

Akeiyah DeWitt, M.S.

adewitt@uw.edu | adewitt0.wixsite.com/akeiyah | www.linkedin.com/in/akeiyahdewitt/

Dissertation Contributions – Improving the Cultural Relevance of Mobile Health Technologies

I have directed a range of human-centered, qualitative research initiatives to develop a framework for culturally relevant mobile health technologies in child development. This framework promotes health equity for underserved communities by considering the diverse needs and contexts of families.

These initiatives encompass:

- **Community-driven co-design sessions, interviews, and focus groups** with parents in Washington to gain insights into their successes and challenges with technologies and identify design directions for culturally relevant prototypes.
- **Concept testing** of a culturally relevant chatbot interface using wireframes to test and refine design requirements.
- The creation and validation of a **heuristic evaluation** method that enables designers to evaluate culturally relevant factors in all stages of design processes (i.e., from ideation to continuous monitoring).
- A **content analysis and systematic literature review** of the market of >300 child development support mobile apps and related academic literature, to identify research and design gaps and opportunities in the field.

References

Julie Kientz, Ph.D. (Academic Advisor) – jkientz@uw.edu

Sean Munson, Ph.D. (PhD committee member) – smunson@uw.edu

Education

Ph.D. Human Centered Design and Engineering, University of Washington <i>Committee: Drs. Julie Kientz, Sean Munson, Keshet Ronen, and Brian Saelens (GSR)</i>	2019 – Now
M.S. Human Centered Design and Engineering, University of Washington	2019 – 2022
B.S. Cognitive Science, University of California Merced	2016 – 2019

Awards & Recognition

“Seattle Inno Under 25 Class of 2022” Feature	2022
National Science Foundation Graduate Research Fellowship (Honorable Mention)	2021
Ford Foundation Fellowship (Honorable Mention)	2021
University of Washington Population Health Initiative: Pilot Research Grant (\$49, 912)	2021
Computing Research Association – Grad Cohort for URMD (\$1,400)	2020

Work and Research Experience

(Current) Student Researcher – Google / Fitbit Research

Managers: Heather Cole-Lewis, Ph.D., Mark Malhotra

- Synthesized internal and external guidance on health equity and generative AI to create unified guidelines for designing and deploying AI models in healthcare contexts.
- Developed and executed research plans to create, prototype, and validate product features for AI-supported health care.
- Improving project visibility and sustainability by leveraging the expertise of diverse teams across the business; pinpointing opportunities for collaborative innovation in the pursuit of health equity and community-centered AI.

Teaching Assistant – HCDE 501: Theoretical Foundations of Human Centered Design and Engineering 2022

Professor: Mark Zachry, Ph.D.

Graduate-level course.

Design Researcher Intern – Microsoft

2022 – 2022

Managers: Lindsay Long, Ph.D., Jim Sanders, M.S.

- Led the development of actionable guidelines for the design and content of a product experience.
- Leveraged existing and ongoing research from my team and others to produce comprehensive and versatile insights.
- Created protocols for and proctored >200 qualitative surveys and 5 semi-structured interviews to identify and document customer perspectives.
- Guided the development of wireframe prototypes and validated them through 5 customer feedback sessions.
- Translated research findings into actionable guidance for product teams and other cross-functional stakeholders.

User Experience Researcher (contract) – Esri

2022 – 2022

Manager: Kyle Jones, Ph.D.

- and executed a virtual usability evaluation of a desktop app, and established baseline for future benchmarking studies.
- Improved the utility of past customer research through comprehensive data entry of over 100 research studies conducted prior to 2020 into a collaborative research repository using Airtable.

Research Lead – Developing a Heuristic Evaluation method for child mHealth apps

2022 - Now

University of Washington Department of HCDE

- Led a research group of Master's students to synthesize guidance from literature and design experience to develop a heuristic method for child development mobile apps.
- Publication in progress.

Research Lead – Child Development Support and Promotion in King County

2022 - Now

University of Washington Department of HCDE

- Initiated a community partnership to facilitate co-design sessions with parents of young children.
- This initiative aimed to gather insights into their experience with health promotion and technology, fostering a community-centric approach that empowers parents to influence research and design directions.
- Mentored a Master's design student on qualitative research methods, community research engagement, and health equity concepts.
- Publication in progress.

Research Lead – Content Analysis of Mobile Apps for Early Childhood Health 2021 - 2022

University of Washington Department of HCDE

- Identified and coded over 200 mobile apps on both the Google Play Store and Apple App Store that targeted children's healthy development up to age five.
- Developed evaluation criteria focused on equity, aiming to enhance app engagements for parents and caregivers from underserved backgrounds.
- Evaluated app content and information delivery formats to determine barriers in apps to assisting parents and caregivers from underserved backgrounds.
- Published findings that provide valuable guidance for researchers and designers to develop apps in this area that promote health equity and benefit families with complex experiences.

User Experience Research Intern – Esri 2021 – 2021

Manager: Kyle Jones, Ph.D.

- Developed a virtual and asynchronous usability test series for a mobile app. Engaged developer team in creating usability benchmarks from scratch.
- Synthesized findings into actionable guidance that informed feature prioritization for the next product update, communicated opportunity areas to improve user experiences.

Teaching Assistant – HCDE 517: Usability Studies 2021 - 2021

Professor: Brook Sattler, Ph.D.

Graduate-level course.

Course Grader – HCDE 518: User-Centered Design 2021 - 2021

Professor: Julie Kientz, Ph.D.

Graduate-level course.

Research Assistant – Supporting Families at Home with Technology during COVID-19 2020 - 2022

University of Washington Department of HCDE; PIs: Julie Kientz, Ph.D., Sean Munson, Ph.D.,

Jason Yip, Ph.D., Alexis Hiniker, Ph.D.

- Conducted virtual, semi-structured parent interviews to understand in-home technology experiences (across school, work, socialization, and home organization) after the onset of shelter-in-place guidelines.
- Analyzed diverse qualitative data across interviews, online surveys, ideation activities, and diary study entries to illuminate opportunities to support families with their shifting technology needs and experiences during the pandemic.

- Synthesized research findings and contributed to a major research publication, delivering timely information on family's technology needs during unprecedented times.

Teaching Assistant – HCDE 315: Interactive Systems Design and Technology (Python) 2020 - 2020

Professor: Sean Munson, Ph.D.

Undergraduate-level course.

Research Lead – Systematic Review of Trends in Developmental Milestone Screening Apps 2019 - 2022

University of Washington Department of HCDE

- Conducted a systematic literature review spanning the last decade of peer-reviewed literature on developmental milestone screening apps for parents.
- Documented current research practices and identified opportunities for promoting health equity in technology innovation within the field.
- Led and mentored a research group of three undergraduate students, imparting qualitative data analysis and coding for literature review skills.
- Led and conducted qualitative analysis of codes to identify key patterns, and distilled insights in academic research publication.

Research Assistant – Analysis of Trends in Interaction Design and Children Literature 2019 - 2020

University of Washington Department of HCDE, PI: Saba Kawas, Ph.D.

- Used a systematic approach to parse literature for relevant concepts within a pre-defined coding scheme.
- Conducted an in-depth analysis of qualitative codes to identify emergent themes in research practices across interaction design work with children.
- Contributed to documenting study protocol and findings by drafting and revising research publication.

Research Assistant – Threat and Decision Making with Machine Agents 2018 - 2019

UC Merced Department of Cognitive Science, PI: Colin Holbrook, Ph.D.

- Established a new research approach for human-robot interaction experiments; demonstrated strengths and limitations of approach in the context of threat and reliance on machine agents in ambiguous situations.
- Iteratively refined research protocols to minimize bias in study design, ensuring the validity and reliability of research results.
- Supervised and conducted experiments with human participants while adhering to university research guidelines and ethics standards.
- Mentored novice researchers on human subject research protocols.

Research Assistant – Onboarding Redesign for a Citizen Science Game: Eterna 2018 - 2019

UC Merced Department of Cognitive Science, PI: Jeff Yoshimi, Ph.D.

- Developed comprehensive research protocol to assess player performance after integrating a game strategy guide into the onboarding levels of a popular citizen science game.
- Conducted a multivariate analysis of user data to identify key insights into player behaviors, game performance, perceptions, and experiences.

- Established design frameworks and considerations for multimedia learning tools, making project insights extensible for other educational games.

Research Assistant – *Embodied Actions with Three Evaluation Tools for Children* 2018 - 2019

UC Merced Department of Cognitive Science, PIs: Cristina Maria Sylla, Ph.D., Ahmed Sabbir Arif, Ph.D.

- Redesigned traditional psychometric scales to incorporate child-interaction research approaches, enhancing the relevance and applicability of those scales for child-interaction research.
- Conducted detailed qualitative and behavioral analysis of recorded interviews that included children's feedback and recording of their interactions with the scale; utilized pre-defined coding scheme and provided valuable insights into child behavior patterns.
- Transformed complex research findings into accessible and actionable formats for designers, promoting the application of research insights into product development.

Lead User Experience Researcher 2018 - 2019

UC Merced Department of Sustainability and School of Engineering

- Spearheaded comprehensive user research through semi-structured interviews with students, faculty, and campus visitors, gaining critical insights into user needs and perceptions of campus sustainability initiatives.
- Facilitated co-design sessions between target users and designers, fostering a collaborative environment that encouraged innovative design solutions.
- Designed, developed, and evaluated mobile and web app prototypes using Axure RP, ensuring usability and functionality aligned with user needs and expectations.
- Transformed user insights into actionable strategies, leading to the development and successful launch of a campus-wide app.
- Initiated and led the integration of GIS applications with customizable data visualizations, enhancing end-user experiences and engagement.

Research Assistant – *Multimodal Coordination of Sound and Movement in Music and Speech* 2017 - 2019

UC Merced Department of Cognitive Science, PIs: Camila Alviar, Ph.D., Chris Kello, Ph.D.

- Led quantitative data collection and analysis to parse sound and video signals from recorded music performances using MATLAB and R.
- Presented insights on the linkages between sound and video signals to non-expert audiences, to quantify human behaviors from an embodied perspective.

Research Assistant - *Cognition and Integrated Action Lab* 2016 - 2017

UC Merced Department of Cognitive Science, PI: Rick Dale, Ph.D.

- Led the review and enhancement of video footage from a live talk series, ensuring optimal data quality for subsequent analysis phase.
- Encoded action and speech data following pre-determined parameters using R studio and lab-developed analysis techniques.
- Initiated and facilitated brainstorming sessions to create new methods to improve data collection and experimental consistency.

Peer-Reviewed Publications

[Under Review] Stephen R. Pfohl, Heather Cole-Lewis, Rory Sayres, Darlene Neal, Mercy Asiedu, Awa Dieng, Nenad Tomasev, Qazi Mamunur Rashid, Shekoofeh Azizi, Negar Rostamzadeh, Liam G. McCoy, Leo Anthony Celi, Yun Liu, Mike Schaekermann, Alanna Walton, Alicia Parrish, Chirag Nagpal, Preeti Singh, **Akeiyah DeWitt**, Philip Mansfield, Sushant Prakash, Katherine Heller, Alan Karthikesalignam, Christopher Semturs, Joelle Barral, Greg Corrado, Yossi Matias, Jamila Smith-Loud, Ivor Horn, Karan Singhal. 2024. A Toolbox for Surfacing Health Equity Harms and Biases in Large Language Models.

[In-progress] **Akeiyah DeWitt**, Andrea Parker, Christina Harrington, Heather Cole-Lewis. 2024. Design principles for Centering Health Equity in the Design of Health LLMs.

[In-progress] **Akeiyah DeWitt**, David Nguyen, Julie Kientz. 2024. Integrating Cultural Safety into an mHealth Technology for Child Development Support.

[In-progress] **Akeiyah DeWitt**, Rebecca Michelson, Ria Nagar, Alexis Hiniker, Jason Yip, Sean A. Munson, and Julie A. Kientz. 2024. Designing Methods Towards Resilience: A Critical Reflection on Co-Designing Technology with Families During Early COVID-19.

[In-progress] **Akeiyah DeWitt** and Julie Kientz. 2024. Development of a Heuristic Method for child health promotion mobile apps.

Calvin Liang, Emily Tseng, **Akeiyah DeWitt**, Yasmine Kotturi, Sucheta Ghoshal, Angela D.R. Smith, Marisol Wong-Villacres, Lauren Wilcox, and Sheena Erete. 2023. Surfacing Structural Barriers to Community-Collaborative Approaches in Human-Computer Interaction. *ACM CSCW 2023 Workshops*. ([link](#))

Akeiyah DeWitt, Julie Kientz, Kendra Liljenquist. 2022. Quality of Mobile Apps for Child Development Support: Search in App Stores and Content Analysis. *JMIR Pediatrics and Parenting*. <https://doi.org/10.2196/38793>

Akeiyah DeWitt, Julie Kientz, Tumaini Coker, Kendra Liljenquist. 2022. mHealth Technology Design and Evaluation for Early Childhood Health Promotion: Systematic Literature Review. *JMIR Pediatrics and Parenting* 5, no. 4: e37718. <https://doi.org/10.2196/37718>

Rebecca Michelson, **Akeiyah DeWitt**, Ria Nagar, Alexis Hiniker, Jason Yip, Sean A. Munson, and Julie A. Kientz. "Parenting in a Pandemic: Juggling Multiple Roles and Managing Technology Use in Family Life During COVID-19 in the United States." *Proceedings of the ACM on Human-Computer Interaction* 5, no. CSCW2 (2021): 1-39. <https://dl.acm.org/doi/pdf/10.1145/3479546>

Saba Kawas, Ye Yuan, **Akeiyah DeWitt**, Qiao Jin, Susanne Kirchner, Abigail Bilger, Ethan O. Grantham, Julie A. Kientz, Andrea Tartaro, Svetlana Yarosh. 2020. Another Decade of IDC Research: Examining and Reflecting on Values and Ethics. *In Proceedings of the International Conference on Interaction Design and Children*. <https://dl.acm.org/doi/pdf/10.1145/3392063.3394436>

Camila Alviar, Rick Dale, **Akeiyah DeWitt**, Christopher T. Kello. 2019. Multimodal Coordination of Sound and Movement in Speech. *Discourse Processes*. <https://doi.org/10.1080/0163853X.2020.1768500>

Cristina Maria Sylla, Elena Márquez Segura, **Akeiyah DeWitt**, Ahmed Sabbir Arif, Eva Irene Brooks. 2019. Fiddling, Pointing, Hovering and Sliding: Embodied Actions with Three Evaluation Tools for Children. *Proceedings of the 2019 CHI PLAY Conference – CHI PLAY '19*. <https://doi.org/10.1145/3311350.334717>

Service

2022 – 2024 HCDE Diversity, Equity, and Inclusion Committee – PhD Ombudsperson, Recruitment and Hiring Subgroup

2019 – 2024 College Admission and Scholarship Essay Editor and Reviewer

2020 – 2024 HCDE PhD Mentoring Program Lead

2023 JMIR Pediatrics and Parenting – Reviewer

2023 ACM DIS – Reviewer

2023 ACM CHI – Reviewer

2021 – 2022 HCDE Graduate Student Association – PhD Student Representative

2022 ACM CHI – Reviewer

Presentations

Child Health Equity Research Program. Seattle Childrens Research Institute. 2024. Presented research highlight: Culturally Safe Approaches for Designing Health Technologies.

Behavioral Interventions Core. University of Washington Department of Global Health. 2023. Presented research highlight: Culturally Safe Health Technology: A New Framework for Child Development Support through mHealth.

Workgroup on Interactive Systems in Healthcare (WISH) @ CHI 2023. Hamburg, Germany. Presented research highlight: Quality of Mobile Apps for Child Development Support.

Society for Research in Child Development (SRCD). 2023. Salt Lake City, Utah. Presented research highlight: Co-designing a culturally relevant technology system for child development support.

California Cognitive Science Conference. 2018. Berkeley, California. Presented Paper: Hierarchical Temporal Structure in the Sounds and Visible Movements of Speech and Music.

Research Methods and Skills

- Structured and Semi-Structured Interviews
- Participatory Design
- Co-design
- Focus Groups
- Competitive Analysis
- Qualitative Data Collection and Analysis
- Survey Design and Analysis
- Systematic Literature Review
- Scoping Literature Review
- Usability Studies
- Content Analysis

- Design Sprints
- Agile UX
- Heuristic Evaluation
- Secondary Research
- Interaction Design
- Institutional Review Board (IRB) Application Preparation
- Grant Writing
- End-to-End Research Project Management
- Wireframe Evaluation
- Lab Studies
- Field Studies
- Diary Studies
- Concept Testing

Research Tools

- UserTesting, Respondent (Recruitment and Study Proctoring)
- Qualtrics, Google Forms, SurveyMonkey, TypeForm (Surveys)
- Dovetail, Airtable, Asana, Dedoose, ATLAS.ti, Miro, Google Suite, Microsoft Suite (Analysis, Reporting, and Collaboration)

Interest Areas

- Generative AI and Large Language Models
- Health Equity
- Mobile Health Technologies
- Equitable Community Engagement
- Community-Based Research
- Participatory Research and Design