

# AI IN DESIGN MAY LEAD TO FEWER SHADES OF GREY: AN EXPLORATORY STUDY WITH REAL AND SYNTHETIC DUTCH OLDER ADULTS USING CHATGPT

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## Introduction

Engaging older participants in research can be challenging, for example due to barriers like social isolation or limited mobility. Reaching these individuals requires significant effort from both researchers and participants. Recent studies suggest that artificial intelligence (AI), specifically large language models (LLMs), could help address this issue by simulating user perspectives in cases where direct participant involvement is difficult.

## Objectives

This study explores the feasibility of integrating AI-generated synthetic users into user-centered design (UCD) processes, focusing on Dutch older adults in the context of eHealth technology development.

## Methods

We conducted 23 interviews with older adults using the SEIQoL-DW methodology, identifying their five most important life domains (cues) and corresponding scores. Additionally, demographic, health, and lifestyle data were collected and used to generate synthetic counterparts via GPT-4o. These AI-generated users were interviewed using the same methodology, and their responses were statistically compared to those of real participants.

## Results

While synthetic users produced similar overall scores to real participants, discrepancies emerged at the individual level. AI-generated users tended to overemphasize themes such as independence and physical activity while underrepresenting more personal aspects, such as social relationships and spirituality. This highlights limitations in capturing nuanced, qualitative elements of user experiences.

## Conclusion

Synthetic users can enhance the design process by identifying broad trends and reducing recruitment barriers. However, their limitations in representing emotional and subjective dimensions underscore the continued need for real user involvement. We recommend refining AI-generated personas by incorporating richer qualitative and quantitative data to improve empathy and avoid reinforcing stereotypes in design.