Leveraging Participatory Personas for Reflexive Co-design of Personalization in Large Language Models

Kathleen W. Guan
Technology, Policy and Management
Delft University of Technology
Delft, Netherlands
k.guan@tudelft.nl

Sarthak Giri
University of Oulu
Oulu, Finland
sarthak.giri@oulu.fi

Mohammed Al Owayyed
Delft University of Technology
Delft, Netherlands
m.alowayyed@tudelft.nl

Bernard J. Jansen
Qatar Computing Research Institute
Doha, Qatar
bjansen@hbku.edu.qa

Gayane Sedrakyan
University of Twente
Enschede, Netherlands
g.sedrakyan@utwente.nl

João Fernando Ferreira Gonçalves
Erasmus University Rotterdam
Rotterdam, Netherlands
ferreiragoncalves@eshcc.eur.nl

Mark de Reuver
Delft University of Technology
Delft, Netherlands
g.a.dereuver@tudelft.nl

Caroline A. Figueroa
Delft University of Technology
Delft, Netherlands
Stanford University
Palo Alto, USA
c.figueroa@tudelft.nl

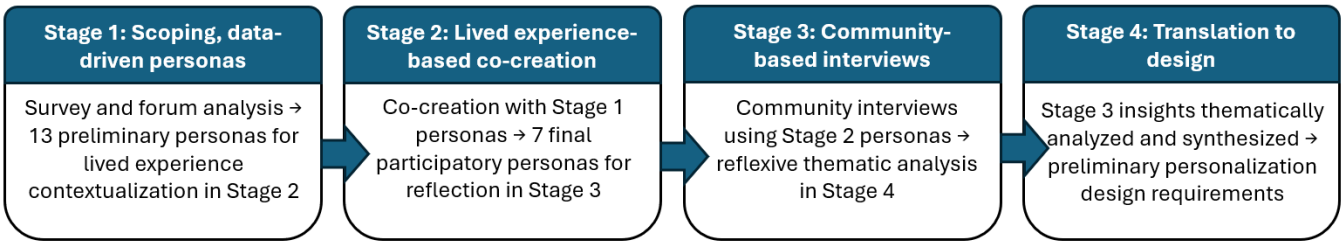

Figure 1: Four-stage procedure for leveraging community stakeholders' lived experiences to inform LLM personalization.

Abstract

Large language model (LLM)-based conversational systems are increasingly proposed as personalized digital well-being tools (DWTs) for youth, yet current personalization approaches often fail to reflect heterogeneous lived experiences. We present a participatory approach for eliciting personalization requirements for LLM-based DWTs, with youth well-being as a case study. In a multi-stage co-creation study with youth, parents, and youth care professionals (N=38), we combined data-driven personas with participatory persona co-creation and follow-up stakeholder interviews to examine what meaningful LLM-based DWT personalization should entail. Our preliminary findings suggest that stakeholders prioritize person-centered personalization beyond demographic or clinical labels, emphasizing identity, relational dynamics, routines, literacy needs, and changing lived context. Participants also highlighted the importance of dialogic mechanisms, particularly reflective questioning and ongoing updating of contextual representations over time. We argue that participatory personas can serve as reflexive scaffolds for surfacing community-grounded personalization needs and translating them into emerging design requirements for adaptive LLM systems. These findings position personalization in DWTs as an ongoing dialogic, person-centered process that warrants further investigation in research on human-AI personalization.

CCS Concepts

• **Human-centered computing** → **Empirical studies in HCI**.

Keywords

lived experience, large language models, community-based participatory research, participatory personas, reflexive analysis, digital well-being, youth well-being

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1 Introduction

There is an urgent need for digital tools that can proactively support the well-being of youth. Approximately three-quarters of psychological disorders emerge before the age of 25, with prevalence rates rising globally. Youth constitutes a formative developmental period marked by rapid physical, emotional, and social changes that converge uniquely in each individual, heightening vulnerability to health risks while offering meaningful opportunities for tailored prevention strategies [3]. As digital natives, youth may find digital well-being tools (DWTs, e.g., specialized chatbots) particularly accessible given their sense of immediacy and anonymity. Chatbots may assist in emotional check-ins, psychoeducation, and screening of early signs of distress before clinical symptoms emerge. Yet, many chatbots still remain insufficiently relevant or responsive to youth's heterogeneous daily needs, limiting potential for facilitating well-being support effectively [11].

One proposed solution is personalization; however, in DWTs, this lacks a consistent definition. In practice, DWT personalization often includes persuasive tailoring (e.g., goal-setting and reminders) integrated with evidence-based behavioral frameworks (e.g., motivational interviewing, cognitive behavioral therapy, or the Behavior Change Wheel) to promote healthy behaviors during individually salient moments [10]. However, current implementation can overlook the complexity and dynamism of lived experience, particularly given youth's rapidly evolving contexts. A key limitation of many DWTs, including chatbots, is reliance on rule-based personalization with fixed categories (e.g., predefined clinical pathways); while efficient, these can fail to capture the nuances of emerging well-being challenges [11].

Unlike rule-based digital tools, large language models (LLMs) can generate adaptive responses based on an individual user's conversational context, enabling open-ended dialogue that can attempt to identify salient cues such as language shifts or sentiment, stemming from patterns observed during training on large-scale datasets [14]. Such experiences may feel more personalized to youth. However, guidance remains limited on what should inform such user modeling, and how user representations can be grounded in lived experience. To realize their potential for personalization, scholars increasingly advocate for co-creating DWTs (including LLM-based tools) with youth and their communities of support (e.g., parents, youth care professionals or YCPs) [4]. A key challenge is ensuring LLM responses do not default to assumptions embedded in training data or professional guidelines alone. There is a need for community-grounded approaches that inform not only LLM alignment broadly, but also the user modeling assumptions and adaptive dialogue strategies through which interactive systems dynamically represent and in turn, support youth. Yet, how to operationalize such lived experiences in LLM-based DWT design also remains unclear.

In this paper, we posit that lived experience is a crucial form of firsthand expertise requiring systematic, reflexive translation into technical design. We ask: *How can personalization in LLMs for preventive DWTs be grounded in the lived experiences of youth, parents, and youth care professionals through participatory persona engagement?* We present a participatory method for eliciting community-grounded personalization requirements for LLM-based DWTs through data-driven and participatory personas. Based on our findings, we outline a preliminary conceptual framing of personalization as a person-centered, dialogic process and discuss implications for user modeling and adaptive dialogue in interactive systems.

2 Background

Personas, originating in user experience research in industry, are increasingly used in health services research as participatory tools to engage stakeholders and ground design in lived experience [7]. In this paper, we adopt personas to represent target population needs (i.e., youth users); we do not aim to develop personified chatbot characters. We define personas as fictional profiles grounded in empirical data (e.g., surveys, interviews, online forums) to capture user needs, behaviors, and lived contexts [8]. When leveraged reflexively, personas can mitigate reduction of users to isolated attributes or symptoms, supporting person-centered representation by situating hypothetical users within holistic contextual realities, including factors beyond health status such as routines, relationships, values, and technology preferences. Here, reflexive refers to deliberately examining researcher assumptions and bias while enabling participants to define what is meaningful and design-worthy [1].

This positioning also suggests that co-creation, rather than top-down, designer-led creation of personas (which has been the primary focus of most persona critiques, see e.g., [9]), may more meaningfully translate stakeholder priorities into actionable design features. Specifically, such reflexively developed personas can support contextualization by capturing the holistic realities of users' daily lives, challenges, and well-being contexts, while also enabling operationalization by helping stakeholders envision concrete interactions and translate qualitative insights into system behaviours grounded in realistic user situations. For example, prior work has co-created personas directly with end-users to inform personalized DWT features, such as transparent data practices and tailored resource navigation [2, 15]. Recent work has also highlighted the effectiveness of persona descriptions developed by healthcare professionals as prompts to improve LLM outputs for personalized patient support, which were rated higher than cardiac health advice written by healthcare professionals without LLM support [6]. Yet guidance remains limited on how to systematically co-create personas to inform LLM-enabled DWT design for preventive youth well-being (before onset of clinical conditions). In this current work, we therefore use co-designed personas as person-centered scaffolds for iterative community alignment and qualitative inquiry, illustrate how we reflexively adopted these personas to elicit lived experience, and translate these perspectives into personalization requirements to support youth in LLM-based DWTs.

3 Methods

We combined data-driven personas with co-creation to facilitate lived experience-grounded design. All study methods underwent ethical approval at a university institutional review board. We first used the Survey2Persona platform [12] to generate scoping personas from the Wellcome Global Monitor mental health survey, capturing diverse youth coping profiles based on clustering of N=6,272 respondents. We further supplemented these scoping personas with

preliminary thematic analysis of online posts from an anonymous youth forum. Next, we organized three co-creation workshops at community organizations, where 24 at-risk youth from low socio-economic backgrounds learned how we produced these data-driven personas, critiqued their limitations, and created seven "participatory personas" that better reflected their lived experience and everyday challenges. Finally, we conducted individual think-aloud interviews with five additional youth, five youth care professionals (YCPs), and four parents to elicit practical personalization strategies (e.g., how the LLM should adapt to context, probe for details, and avoid harmful assumptions). Interviewees reviewed all seven participatory personas and answered questions based on Persona Perception Scale constructs (e.g., credibility, completeness, and representativeness [13]), such as "Does this persona contain enough information for the LLM to provide support"? We subsequently conducted reflexive thematic analysis [1] of all stakeholder interviews to identify key personalization priorities for LLM-based DWTs for youth.

Figure 2: Personas developed through Survey2Persona clustering and youth co-creation workshops.

4 Results

The realism of the co-designed personas resonated with interviewees (e.g. "Ashley reminds me of my sister", "I know many Jims and Davids"). However, all interviewees also consistently stressed that details in the co-designed personas, while useful as starting points, were insufficient for long-term personalization, thus requiring LLM-based DWTs to probe further what those persona-based attributes meant individually as well as over time. Stakeholders also highlighted omitted details in certain personas such as school level, professional track, daily routines, social media use, or hobbies, noting that such information would critically shape personalization of well-being support to be better grounded in lived experience. These reflections underscored the value of co-designed personas as reflexive scaffolds for surfacing missing details and understanding their significance for lived experience-informed personalization, and they provided the basis for our thematic analysis across stakeholder interviews.

4.1 Need for Person-centered Personalization

A key finding was that community stakeholders rejected personalization based on static labels (e.g., age, religion, diagnosis) and instead emphasized eliciting lived context from a person-centered lens. Notably, one youth remarked: "Personalization is about understanding what makes a person who they are." Stakeholders especially emphasized the importance of an LLM understanding individual identity. For example, one parent noted that while one co-designed persona (Saira) was Christian, "many people identify only because of their family but without really believing." Relatedly, stakeholders highlighted the nuanced impact of relational dynamics, contrasting how relationships feel to a youth compared to merely who is present in their lives. Another youth highlighted: "The LLM should ask about people like parents and friends, but not just who they are which doesn't really matter, but what they are like. If her mother is always controlling her, putting a lot of pressure on her for school, then that affects Ashley the persona."

4.2 Dialogic Mechanisms for Personalization

Stakeholders also discussed the capacity of LLM-based DWTs to engage in dialogue about the underlying causes of common or even clinical challenges, by probing beneath surface statements and/or user queries. For example, one YCP directly referenced a co-designed persona to remark how even "OCD manifests differently in everyone. Does this mean she has learning disabilities? Trouble concentrating? You don't know what it means for Ashley." In reference to another co-designed persona having trouble with friendships (Sara), another YCP asked: "is it a lack of social skills, fear of starting contact, or is she just very deep and doesn't want to be superficial?" Regarding a co-designed persona named Jeroen facing financial stress, one parent emphasized the need for an LLM-based DWT to uncover if those challenges stemmed from gambling, shopping addiction, family pressures, or other reasons. Most significantly, personalization was not described in terms of providing tailored answers, but rather, scaffolding that helps youth make sense of their situation via structured dialogue. As described by one YCP, "the LLM can use an hourglass model, where you start by asking all sorts of questions until you get to the core. This will also help you increase young people's reflective capacity." Both parents and YCPs also emphasized that this reflective questioning should be aligned with youth's education and literacy needs.

4.3 Personalization as Evolving Context

Stakeholders further emphasized that young people's moods, motivations, and support networks shift quickly and even from moment

to moment, requiring regular updating of user representations to avoid outdated support. For example, one parent remarked: "Suppose this persona was close to her grandparents, but they passed away so not anymore. That changes her support network and the advice she needs." Similarly, another YCP commented: "Teenagers can be super happy one moment and very sad an hour later." All stakeholders (youth, parents, and YCPs) described the need to monitor everyday routines (i.e. daily schedule) and digital practices (e.g., social media viewing patterns) to contextualize these changes accordingly through ongoing dialogue.

4.4 Emerging Design Implications

Taken together, our findings suggest five preliminary requirements for personalization in LLM-based youth well-being tools: (1) representing identity as self-described rather than inferred from static labels, (2) modeling relationships in terms of how they are experienced, not only by role, (3) reflective scaffolding through probing of different causes and perspectives, (4) revising contextual representations over time, and (5) adapting questioning to users' literacy and developmental level.

5 Discussion

This paper positions personalization of LLM-based DWTs as an ongoing, dialogic, person-centered process that is grounded in lived experience rather than static tailoring. Our findings show how community-grounded design can surface desired personalization mechanisms across diverse contexts. Beyond co-design of DWTs for youth, our preliminary results may also inform LLM-mediated systems that train or support practitioners conducting supportive conversations with youth (e.g., child helpline counsellor training simulations). Prior work has modeled communication protocols in simulated conversations aligned with virtual children's needs [5], and suggested that modeling of children's values can further improve interactional realism. Our themes similarly suggest the need for more holistic user modeling of lived context, including routines, relationships as experienced, literacy needs, daily (digital) practices, and identity-relevant goals and values. The person-centered themes we identified are pertinent given that many systems rely on a fixed set of scenarios that vary, e.g., bullying context or interaction goals, while persona-grounded scaffolding can better reflect heterogeneous daily experiences and reduce linear, repetitive conversations to provide more personalized support.

6 Conclusion

In this work, we illustrate how co-designed personas can be adopted to elicit concrete dialogue strategies to guide lived-experience grounded personalization in LLM-based DWTs supporting youth. We highlight the need to shift adaptive well-being support beyond static tailoring toward interactive processes that foster person-centered reflection. Future research should examine how these strategies can inform alignment and adaptive dialogue design while addressing privacy, safety boundaries, overreliance, stereotyping, and misinformation, while further refining systematic participatory methods for the responsible development of AI.

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