Bringing even more human in HRI with qualitative methods

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Qualitative research methods are established and recognized research methods in social sciences, with own standards and procedures to check their quality (e.g. Treharne & Riggs, 2014). They need however to be reported and we also need reviewers knowledgeable about these quality criteria. It is frustrating as a researcher with both qualitative and quantitative research skills to get a small classical psychological lab experiment far easier accepted than a study comparing two cases you visited over weeks of time, doing several interviews and observations. However, as we already stated in earlier work (Jacobs et al 2020), working with qualitative methods is often based on an interpretative scientific paradigm. This interpretative paradigm can conflict with the more dominant post-positivistic paradigm within computer and engineering sciences. So, we as qualitative HRI researchers need to bridge these different views on science by communicating what the used quality criteria are, how they align or not and what the added value can be for the design of a new human-robot interaction system.

To illustrate how we tried to do that - succeeded, failed and learned from it-, we will present examples from past studies within nursing homes, hospitals, manufacturing, combining different qualitative methods (interviews, observation, probing, cocreative workshops) and how we translated them into recommendations. Of course, these - mostly mixed methods- research designs are combined by our analytical framework which is mostly a pragmatist one: combining influences from critical theory, feminism, symbolic interactionism, and phenomenology.

From these past experiences in HRI research using qualitative methods we see at least four main contributions in which qualitative methods can enrich the field. In the first place, it helps to overcome the dominant view on the individual, giving more insight in the group, social structure and cultural diversity. Secondly, it helps to overcome the dominance of decontextualized research in the lab, and highlight the holistic "real life" long-term experiences and sensemaking processes, in other words in the context in which an interaction between a human and a robot could take place in. Thirdly, it helps to make invisible work visible (e.g. training, maintenance, …) and offer a more divers view of people impacted (e.g. not only the children and family, but also the administrative staff in the hospital and teachers of the child). These actors are likely not the first intended user group to be supported with the system, and currently are collateral damage when deploying human robot interactive systems. Last but not least, qualitative research helps to overcome the focus on the average user, showing the variation in traits and sensemaking processes people encountering robotic systems can develop and why they are doing that.

Jacobs, A., Elprama, S. A., & Jewell, C. I. (2020). Evaluating Human-Robot Interaction with Ethnography. In *Human-Robot Interaction* (pp. 269-286). Springer, Cham.

Treharne, G. J., & Riggs, D. W. (2014). Ensuring quality in qualitative research. *Qualitative research in clinical and health psychology*, 57-73.