Addressing the Agony of Recruitment for Human-centric Computing Studies

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ABSTRACT

We conducted a workshop on "Addressing Challenges in Recruiting Participants for Human-Centric Computing Research Studies" at the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)'24 Conference. In the workshop, we conducted a brainstorming session on "roadmap development of making participant recruitment easier for human-centric computing studies in both industry and academia". This article presents 7 stages of participant recruitment and key strategies identified by the authors (workshop participants) during the brainstorming session.

1. INTRODUCTION

To get a general understanding of software user needs, to better understand user problems, to understand software development workflows and challenges, to test out a new product/feature, or even to validate a set of recommendations/strategies, human participation is necessary [3]. No study that falls under the category of "human-centric" can ignore issues relating to "human" participants in the process! It has never been easy to recruit participants for both industry and academic research, especially those that use techniques such as interviews, surveys, questionnaires, observations, focus groups, diary studies, etc. [13, 9, 4]. One could argue that the feedback obtained from user reviews in app stores, social media, GitHub or Slack discussion forums and messages, or in blogs could be sufficient to incorporate the human element in the human-centric research. However, to better grasp the opinions or experiences of users and developers accurately and comprehensively, conducting well-designed human-centric research with actual human participants is essential.

In industry or academia, participants are vital for any human-centric computing research. The struggle we all encounter as researchers in finding study participants is tacit, but no one talks about it out loud [7, 5, 11]. We wanted to give voice to these challenges and discuss what we could do to improve the human-centric computing study participant recruitment process. We conducted (organised by the second and fourth authors) a workshop on the topic of: "Addressing Challenges in Recruiting Participants for Human-Centric Computing Research Studies" at the IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC) Conference in September 2024. At this workshop, 8 position papers were presented and discussed at length [12, 14, 1, 8, 10, 2, 6, 15]. This article presents 7 stages of participant recruitment identified by the keynote speaker, Judith Good, and other researchers at the workshop based on their experiences in conducting diverse human-centric research studies. We summarise some key strategies identified during the workshop's brainstorming session facilitated by the first author and in which all researchers participated.

To improve article readability, we use the term "participant" to describe anyone who participates in human-centric computing studies. This includes software practitioners, target end users of products, students, or participants in academic studies resulting in prototypes, empirical findings, or any other similar study where human participants are involved in the research process. A typical "participant" *represents* the target user, practitioner and/or student. We define the term "researcher" as the one(s) carrying out the study, including industry practitioners carrying out human-centric computing studies for requirements engineering, product design, evaluation, etc.

2. OUR APPROACH

Figure 1: The seven stages of participant recruitment in human-centric computing studies.

2.1 Pre-workshop

Eight position papers were accepted at the workshop, where they underwent peer review and received feedback. Since we wanted to have an engaging workshop, the workshop organisers – the second and fourth authors randomly allocated the accepted papers to all authors. The authors were asked to read the allocated paper, prepare questions on the allocated paper, and bring them to the workshop.

2.2 At the workshop

The workshop lasted for approximately 8 hours. A *Google Doc* was shared with all participants during the workshop to add any inputs during the workshop. The second author noted the highlights of the discussions. The workshop was scheduled in 4 parts. First, it was the keynote speech by the third author. Then, four position papers were presented. The prepared questions were asked by the authors of those papers, and other comments from the audience were given. This was repeated for the remaining 4 papers, hence the third part of the workshop.

2.3 The brainstorming session

The brainstorming session lasted for approximately 1.5 hours. Prior to the brainstorming session, the first author prepared slides on *Mentimeter* based on the notes highlighted by the second author. Then these slides were projected on a screen to allow the researchers to add their inputs. After the brainstorming session, the workshop ended.

2.4 Post-workshop

The first author transferred the collected data at the brainstorming session to a *Google Sheet* and analysed it. The *Google Sheet* was shared among the researchers for verification. No changes in the analysis were made.

The remainder of this article presents the findings and the summary.

3. THE SEVEN STAGES OF PARTICIPANT RECRUITMENT AND STRATEGIES TO OVERCOME THE CHALLENGES

Participant recruitment involves more than a single step in the research process [13]. Recruiting an appropriate set of participants ('them') required for the study includes the key stages (Fig. 1) of: (1) specifying the right them, (2) reaching them, (3) persuading them, (4) supporting them, (5) trusting them (and their data), (6) keeping them, and (7) reporting back to them. These steps are not limited to the first part of the human-centric research study, but are essential throughout the entire study. Each of these stages has its own set of challenges. Using the term "difficulty in" before each stage gives an overall understanding of these challenges.

3.1 Specifying the right them (1)

At the start of the recruitment process, and depending on the research goals, not only defining the right participants - but also defining who would count as the wrong participants and why - may help researchers draw suitable boundaries. For example, in user research, the researchers may benefit from defining the intended user group of the end product. A pilot study may help to verify that the right participants are being recruited. A further step of designing appropriate filtering/screening questions, including a question to determine whether the participant is human or an artificial intelligence (AI), may guide the researcher in specifying who the right participant is.

3.2 Reaching them (2)

Various approaches can be used to reach target participants. For example, direct outreach through LinkedIn, email, or snowballing can be effective. The researcher's personal and professional contacts, such as alumni, students, and interns, can also be used. The key point here is that building relationships is crucial to motivate potential participants to participate in the study. Other methods, such as crowd-sourcing over forums such as Reddit or social media can also be used, and help from external services, such as recruitment agencies, or non-governmental organisations (NGOs)/institutions that already work with the user group can

also be used. Regardless of the method, high-quality and attractive materials, such as good advertisements, are key to attracting participants.

3.3 Persuading them (3)

Using participant-aligned instruments and appealing to what matters to them can help encourage participation in a study. Clear communication, especially highlighting the value the participant will bring to the research may also result in a high probability of participation. Offering incentives, such as gift vouchers, prize draws, or even an exciting chance to see some new technology, may also help persuade participants. Apart from that, good return on investment (ROI), which shows value-added research outcomes, for example, arguing why the participants or similar users may benefit from the study, may also persuade people to become involved in the study as participants.

3.4 Supporting them (4)

Planning ahead and developing several "plan Bs" for "what if this goes wrong" can help researchers provide steady support to participants throughout the study. Ensuring accessibility and offering technology support during the study can further enhance this support. For instance, being mindful of the accessibility needs of the participants (e.g., physical or cognitive challenges), or considering the accessibility of a specific technology involved in the study can help researchers determine whether a technology focused solution is both feasible and desirable. Researchers should also offer hardware and software support when necessary. .A well designed study, with a suitable duration and clear, open communication, including providing straightforward instructions, guidance on questions, and confirming participants' understanding of study protocols will also help participants engage in the study. Acknowledging the value of participants' time via some form of gift or compensation may help as well. Many of our workshop participants reported experiences with using gift cards or similar, or recruitment via platforms such as *Prolific* and *Amazon Mechanical Turk* (where compensation is standard).

3.5 Trusting them and their data (5)

Trusting the participants and the data they provide through any form of communication method is important. If participants are not legitimate and if fraudulent data are provided, the research outcomes will be affected and possibly inaccurate. This could even lead to financial losses. A better solution might be to implement mechanisms to verify the legitimacy of both participants and their data rather than relying solely on trust. Researchers could include a screening process in the study design, which comprises pre-screening questions, filtering questions, and checking whether the participant is authentic (i.e., not a spam, or an AI). Additionally, tracking completion time (e.g., flagging if a survey which would take 30 minutes is within 3 minutes), having copy-paste restrictions, using attention checking questions which could even be logic questions, and using more than one question which should correlate may help researchers to identify if they can trust the participants and their data or not. Offering delayed incentives for completion may also assist. In the case of remote focus groups, asking participants to turn their camera on may help. Above all, fostering genuine connections with participants is integral. This might not be easy to do in large-scale surveys, but is more feasible studies where researchers have direct access to participants.

3.6 Keeping them (6)

To prevent participants from dropping out of the current study, various techniques can be used. For example, in questionnaire-based studies, the participants could be given the option to save drafts, particularly for questionnaires. It is also possible to convey to participants their progress through the study (e.g., having a progress bar in questionnaires). To avoid challenges with technology during the study, the researchers must make sure that technology is not a barrier to participation. In addition, researchers must be respectful of participants' time and not waste it. To retain participants for future studies, the researchers could invite them to join a mailing list. Building meaningful relationships can also encourage participants to return for future studies, although it is important to ensure that they are not over-involved in multiple studies. In any case, having a ROI/value for participants' time is imperative. This could take the form of a summary of findings which is provided to the participants or by offering fair compensation.

3.7 Reporting back to them (7)

Reporting back is a key ROI for their participation. When study findings are provided in a format that is accessible and relevant, participants are more likely to perceive value in their contribution. This approach can be adapted depending on the nature of the study and the participants' interests. For instance, in software engineering studies, this might include demonstrating software revisions or new features that were implemented based on users' feedback, or sharing a summary of improvements made to a software tool that they have contributed to. For human-centric studies involving assessments such as personality tests or cognitive evaluations, sharing personalised feedback/insights can be valuable. Participants may appreciate seeing their individual results or learning how their data contributes to broader research goals. Other effective forms of reporting back include tailored summaries of key findings, focus groups or workshops to discuss the study's outcomes, podcasts, or even visual reports. It is essential to match the reporting format with the participants' expectations and expertise. While giving them academic papers or even IEEE Software articles can provide detailed insights, participants may prefer more personalised feedback to demonstrate that their time and effort were well-invested [14].

4. SUMMARY OF FINDINGS

Building meaningful connections between researchers and participants and ensuring a valuable ROI for participants are strategies that can be used throughout the recruitment process, irrespective of the stage. At the same time, the strategies reported here can have their drawbacks. For example, compensating participants can be expensive, and since not all participants are recruited in the same way in all cases, equal compensation might be a problem. Additionally, some participants may agree to take part solely for financial gain, or those in financial need may be more likely to participate, potentially increasing the risk of fraudulent data. When using certain recruitment platforms, researchers may have to pay even if the data are invalid. These examples illustrate just a few of the potential challenges. User studies are challenging, but following the right strategies for participants' recruitment can help researchers be more effective and efficient.

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