The 2024 Well-Being by Design Fellows participated in a four-month professional development program for designers and producers of interactive kids' technology and media. They met online to workshop their current projects, network with other fellows, and gain insights from research and industry leaders as they worked to incorporate principles of well-being into their designs. We are delighted to share highlights from each fellow's experience.

Dr. Franceli L. Cibrian

Dr. Franceli L. Cibrian is an assistant professor at the Fowler School of Engineering at Chapman University. Her research interests focus on designing, developing, and evaluating digital health intervention and assessment to support children in achieving healthcare, education, and well-being outcomes. She belongs to the National System of Researchers in Mexico, given by CONAHCYT-Mexico. She completed her postdoctoral training at UCI and received her Ph.D. and master's in computer science at the CICESE Research Center in Ensenada, Mexico.

CHAPMAN UNIVERSITY

PRODUCT: CoolCraig: Taking Self-Regulation in Your Own Hands

TARGET AGE: 8 to 15 years old

→ **COOL CRAIG**

Goals   Rewards   Mood tracking

This project aims to promote self-regulation in neurodiverse children through wearables (e.g., smart watches). Self-regulation includes modulating reactions to stimuli using appropriate strategies (e.g., breathing) and is fundamental to adaptive developmental tasks, impacting academic achievement and well-being. However, children, especially those who are neurodiverse, face challenges in this area, leading to externalizing behaviors, often perceived as rule-breaking. We find that wearables have promising capabilities as interventions to support self-regulation. In tandem with a multidisciplinary and multi-institutional team, we have been developing interventions to support the self-regulation of children with Attention Deficit and Hyperactivity Disorders (ADHD) using smartwatch tracking capabilities with an interactive application that supports families in utilizing self- and co-regulation strategies.

HOW WE INCORPORATE WELL-BEING COMPONENTS NOW

+ CoolCraig aims to support co-regulation among children and their caregivers using a smartwatch and a phone application.

+ To support **emotion regulation**, the smartwatch triggers notifications throughout the day to ask, "How are you feeling?" and prompts the child to select a Zone of Regulation color option (green, red, yellow, and blue). This brief activity allows the child to stop, be aware, and reflect on their emotions as they glance at their watch.

+ To support parent-child **social connection**, the parent's phone app synchronizes and provides a set of goals (similar to a to-do list) to the child's smartwatch app so the child has access to the day's goals and can communicate with parents about their progress through the day.

+ Finally, this application is centered on **diversity, equity, and inclusion (DEI)**, as it uses visible wearable technology with an invisible assistant to avoid stigma and to support children who may need it.

WHAT MORE CAN OUR PRODUCT DO TO ADDRESS CHILDREN'S WELL-BEING?

For the next iteration of our design, the CoolCraig app aims to elevate the children's experience by aligning with the RITEC framework. Beyond facilitating emotion regulation, DEI, and social connections, we will focus on including **creativity**, **competence**, and **empowerment** into the app's core functionalities. We envision achieving this by introducing an interactive, gamified approach to understanding and visualizing emotions and goals accomplishment. Children will still respond to prompt questions about their moods and emotions using the smartwatch, but with a twist - their responses will translate into their very own "Emotional Garden" on a phone app. The garden will blossom, with flower petals representing the colors of the Zone of Regulation. Flowers will flourish based on daily goal achievements. By offering this creative visualization of their emotional landscape, coupled with access to historical data, we aim to enhance children's sense of competence and improvement over time. Moreover, the gamified element of nurturing and growing these virtual flowers will serve as a digital empowerment tool, motivating users to strive towards accomplishing their goals.

> *Digital well-being is a spectrum of interrelated domains that cannot be seen as isolated. Therefore, designing and developing digital tools and interventions for children requires a deep understanding of digital well-being. Throughout the fellowship, studying the digital well-being framework helped us to think broadly about the eight domains of well-being and how applications can be designed for one main domain, but supplemented with others to improve overall outcomes.*

REFLECTION

+ Incorporating well-being into the design will improve the product and self-regulation outcomes.

+ Young people know best! Considering their opinions, thoughts, assets, and concerns will inform better design and will help to translate the well-being components into actionable prompts that could be incorporated into the product.

LOOKING AHEAD

In the future, we will develop the "Emotional Garden" and conduct more co-design sessions with experts, caregivers, and clinicians to refine the idea before conducting a deployment study with real families.

HOW CAN WE EFFECTIVELY EMPOWER CHILDREN TO REFLECT ON THEIR EMOTIONS?

Finding. Initial studies from the CoolCraig app show more engagement among children with goal-setting features compared to the mood-tracking.[1,2] Currently, our research team is conducting a deployment study focusing on implementing a glanceable emotion visualization for smartwatches.

Recommendation. To improve reflection and engagement, it is important to develop the proper visualization and gamified interfaces to offer children a sense of achievement and long-term reflection about their emotions and behaviors.

HOW CAN WE CREATIVELY INTEGRATE MOOD AND GOAL TRACKING INTO AN INTERACTIVE DATA VISUALIZATION?

Finding. Mood and goals-tracking apps have been traditionally designed for adults, and those designed for children usually do not mix mood with goals. However, to support self-regulation, both aspects should be integrated seamlessly.

Recommendation. Match the data visualization and interactive features, while considering the well-being domains rather than viewing them as separate entities. This approach will ensure a more comprehensive and engaging user experience.

RESEARCH TEAM

Jesus A. Beltran, University of California Irvine
Yingchen 'Yuki' Chen, Chapman University
Gillian R, Hayes, University of California Irvine
Kimberley D. Lakes, University of California, Riverside
Sabrina E. B. Schuck, The Craig School
Lucas M. Silva, University of California Irvine

[1] Silva, L. M., Cibrian, F. L., Monteiro, E., Bhattacharya, A., Beltran, J. A., Bonang, C., … & Hayes, G. R. (2023, April). Unpacking the Lived Experiences of Smartwatch Mediated Self and Co-Regulation with ADHD Children. In Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems (pp. 1-19).

[2] Cibrian, F. L., Monteiro, E., Ankrah, E., Beltran, J. A., Tavakoulnia, A., Schuck, S. E., … & Lakes, K. D. (2021). Parents' perspectives on a smartwatch intervention for children with ADHD: Rapid deployment and feasibility evaluation of a pilot intervention to support distance learning during COVID-19. PloS one, 16(10), e0258959.

SESAME WORKSHOP
Joan Ganz Cooney Center

For more information about the Well-Being by Design Fellowship program, please visit joanganzcooneycenter.org/fellowship2024