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Looking at Participant Engagement for Product Design Through a Critical Lens

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Abstract

Human factors focus on taking the users' capabilities, limitations, and environment into consideration when developing products. Thus, it is essential to have diverse perspectives and voices when designing products to be used by a variety of users. However, this is not always done and can be a missed opportunity in developing inclusive products. In this panel, we bring together researchers from different sectors to discuss challenges and strategies to engage a diverse research population at different stages in the product design process. Topics include research planning and the design process; data collection methods; and community- and participant-level recruitment. We hope that by sharing our experiences, we can prepare others to have the conversations needed that will allow them to successfully approach these topics.

Introduction

Engaging a diverse population, especially those who are generally difficult to access (*hard-to-reach*; Syndor, 2013) and those who are marginalized in multiple identities and are not included in technology design efforts (*forgotten margins*; Harrington, 2020), throughout the different research stages can lead to more inclusive products that cater to the needs, preferences, and abilities of a broader range of people. A diverse population encompasses users with varied social identities (e.g., age, gender, or race), personal characteristics (e.g., education, experience, or income), abilities (e.g., mobility, vision, or cognitive), or areas where multiple identities intersect. Without this active engagement, exclusionary designs can be developed. Focusing on technology for example, Artificial Intelligence (AI) in the healthcare sector can be used to help diagnose patients; however, if the algorithms lack a diverse dataset, it can result in bias due to the limited predictive value, which allows the AI to form patterns based solely on the initial data provided (Natori et. al., 2021). Focusing on a population for example, older adults as a group are diverse in many domains (e.g., demographics, technology access, and aging into/with a disability) resulting in a plethora of differences when it comes to their needs and capabilities (Harris et al., 2020). As such, it is important to engage a diverse population to prevent design decisions based on overly generalizing on one population.

Using a product inclusion lens throughout the stages of research can assist in developing better and inclusive products (Jean-Baptiste, 2020). For instance, human factors practitioners may employ techniques such as personas, maximum variance sampling, or community-based participatory design when designing a study to develop products that target reducing disparities and promoting inclusion (Benda et. al., 2020). There are a variety of techniques that can be used that may lead to further challenges or better designs. Thus, this session will discuss the challenges and intersectionality of strategies across different sectors that engage participants in research.

The panelists will focus on different stages of the product design process where challenges may be faced regarding participant engagement and discuss potential strategies to overcome those challenges. First, Dr. Kenya Oduor will discuss the importance of diversity and inclusion in the research planning and recruitment process and how creative methods for recruitment can engage harder-to-reach populations. Second, Dr. Enid Montague will discuss the benefits and trade-offs of the design processes that center on the most marginalized users. Dr. Rod D. Roscoe will then discuss how demographic identity questionnaires can lead to exclusion or marginalizing participants, resulting in distrust and unwillingness to participate in studies. Next, to ensure users' voices are being heard and needs identified, Dr. Jacklin

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Stonewall will pull from her experience to illustrate the benefits of community engagement and recruitment. Lastly, Dr. Marie Campbell-Statler will share findings on what motivates African Americans to participate in research studies, despite historical mistrust, where she highlights the study's findings and discusses participant-developed techniques for optimizing recruitment strategies.

Panelists Statements

Prioritize Diversity in Research Participant Recruitment in Industry

Kenya Oduor, Ph.D. Dr. Kenya Oduor is the founder and CEO of Lean Geeks. Lean Geeks is a firm focused on creating effective outcomes that enhance clients' products and services. Dr. Kenya works to understand individuals and users to influence their ability to be purposeful and effective. For business clients, she defines, creates, and optimizes products and services in their portfolios. For individuals, she ushers growth in a positive and rewarding direction. To accomplish this, she focuses on understanding human context, defining viable opportunities, and designing effective outcomes. Her specialties include the application of mixed-method research for customer discovery, requirements definition, and formative and summative evaluation. Recognizing the limitations in industry recruitment practices led to her desire to define and employ creative recruitment strategies to ensure participants are diverse and representative of all consumers.

African American/Black and Hispanic/Latinx/Latin(a/o) respectively account for 4% and 9% of user researchers in industry (Balboni, 2021), but make up 13.5% and 18.5% of the US population (Frey, 2022). This disproportionate representation makes it no surprise that most user experience researchers feel their employers are not doing enough to ensure their research practices are equitable and inclusive of diverse perspectives (Balboni, 2021).

The panelist will discuss the significant opportunity that exists to ensure equity and inclusivity in the research planning and recruitment process. Oftentimes, companies lack accurate demographic data on their product and service users. The problem is further compounded by the challenge of (1) gaining access to marginalized communities and (2) ensuring trust relationships are developed to get sufficient participation from individuals in these groups. She will discuss how engaging researchers who exercise creative and less conventional ways to identify and recruit existing and prospective users that belong to marginalized communities is one of several ways to engage harder-to-reach populations.

Inclusive design approaches to support breastfeeding

Enid Montague, Ph.D. Dr. Enid Montague is an associate professor of Mechanical and Industrial Engineering at the University of Toronto. Dr. Montague's research is largely focused on automation in healthcare and the effects of health technology on systems and equity.

Despite the known benefits of breastfeeding for both birthing people and infants, many American women find breastfeeding longer than 6 months difficult. Additionally, non-Hispanic black (Black) infants are less likely to breastfeed, compared with other racial/ethnic groups (Beauregard et. al., 2019) which may contribute to long term racial disparities in health. Additional barriers to breastfeeding are present for African American mothers, such as low access to diverse support networks and breastfeeding resources (Jefferson et. al., 2022) and biases such as fewer referrals to lactation support from clinicians and workplace accommodations (Robinson et. al., 2019). Dr. Urmeka Jefferson and colleagues (2019) developed an mHealth breastfeeding application to support women with achieving their breastfeeding goals. In the second version of this tools, Dr. Montague collaborated with Dr. Jefferson to create a more usable design that also addressed barriers African American mothers reported in earlier studies. In conversations about making a more inclusive design that also addresses the goals of Black mothers who are subject to historical and systemic disadvantages with regards to decisions making in how their babies are fed.

In designing the design and evaluations studies we considered the following questions: 1) whether small sample sizes for formative evaluations would reduce the number of African American mothers that evaluated our intervention, 2) Was it necessary to compare racial ethnic groups in evaluation or was it sufficient to study most groups that was most marginalized? 3) What was the best approach to inclusively recruit African American mothers? 4) How could make our study accessible to Black mothers? 5) How would we build trust in the evaluation process? Lesson learned from these questions will be discussed in the panel.

Who Am I? Who Are You to Even Ask?

Rod Roscoe, Ph.D. Dr. Rod D. Roscoe is an Associate Professor of Human Systems Engineering in the Ira A. Fulton Schools of Engineering at Arizona State University. Research combines insights from learning science, computer science, and design science to improve the implementation of equitable educational technologies. He has contributed to equity-centered projects and scholarship across multiple organizations, including the Human Factors and Ergonomics Society (Roscoe et. al., 2019), the Society for Artificial Intelligence in Education (Roscoe et al., 2022), and Society for Text and Discourse (Roscoe, 2022). He is currently funded by the Gates Foundation to study inclusive language analytics and to develop equity-centered chemistry courseware.

A mainstay of academic research, user experience research, market research, and other data collection are demographic identity questionnaires that ask us to report personal details (e.g., Roscoe, 2021). One challenge is that demographic identity questionnaires often lack complete or correct categories for self-disclosure. For instance, “gender” questions commonly conflate gender identity (e.g., woman, man, and nonbinary) with biological sex (e.g., female, male, and intersex), or even exclude categories (Puckett et. al., 2020). Thus, participants cannot identify themselves accurately.

Another problem is that demographic measures may not allow respondents to communicate the meaning of their selections. Participants may view certain traits as more central (i.e., identity salience) and differ in their relevant experiences (i.e., identity impact). For instance, one queer person may view their “queer-ness” as a core part of their identity whereas another may not. Likewise, one individual may have enjoyed positive experiences related to their identity (e.g., family who supported their “coming out”) but another person may have experienced rejection (e.g., family who disowned them). Although people may “check the same boxes,” the actual meaning of those selections varies widely.

In ongoing ethnographic research conducted with Dr. Maria Goldshtein and Dr. Erin Chiou, we have observed that when participants cannot identify themselves appropriately, it increases distrust and unwillingness to participate. Poorly designed questionnaires exclude or marginalize respondents. Another fair concern is why personal details are needed and how these data will be used. Respondents may rightly question who will have access to their data (e.g., risk of disclosure or stigmatization) and what decisions might be derived (e.g., hiring policies or performance criteria). All these issues can influence trust, participation, and/or compliance. Thus, demographic identity data collection must not only provide authentic ways to self-identify but must also thoroughly communicate and justify the purpose of the research.

Community Engagement as Research Recruitment

Jacklin Stonewall, Ph.D. Dr. Jacklin Stonewall is a Senior User Experience Researcher at John Deere. In this role, she designs and conducts UX research studies with diverse groups within the organization. Prior to her work at John Deere, her research at Iowa State University focused on engaging marginalized populations, at the community level, in human factors and user experience studies. She has led and participated in numerous panels (Stonewall et al., 2021), workshops, and webinars on the topic of marginalized community engagement in research as well as improving equity.

At the core of product design is the user; as such, conventional product design wisdom encourages design teams to center user needs at each phase of the process. While researchers and designers may acknowledge this, they may also face barriers at the institutional (e.g., lack of research team diversity) and study (e.g., recruitment challenges) levels. These barriers prevent the voices of users from being heard, which in turn results in products that cannot meet their needs. The consequences of these unmet needs can range from user frustration all the way to user harm.

The panelist will discuss the second part of these barriers – research study recruitment challenges. Specifically, she will speak to her experience regarding the utility and outcomes of community engagement and community level recruitment when partnering with historically marginalized groups as research participants. Community engagement in research has proven an impactful, positive strategy for long-term research collaboration (Stonewall et. al., 2019). She will also discuss the participant-level challenges (e.g., time, transportation, trust) researchers should be aware of when creating these partnerships and strategies for overcoming them (Stonewall et. al., 2017).

Understanding motivational factors, behaviors, and interactions of African American research participants (AARP)

Marie Campbell-Statler, Ph.D., MS, RN. Dr. Marie Campbell Statler, is an Assistant Professor at Rush University College of Nursing, where she teaches graduate nurses and conducts research committed to eliminating ethnic health disparities. Her body of work focuses on understanding societal factors and developing strategies that support minority ethnic participants in oncology and chronic disease research. Prior to her academic career, she developed extensive research experience as an oncology clinical research nurse and Associate Investigator at the National Institutes of Health (NIH). Her recent research activities include a research study that explored the relationship dimensions and motivations of African American Research Participants (Statler et. al., 2023) and African American Nurse Scientists (Statler et. al., 2022) in health research.

As Human Factors and health industries researchers seek to develop research for an increasingly diverse research population, the need for research that is transferable, applicable, and safe for the intended population is increasing. In addition, to meet the needs of diversified research, the Consolidation Appropriations Act of 2023, H.R. 2617 § 3601-3607 (2023) is moving towards diversity action plans for approved federally funded research trials that identify research inclusions goals and meets the safety needs of the ever-growing diverse population. Therefore, the need for feasible strategies that encourage community partnerships and engage populations that are representative of the researched population is essential to diversity plan development.

The panelist will discuss the findings of a qualitative study that explored African Americans' motivations, behaviors, and interactions to participate through the voice and perspectives of the research participant. More specifically, exploring the perceptions of a population that is frequently underrepresented in research studies. Through the findings of a qualitative study (Statler et. al., 2023), researchers were able to identify what motivated African American Research Participants to participate in health research; altruistic motivational factors, feeling valued and respected by the researcher, cultural experiences that shaped participation, and the impact of race concordance on research participation. These findings from this study may contribute to designing diversity plans with achievable goals that include effective recruitment strategies.

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