Maria Blancas[a,b,c], Vasiliki Vouloutsi[a,b], Anna Mura[a,b] and Paul F.M.J. Verschure[a,b,d]
[a]Synthetic Perceptive Emotive Cognitive Systems (SPECS) group, Barcelona, Spain; [b]Institute for Bioengineering of Catalonia (IBEC), Barcelona, Spain; [c]Pompeu Fabra University, Barcelona, Spain; [d]Catalan Institute of Advanced Studies (ICREA), Barcelona, Spain

Qualitative methods allow researchers to investigate the meanings people attribute to their behaviour, actions, and interactions with others. Their main benefits are that the data collection process occurs in real-world contexts or naturalistic ways and that it can be adapted as new ideas or patterns emerge. Especially when it comes to children, extracting constructive information can be done with a variety of methods, ranging from writing, interviews and drawing. We have used two main qualitative measures in our research on Human-Robot Interaction (HRI) and educational robotics: Interviews and drawings' analysis.

In the first case, we conducted semi-structured interviews as a way to assess how students evaluated a robotics class. We chose open-ended interviews, as they allow participants to use their own words to describe their thoughts and understanding. During the interview, learners reported how much they liked each session and their perceived difficulty, if they would do them again, if they worked alone or in collaboration and if they would remove any part. The perceived difficulty of the exercises served not only for the students to assess their performance, but also to identify what they found challenging. Learners reported preferring creative and inquiry-based activities.

In the second case, we asked participants to draw what would be their preferred robot. We then classified each drawing based on several parameters: morphology, functionality, relative size of the robot to the child, body features, facial expression, and others. Drawing can be used as a method of representing individuals' preferences and is in the co-design context a way for children to make sense of their experiences. It is also a useful method to evaluate children's perception, experience and understanding, as drawing is shown to be considered more enjoyable than answering questions. Moreover, drawing is a task that can help overcoming linguistic barriers. We thus asked children to design the robot they would like to have; this way, we can have a more effective intuition of their needs and expectations. The main results conveyed on a gender-less robot with anthropomorphic (but machine-like) characteristics.

In both cases, when the participant is a child, interviews and drawings come in hand by eliminating participants' reading ability as a confounding variable. Moreover, there may be non-verbal children, for which expressing themselves in a drawing form may be an easier way of presenting their ideas. Furthermore, asking children not just to represent their thoughts visually but also explain them later introduces a new layer of comprehension. The self-explanation of answers (in this case, drawings) allow children to build on their previous answers by giving a more detailed "why" to the "what".

We will thus discuss how qualitative approaches can enrich research on HRI and educational robotics and how they can be merged with quantitative measures. We will also present our experiences with both types of qualitative methods and what we have learnt from them and provide some practical tips for conducting qualitative research.