

Fusing Gratitude Journaling and Citizen Science: A Youth-Centered Co-Design Framework for Mental Well-Being and Data Literacy

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Abstract

This paper presents a youth-centered co-design framework that combines Gratitude Journaling (GJ) and Citizen Science (CS) to explore new pathways for adolescent mental well-being and data literacy. Through a five-day workshop involving 85 Italian high school students, participants engaged in daily self-reflection and collaborative design sessions to ideate mobile app prototypes that express both personal and collective experiences of well-being. By integrating GJ as a prompt for emotional introspection and CS as a lens for shared data exploration, the process encouraged participants to frame their reflections as contributions to a broader community. The resulting prototypes illustrate how young people can link emotional awareness with design features such as mood tracking, gratitude prompts, and community visualizations. Based on this experience, we propose a replicable co-design workshop format that leverages positive psychology, participatory design, and civic engagement. This approach may help empower teenagers to interpret their emotional experiences, engage critically with well-being data, and co-create supportive digital tools.

CCS Concepts

• **Human-centered computing** → HCI theory, concepts and models; **User centered design**; **Participatory design**.

Keywords

Mental Well-Being, Citizen-Science, Gratitude Journal, Co-Design, Mobile App Prototypes

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1 Introduction

In recent years, the field of Human-Computer Interaction (HCI) has shown a growing interest in the role of technology in supporting adolescent mental well-being [4, 5, 22, 40]. The growing body of

research highlights the potential of digital tools to provide new opportunities for mental health support, self-reflection [2, 14], and intervention [12, 21] tailored to the needs of young users.

While extensive literature highlights the benefits of participatory and user-centered design for digital mental well-being tools [27], several reviews and conceptual studies in HCI and digital health indicate that many interventions are developed primarily from expert and theoretical perspectives, which may not fully account for teenagers' unique needs [35, 52]. For example, systematic reviews in digital mental health [35] highlight common challenges such as low engagement and high dropout rates. These issues are often linked to interventions that do not reflect the real-life experiences of users. In contrast, research on co-design [45, 46] consistently demonstrates that involving users in the design process leads to more engaging solutions and better acceptance. Tools developed without involving end users, particularly adolescents, may be less effective. This study contributes to the growing field of youth mental health technology by incorporating the Citizen Science (CS) [60] approach into a co-design framework for mobile app development. By engaging teenagers in the process, the project empowers them to reflect on their mental well-being while contributing to research on youth well-being. Through a Gratitude Journal (GJ) activity rooted in positive psychology [47, 48], participants explored their perspectives on mental well-being and collaborated on prototype development.

This paper presents key insights from our co-design workshop (which has been named INCISIVE), focusing on two main aspects: (1) how the integration of CS within a co-design process influences teenagers' engagement with mental well-being and enriches their contributions to the design of digital mental health tools; and (2) how the use of GJ during the workshop fosters adolescents' self-reflection and informs the development of emotionally supportive mobile app features. By examining these aspects, we aim to inform future participatory workshops and guide the development of a fully functional prototype for real-world application. This research contributes to the evolving discourse on technology and mental well-being in HCI, reinforcing the value of participatory approaches in designing meaningful digital interventions for adolescent mental well-being support.

1.0.1 Related work. To the best of our knowledge, this study introduces a novel co-design framework that combines GJ and CS within a youth-centered participatory design process. While prior work in the field has explored adolescent co-design in mental health



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contexts, such as the community-engaged approach of the Mellow project [30] and the clinically oriented development of ClearlyMe [34], our contribution is distinct in integrating emotional self-reflection with collective data engagement. This dual focus enables young participants not only to explore their emotional well-being but also to develop data literacy through collaborative inquiry. This intersection of personal introspection and civic data awareness represents a unique addition to current research in HCI and participatory mental health technologies.

At the same time, our work is deeply rooted in the broader traditions of Mental Wellbeing, Co-Design, and HCI. Like Mellow [30] and ClearlyMe [34], our approach emphasizes the active involvement of end-users, iterative design cycles, and attention to context-specific needs. All three projects prioritize inclusive practices, emotional safety, and youth agency in the development of digital tools. What differentiates our study is the framing of co-design not only as a method for creating functional prototypes, but also as an educational and civic experience. By positioning youth as reflective data contributors and emotional agents, our framework broadens the scope of participatory design toward a more holistic and interdisciplinary model of engagement.

2 Theoretical Background

Mental well-being may be conceived as the extent to which individuals feel both pleasure and meaning in life, a two-fold phenomenon that has been explained within two interrelated perspectives. The hedonic perspective explains mental well-being in terms of happiness, as the balance between enjoyable and negative moments, along with the pursuit of enjoyment and the absence of pain. In contrast, the eudaimonic perspective prioritizes self-realization, conceiving of well-being as the degree to which individuals live in harmony with their authentic selves, their values, self-development, and moral virtue rather than pleasure or comfort. Collectively, these roles indicate that a balanced state of mental health includes both the experience of happiness and contentment in living a good life (hedonia) and fulfillment of one's potentialities and values through sincere, purposeful activity (eudaimonia) [44].

Building on this foundation, positive psychology extends the study of mental well-being by examining not only the alleviation of dysfunction but the active cultivation of strengths and virtues that underpin human flourishing. First articulated by Seligman and Csikszentmihalyi [47], it draws on the humanistic emphasis on self-actualization and optimal experience, shifting the focus from pathology to potential.

These concepts collectively inform the present research framework, offering a theoretical basis for understanding mental well-being as both a subjective experience and a developmental process, and grounding our research approach to the topic with a narrow set of research approaches and interventions further discussed in 3.

3 Research Framework

3.1 Co-design

The notion of competence has historically defined the boundary between childhood and adulthood, often depicting children as lacking the abilities and agency associated with adults [56]. Teenagers, however, disrupt this binary by actively influencing and reshaping their

environments [54, 56]. In this context, co-design becomes a valuable approach for addressing a variety of complex issues, including social, environmental, educational, and technological challenges. It empowers individuals and communities to take an active role in shaping their lives and surroundings [61]. Engaging teenagers in co-design supports their empowerment and sense of active citizenship [7], while also requiring recognition of their unique identities, cultural expressions, and shared experiences [58].

Co-designing with teenagers involves multiple layers of complexity [11, 61]. It is essential to clearly communicate the purpose of the activity and the role of each participant to foster engagement and ownership [9, 53]. Factors such as group size, personality traits, social and institutional dynamics, and the characteristics of the workshop environment all influence the level of engagement [53]. Building a sense of affiliation with the activity can be supported by incorporating locally relevant cultural elements, which help participants feel connected and more invested [31]. Structured toolkits improve the clarity and efficiency of co-design processes, supporting scalability and consistency across different sessions [3, 41]. Effective facilitation also remains crucial due to the diversity in age, educational background, and cultural context among participants [13]. Based on these considerations, we developed a research framework grounded in three stable elements: co-design as the core methodology, CS as the lens for engaging with data, and GJ as both a sensitization device and a prompt for exploring mental well-being.

3.2 Citizen Science

CS plays a pivotal role in our research framework, serving as a foundational approach through which we seek to examine its capacity to enhance individuals' awareness and understanding of mental health. By encouraging active participation in data collection and sharing, we aim to assess how such involvement can influence users' perceptions and experiences related to their mental well-being [38]. Mental health conditions are frequently accompanied by a profound sense of isolation and disconnection from others, which can exacerbate psychological distress [37, 55]. In this context, CS initiatives offer a unique opportunity to engage individuals not merely as passive subjects of study but as active and valued contributors part of a community with a common research goal. This shift from subject to collaborator is significant, particularly in the realm of mental health, where feelings of powerlessness, invisibility, and lack of control are common. When individuals are invited to co-create knowledge through CS, they are given a voice in shaping the narratives and data that inform broader understandings of mental health. Citizen science frameworks emphasize collaborative data collection, analysis, and interpretation, enabling participants to engage with scientific processes and fostering a shared sense of purpose and agency [26, 57]. Furthermore, evidence shows that active participation in CS enhances empowerment and educational outcomes, as participants gain skills in data literacy, critical thinking, and self-efficacy [6, 33]. Such involvement affirms their experiences and perspectives as meaningful, which can, in itself, be deeply validating and therapeutic [51]. Moreover, the communal aspects of CS promote a sense of belonging [28] that is often lacking in the lives of those struggling with mental health issues. When participants

engage with others to pursue shared goals, such as understanding patterns in mental health symptoms or identifying the impact of environmental and social factors, they become part of a community bound by empathy, shared purpose, and mutual support [16, 42]. These social connections, even when facilitated digitally, can mitigate feelings of alienation and loneliness by creating opportunities for interaction, recognition, and emotional resonance [49].

In addition, this collaborative framework encourages the development of mutual understanding between participants as well as between researchers and the broader public. By involving individuals in every stage of the research process, from data collection to analysis and dissemination, CS creates a two-way exchange of knowledge that bridges the gap between scientific inquiry and lived experience [39]. This dialogue fosters greater sensitivity to the complexities and nuances of mental health, enabling more inclusive and human-centered research practices. Ultimately, our study investigates whether such participatory methodologies can serve as catalysts for both individual insight and collective support in the domain of mental health. Through this collaborative, empowering, and socially connective model, CS can play a transformative role in how mental health is understood, managed, and destigmatized within society [20].

A dedicated one-hour lecture supported this objective by introducing participants to the core principles of CS. This session highlighted the importance of data collection and underscored the mutual benefits such practices offer to both citizen scientists and researchers.

3.3 Gratitude Journaling

GJ is a paradigmatic positive-psychology intervention that prompts users to systematically record moments of thankfulness while learning how to recognize them. Grounded in the work by Emmons [19] and further supported by Seligman's [48], GJ is shown to cultivate positive emotions and foster a more optimistic outlook on life. In our workshop, participants were encouraged to reflect on moments of gratitude and integrate this theme into the conceptualization of their proposed digital solutions. This approach not only aligns with the broader objectives of fostering emotional self-awareness and building psychological resilience but also leverages the theoretical strengths of gratitude practices, which have been linked to improved mood, reduced depressive symptoms, and enhanced overall life satisfaction [19, 48].

The exercise aimed to prompt students to engage in introspection regarding their mental well-being, guiding them to identify factors that positively or negatively affect them. Through deliberate reflection on gratitude, participants were able to recognize and articulate the positive aspects of their daily experiences, thereby reinforcing adaptive cognitive and emotional processes. This introspective intervention is consistent with research suggesting that regular gratitude practice can lead to a decrease in stress and an increase in resilience [59].

To support this process, a customized gratitude journal was explicitly developed for the five-day workshop. This tailor-made gratitude journal provided a structured framework for daily reflections and facilitated a consistent gratitude practice. The completed journals were subsequently collected and analyzed, allowing us

to assess their usage, determine the extent of participant engagement, and explore the potential influence of GJ on the design of the proposed mobile applications. This analytic approach served to evaluate the immediate impact of the intervention and also provided insights into how integrating gratitude practices can inform and enhance digital solutions aimed at mental well-being support. By embedding GJ in the co-design process, the intervention seeks to create a dual pathway: i) one that promotes individual mental well-being, and ii) another that informs innovative digital solutions based on positive psychology mixed with the direct experience of the participants.

To situate this personalized GJ within the current well-being theory framework, we employed the hedonic versus eudaimonic distinction as outlined in 2 [43]. The covert emoji-based Likert scale [32], ranging from 1 "sad" to 5 "happy", on each daily page, assesses participants' transient emotional states, which is in line with hedonic emphasis on immediate pleasure and positive affect. Conversely, the "I am grateful for..." section provides the space for recording five sources of gratitude, as suggested in the instructions, of various entities or magnitudes. This exercise prompts consideration of significant accomplishments (from academic attainment and sporting success to personal development) as well as smaller episodes of gratitude (from cooking a good meal to completing a simple task or finding time for a hobby), thereby engaging the eudaimonic motivation for competence, autonomy, and meaningful purpose. By utilizing both components in our framework, we aim to spark self-reflection on individual mental well-being while promoting greater introspection on the determinants of a good life, thereby preparing the ground for reasoning about design choices for their prototypes. Being able to gather and analyze these diaries enables us to quantify engagement with hedonic and eudaimonic dimensions and examine the degree to which each dimension influences the ideation and design process.



Figure 1: One page of the tailor-made gratitude journal used in our workshop

3.4 Research Questions

This research investigates the intersection of co-design, CS, and positive psychology interventions for the mental well-being of adolescents. The study was guided by two main research questions aimed at understanding the effects of reflective practices and co-design on participant engagement and the designed prototypes.

RQ1: How does the integration of CS within a Co-design process influence teenagers’ engagement with mental well-being and their design of digital mental health tools?

RQ2: How does the practice of GJ during a co-design workshop impact adolescents’ self-reflection and the design of mobile app features for emotional and mental well-being?

4 Methodology

4.1 Workshop Format

The workshop lasted five days and ran daily from 9:00 a.m. to 1:00 p.m., and it was organized into two main components: theoretical lessons and co-design sessions.

4.1.1 Theoretical lessons. The workshop began with an introduction to CS, emphasizing its potential to benefit both research and users by providing access to large-scale data. This session was integrated with an overview of mental well-being, culminating in a discussion of GJ as a tool to boost mental well-being and as a method for gathering qualitative data on their mental health and well-being. Each student received a personalized GJ and was encouraged to use it throughout the workshop to reflect on their mental well-being and inspire innovative ideas for their app designs. During the front lessons, other theoretical topics were covered, such as Design Thinking, Mobile App Development, Game Thinking, Large Language Models, and Data Visualization. These theoretical sessions provided essential foundational knowledge and practical skills that the students later applied during the app design process.

4.1.2 Co-design sessions. The co-design process followed a structured series of steps: initial ideation within small groups, voting on the most promising ideas (or merging similar ones), and collaboratively elaborating these into conceptual models. The iterative nature of the process ensured that feedback loops were embedded at each stage, allowing for continual refinement and alignment with participant needs and expectations.

Each group translated their selected idea into a paper-based mock-up, which served as a preliminary visualization of the app’s user interface and functionalities. These mock-ups were then developed into low-fidelity digital prototypes using MIT App Inventor¹, a visual programming environment suitable for rapid prototyping by non-experts. This step allowed participants to see their ideas materialize and interact with a working version of the app concept.

To ensure inclusivity and consensus, a plenary session was organized, during which each group presented its prototype to the larger cohort. After a brief Q&A, a final vote was conducted to select the most representative or promising version. This session was pivotal in determining the final prototype and functioned as a moment of collective validation and reflection on the design journey.

4.2 Participants

Our workshop was conducted as a *PCTO*², an educational program implemented in the final three years of Italian upper secondary schools to enhance students’ understanding of the labour market, assist in making informed decisions about further education, and develop essential soft skills. A total of 85 participants (aged between

16 and 18), of which 65 were males and 20 were females, from three different scientific high school (*Liceo scientifico*) institutes: Fulcheri (Forlì), Marie Curie (Savignano), and Da Vinci (Cesenatico). Participants were randomly assigned to 17 groups of five students each, with each group independently co-designing its own prototype.

5 Results and Reflections

In this section, we present some of the prototypes that were designed within the workshop. Due to the need for a focused discussion, we present and discuss three emblematic prototypes. The prototypes have been compared through means of thematic analysis [8, 15], by which some patterns surfaced and the prototypes were assigned with a score aimed at defining i) the level of comprehension and implementation of the founding concepts of the workshop, ii) and the originality of the prototype design. Subsequently, these prototypes (out of 17) have been chosen because they present both common elements with other prototypes as well as being different from each other, enabling us to provide meaningful examples of the average proposals while demonstrating the variety and originality of the design processes.

5.1 Prototype: “HealthyTree”

5.1.1 Description. One of the co-designed app prototypes features a metaphorical interface centered around the growth and well-being of a virtual plant, symbolizing the user’s mental and emotional state. HealthyTree encourages users to reflect on their experiences by sharing their thoughts and engaging in mood-boosting activities. These interactions directly influence the plant’s vitality, encouraging consistent engagement by visually representing emotional self-care through the plant’s growth or withering. The app addresses various dimensions of adolescent life that can impact well-being, including school, sports, relationships, personal passions, and future aspirations.

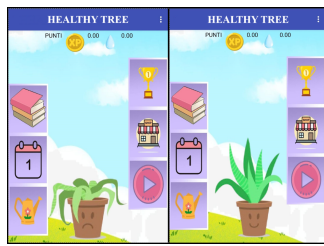
5.1.2 Reflection. The app is built on a relevant and important premise for enhancing well-being, based on the idea of a plant acting as an avatar for an individual user’s emotional state. The caring for and tending to a plant is ultimately metaphorical, but psychologically meaningful. Many studies support the idea that caring for and looking after a living entity, like a plant, can positively support our well-being and mental health [25, 36]. Even when transposed in the digital environment, the positive effects partially remain [17]. While formalising care reinforces some emotional connection, it brings purpose and responsibility, which are known to improve mood and stress, or in Durkheim’s terminology, it contrasts *anomie* [18].

Furthermore, the app is intentionally using themes that are very relatable for the intended audience of youth, also meaning it integrates relevant aspects of their everyday lives (school, sports, hobbies, dreams, etc.). These themes are influential and could allow beginners to reflect on areas that impact their mental states. Further, research on user engagement tends to show that digital interventions that reflect users’ interests (and challenges) are more likely to initiate a sustained response of engaged interaction and emotional involvement [43].

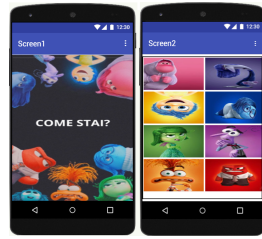
From a sociological perspective, the app’s design can also be viewed through the lens of social connectivity and the impact of

¹<https://appinventor.mit.edu/>

²In Italian, *Percorsi per le Competenze Trasversali e per l’Orientamento*



(a) HealthyTree uses a plant metaphor.



(b) MoodProof character selection to express emotions.



(c) Feeling Good! user interface with color-coded text

Figure 2: Three different approaches used in the different mobile app prototypes to visualize and interact with emotional or mental health states: (a) HealthyTree, (b) Feeling Good!, (c) MoodProof.

isolation on mental health. The works of influential sociologists such as [18] and [23] emphasize the importance of social ties, both weak and strong, in maintaining psychological well-being. The app’s approach, encouraging users to reflect on their daily emotional experiences and share them with others, aligns with these theories by fostering a sense of community and connection, which is often diminished in times of mental distress or isolation. In particular, [24] theory on weak ties underscores the value of sharing personal experiences, even in more casual social circles, as these ties can provide emotional support and resilience.

Moreover, the app’s interactive nature encourages users to engage in a process of continuous self-monitoring and emotional reflection, which aligns with the concept of social feedback loops. As [50] posited, individuals are constantly influenced by their social environment and interactions, and in this case, the sharing feature fosters a positive feedback loop where users not only share their own experiences but are also exposed to the positive experiences of others. This can lead to a collective emotional uplift, with the potential to combat feelings of isolation and foster a supportive virtual community.

Essentially, the app’s combination of interactive design, relatable themes, and its integration of social and psychological principles offers a promising tool for promoting mental well-being among youth. By grounding the app’s concept in well-established psychological and sociological theories, it provides a strong foundation for

fostering positive emotional development and counteracting the detrimental effects of isolation.

5.2 Prototype: “Feeling Good!”

5.2.1 Description. The Feeling Good! app is designed to promote daily reflection on one’s emotional well-being (see 2c) by asking users whether their day has been positive or negative. When users encounter positive experiences, such as a vacation or time spent with friends, they can document them in the app. In contrast, during challenging days, the app responds by suggesting a memory or moment intended to uplift the user and enhance their mood. The app encourages social sharing by allowing users to share their emotional state and experiences with friends, fostering a sense of community. Additionally, a global sharing feature allows users to view and draw inspiration from the positive experiences of others. The app also includes a progress tracking system, where users can see improvements over time, with rewards given for emotional milestones. By collecting data and generating statistics, the app aims to provide personalized insights that contribute to the ongoing enhancement of the user’s emotional well-being.

5.2.2 Reflection. The Feeling Good app offers a novel way of promoting mental wellness through the utilization of a timeline feature intended to monitor day-to-day events, alongside a language model (LLM) that reminds and affirms the user of pleasant experiences. Utilizing a timeline enables one to reflect continuously on his or her emotional progress, thereby assisting in the development of gratitude through active recall of pleasant experiences. The concept of leveraging a memory bank to augment the practice of gratitude is underpinned by a broad base of empirical research in positive psychology that illustrates the significance of gratitude in mental health. Empirical research illustrates that regular practice of gratitude can contribute to an enhanced mood, lowered stress levels, as well as increased emotional resilience [19]. By enabling users to introspect and relive positive memories, the app not only generates emotional wellness but also supports a positive reinforcement feedback loop that has the potential to nullify negative emotional states.

The incorporation of social mechanisms in the application, like sharing emotional experiences with friends and being part of a worldwide community, tremendously adds to its potential for providing emotional support. This element uses the principle of mutual emotional engagement, where individuals not only share their personal emotions but also can gain from the uplifting experience of others. The platform is specifically skilled in creating sentiments of community and connectedness, both of which are fundamental in solving matters of social isolation and mental health. Similarly to the other prototype app, weak social ties play a role here too [18, 23]. Similarly, in this case, the app provides a virtual platform by which individuals can support each other, limiting the feeling of loneliness by promoting social bonding through the sharing of personal content that reflects the user’s mental state.

In addition, the idea of rewards for emotional progress, tracked through the app’s progress tracking system, adds an element of gamification. Research in gamification and motivation of users suggests that providing tangible rewards for minor emotional gains

can help increase user engagement and provide a sense of accomplishment [1, 43]. This feature encourages frequent use of the app to empower users to gain control over their emotional well-being, reinforcing the app's role as a tool for personal growth. The integration of a clearly defined timeline, mechanisms for social interaction, and elements of gamification results in a comprehensive strategy for enhancing mental health. Through the incorporation of gratitude-focused practices alongside features that facilitate social support, the Feeling Good app leverages well-established psychological and sociological frameworks to foster emotional resilience and overall well-being, presenting an encouraging digital solution for individuals aiming to enhance their mental health within a community-oriented context.

5.3 Prototype: “MoodProof”

5.3.1 Description. The core idea for MoodProof is to facilitate emotional awareness of self and general well-being by enabling users to log their present mood, represented by the characters of the famous movie “Inside Out” 2b³, and get personalized tips. Based on the emotional state provided, the software supplies the user with various customized activities such as listening to a favorite song, doing mood-enhancing exercises, or getting clear, reassuring instructions, aiding individuals to manage their state of mind and improve their current mood.

Furthermore, one of the unique features of the application is how it integrates user-generated emotional data into shared visualizations. The emotions logged by the users are anonymously aggregated and made into real-time statistical visualizations that represent shared patterns of emotion among the user population. Similarly to the FeelingGood! prototype, MoodProof provides a function for collective mood mapping, adds a social aspect to personal emotional experience, and has the potential to decrease users' feelings of solitude regarding their emotions, while also presenting insightful information regarding the temporal variations of mental well-being within a fixed cohort. Lastly, the aggregated data can be used by policymakers to intervene in support of the user target, taking into account changes in mental well-being over time, concerning cultural changes or other events that may have an impact on the collectivity.

5.3.2 Reflection. One of the most intriguing elements of this application is its potential to collect and visualize users' emotional information and thereby offer an overview image of the emotional atmosphere of the community. This does not merely have a descriptive but also a prescriptive purpose: by allowing for comparisons between one's emotional state and that of others, it has the potential to decrease the subjective atypicality of negative emotions and help normalize emotional differences. This strategy is consistent with sociological frameworks for emotional deviance [29], which contend that feelings of “inappropriate” or “abnormal” emotions can result in internalized stigma and solitude. By providing pooled affective information, the intervention compassionately informs individuals that sadness, anxiety, or frustration are shared in nature and not indicators of personal fault.

Moreover, the utilization of pop-culture allusions, such as allusions to the cartoon film, chosen by the group, “Inside Out”, is utilized to make the tone of the app lighter and base it in shared cultural narratives. Such allusions can make the user more engaged, especially younger users, and remind the user that it is okay and normal to experience a range of emotions. Finally, the provision of just-in-time affective support is in line with findings from affective computing and mental health studies that timely and context-aware interventions may contribute to the effective alleviation of stress and improvement of mood [10], which leaves room for implementations of other technologies to provide fitting custom feedback to the user (e.g., LLMs).

5.4 Findings

This study set out to explore how the integration of CS and GJ within a co-design framework could contribute to the development of mental well-being app prototypes for adolescents. In this section, we provide answers to our RQs 3.4.

5.4.1 Answer to RQ1. In response to RQ1, our findings show that CS acted as a conceptual and methodological scaffold for empowering participants to consider their mental health experiences as both personally meaningful and socially relevant. The CS framework prompted students to think of their contributions not as isolated expressions, but as part of a broader dataset that could inform understanding and action. This mindset was reflected in several app prototypes that integrated features such as mood tracking, collective data visualizations, and emotional mapping (e.g., MoodProof), all designed to normalize emotional fluctuations and foster a sense of shared experience.

5.4.2 Answer to RQ2. As for RQ2, the incorporation of GJ offered participants a structured opportunity for emotional self-reflection throughout the five-day workshop. This practice not only supported individual introspection but also inspired app features focused on memory recall, gratitude journaling, and mood regulation (e.g., Feeling Good!). The process of writing in the journal helped students identify patterns in their emotional lives and transform those reflections into ideas for app functionalities that encourage positive habits and offer affective support.

6 Limitations

This study is part of a larger ongoing project, and we recognize that the lack of quantitative data in support of our statements can hinder the validity of our findings. Nonetheless, during the workshop we gathered a great quantity of quantitative data through surveys, and we are eager to deepen our study by analysing this data and comparing them with the qualitative findings. Furthermore, we recognize the added value that a longitudinal study would provide on the monitoring of Mental Well-being through time, and we are considering pursuing this opportunity.

7 Conclusive Remarks

The complementary nature of CS and GJ emerged as a defining feature of our workshop. GJ provided a pathway for introspection and personal narrative, while CS offered a framework for transforming those reflections into anonymized, aggregate data with broader

³<https://www.pixar.com/inside-out>

social and research value. This framework serves a dual purpose: it empowers users with cognitive tools to interpret their own emotional experiences and mental states, and it enhances data literacy by equipping them with the knowledge needed to design tools that foster collective awareness, which can help reduce feelings of abnormality and isolation.

This approach opens up new possibilities for research, policy, and individual empowerment. For researchers, it provides a scalable and youth-driven method for collecting ecologically valid, affective data over time. For policymakers, the aggregated insights generated by such platforms could inform targeted interventions or resource allocation in schools and youth services. For individual users, the apps' sharing and visualization features help normalize fluctuating emotions and foster a sense of belonging through ambient, data-driven empathy.

Ultimately, our workshop proposes a novel co-design framework in HCI that integrates CS and GJ with the explicit aim of fostering data literacy. This framework empowers adolescents to reflect on and interpret their own well-being data and to co-create digital tools that situate personal experiences within a supportive community. By combining introspective practice with collective data awareness, it provides dual pathways for personal growth and community engagement, and lays the groundwork for more inclusive, empathetic, and participatory mental health technologies.

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