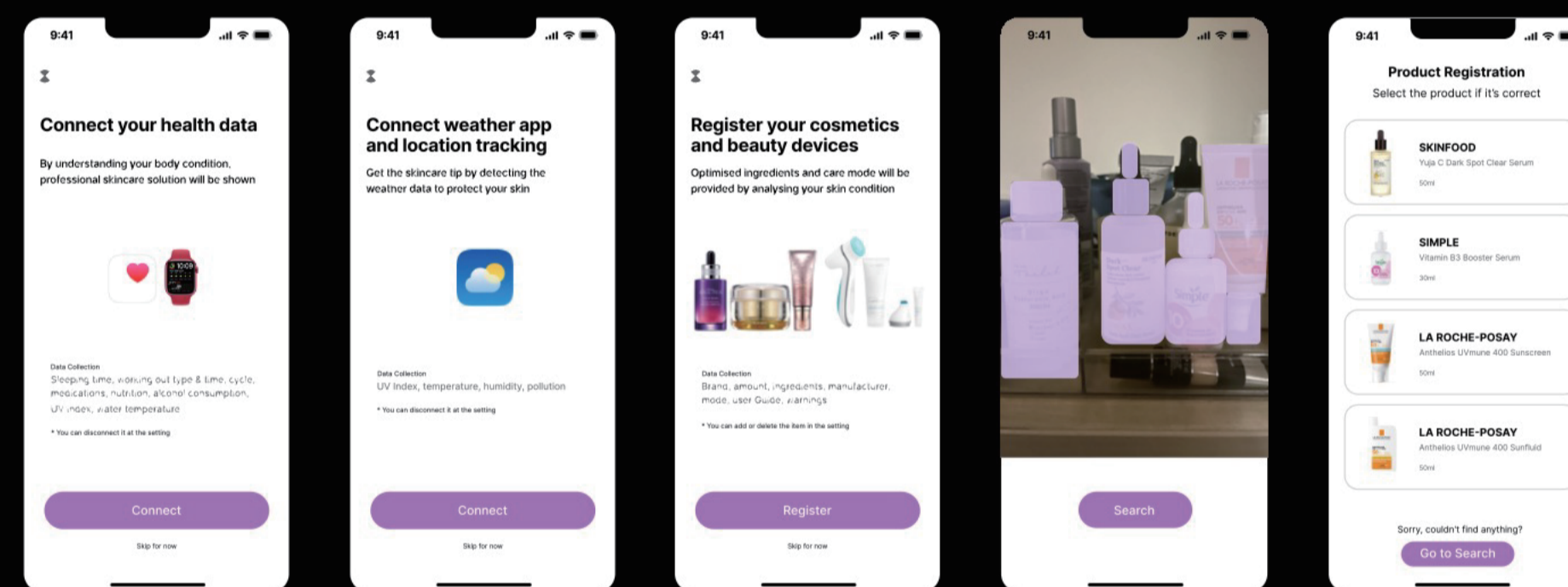
Inspired by "The Framework for Innovation", a New Double Diamond Model by the British Council (2019), it is structured for the home skincare UX innovation.

Order	Phase	Detail
0	Challenge	To enhance self-home skin care UX in a professional level
1	Discover	<ul style="list-style-type: none"> Secondary Research (State of the Art, Literature Review) User Interview (Contextual Inquiry) Description Coding
2	Define	<ul style="list-style-type: none"> Root-cause Analysis Hypothesis Assumption (How Might We Questions)
3	Develop	<ul style="list-style-type: none"> UX Design Concept User Scenario Derivation Operating Algorithm Information Architecture UI/UX Design Prototyping
4	Deliver	User Evaluation (Moderated Lab Testing & Interview)
5	Develop	Final Design Outcome: Mobile Application

The Details of the Each Design Process

UX/UI DESIGN

1. Connecting & collecting database



Health Data

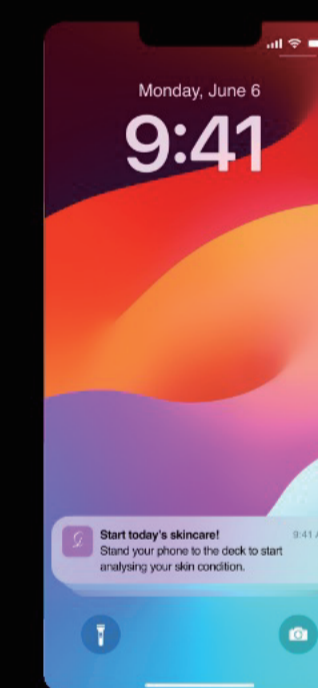
Connecting users' skin-affecting data through third-party health care and weather applications for the data-driven personalised professional skincare solution.

Environment Data

Cosmetic Products & Beauty Devices Registration

Registering cosmetic products and beauty devices to recommend suitable and harmful ingredients or devices for user's skin characteristics.

2. Trustworthy advise



Skincare Reminder

Analysing user's sleeping data sends a notification to encourage skincare every 2 hours before bedtime.

3. Professional & personalised skincare guide



Home Page

By combining collected data, users can experience more personalised and specific solutions.

Skin Analysis

By taking a picture of a right-positioning face, the user can get the optimised skincare solution with integrated health, lifestyle and weather data. It increases the professionalism and user-centred features of self-skincare at home.

Skincare Report

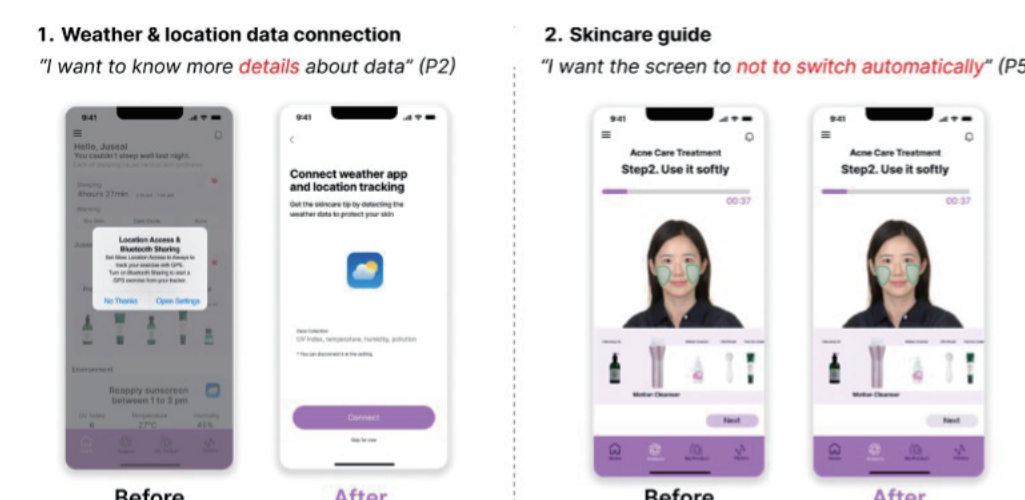
Skincare Guide

Following the guide on user's face increases the convenience of using cosmetic and beauty products by themselves.

TESTING & EVALUATION

Participants in the study included five Smart Watch users who participated in in-depth interviews and expressed a high level of interest in self-skincare. The purpose of the research was to **assess user satisfaction and identify any challenges** encountered while using the smartwatch for skincare. The methodology employed was Moderated Lab Testing, utilizing scenario-based tasks to evaluate the user experience.

From 4 scenario performance evaluations, two design factors were decided to be changed: first, **weather data connection with more details**, and **skincare guide switching interaction** from automatic to voice command by user's feedback.



RESEARCH RESULT

Q1. How can we support users to get a suitable skincare routine using data professionally?

> Connecting three skin-affecting data applications: health, environment and cosmetic products.

Q2. How can we make users feel certain when they try a new skincare product?

> Explain the recommendation and advise results depending on the data and evidence.

Q3. What UX factors affect user satisfaction in using self-skincare products?

> Specific cosmetic product guide, personalised practical skincare advice, user-related skincare notification.

Q4. What UX features make users do self-skincare consistently?

> Various advice from latest data update, easy guide of skincare solution, improvement of skin health tracked by history.

CONCLUSION & FUTURE WORK

As a result of the study, it was discovered that **skin-affecting data connection to skincare mobile applications increases user satisfaction**. Detailed explanation and specific skincare advice removes the user's uncertainty about self-care. Moreover, the motivation notification by tracking users' sleeping data made users involved more easily.

Given the variability in users' skincare routines, future research would **focus on a broader, more diverse user base**. A more comprehensive array of users would encompass different genders, ages, skin types, and races. It's also suggested that future studies measure long-term user satisfaction by monitoring users' skincare history within the app.