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Social Robotics in Hospitals and the Training Needs of Professionals. An Empirical Research Design

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The complexity of today's *onlife* reality, pervasively platformed and marked by the uncertainty of rapid and unprecedented global changes (Poli, 2019), requires not only performance-based skills (Kerr, 2020) but, more crucially, a renewed agentic mindset to address it responsibly, consciously, and ethically. Considering this, the current research project aims to explore the emerging and expanding social robotics technology within the delicate context of hospital care, primarily from an ethical, educational, and formative viewpoint. Specifically, the teleological focus is rooted in the exploration of the professions involved in these sensitive techno-relational interventions, capturing the training needs (in terms of professional learning) related to the ethics of *good care* (Mortari, 2015; Coeckelbergh, 2022) and a professional agency (Bandura, 2006; Biesta & Tedder, 2007; Kerr et al., 2020; Raffaghelli, 2022) capable of responding ethically, fairly, and consciously to the relational challenges introduced by human-technology interaction (Raffaghelli, 2022; Khun, Raffaghelli, 2023).

The narrative review and systematic literature review products developed by the authors have indeed highlighted a growing focus on the uses/abuses of social robotics. Yet, a unified research gap regarding the professionals handling such interventions and, most importantly, the existence of specific professional learning paths is found. Although the interdisciplinary nature inherently characterizing social robotics is emphasized (Rossi, 2019; Becchimanzi, 2022), the contribution of predominantly educational professionals is nearly absent from the literature, even within the hospital context where the concept of care transcends therapeutic boundaries to reach a space of good care, in which the educational relationship plays a central role.

In line with the ethical principle that technology is not inherently neutral but fundamentally depends on the quality of the socio-cultural context in which it is embedded (Cingolani, 2018-2019; Coeckelbergh, 2022), there is a recognized need to build environments of trust, clear agentic responsibility aligned with reliable human values (Floridi et al., 2018; Dumouchel & Damiano, 2019; Rossi, 2019). A fundamental step in this direction is to emphasize attention and care towards the dimension of professionalism, which plays a primary role in operationalizing social robotics interventions and, consequently, has an undeniable impact on their outcomes.

From this horizon of meaning, four main investigative macro-areas of the project are identified, establishing the framework for the empirical phase: (a) identifying the professionals involved in social robotics interventions; (b) the ethical potentials and concerns these professionals hold towards the use of social robotics in hospitals; (c) the existence of specific training paths and the professional learning needs of the professionals; (d) the significance of the educational figure as a professional involved in social robotics interventions in hospitals.

The general goal of the research project is to promote a formative and reflective culture in the use of social robotics within the hospital context, with particular attention to the ethical implications of *good care* and the challenges of educational agency for the involved professionals. From here, the specific objectives unfold as follows: identify existing professional learning lines and the configuration of professional teams involved in social robotics interventions in hospitals; intercept the professional learning needs, highlighting the critical-reflective and practical implications for professionals in using social robotics in hospitals; understand the relevance of educational professionalism in the hospital context that uses social robotics; sensitize the scientific community about the importance of ethical care and professional agency about technology, contributing to the construction of innovative training tools.

In coherence with the qualitative exploration and comprehensive deepening approach guiding the research project, the multiple-case study method was chosen (Trincherò, Yin, 2017; Creswell & Poth, 2017; Günes & Bahçivan, 2016). This approach allows for a deep understanding of a complex phenomenon through the analysis of multiple cases that may present significant variations and/or convergences: “a multiple-case study includes two or more cases or replications across the cases to investigate the same phenomena” (Lewis-Beck, Bryman & Liao, 2003; Yin, 2017).

The cases involved in the study are:

- University of Padova (Department of Women's and Children's Health), which foresees the use of social robotics in pediatric hospice care (UOC Pediatric Hospice)
- University of Modena and Reggio Emilia. At the University Hospital of Modena (PASCIA Center), the team coordinated by Prof. Maria Grazia Modena uses social robotics (NAO robot) with pediatric patients within the autism spectrum
- University of Genoa, which plans a trial of social robotics (Pepper robot) at the San Martino University Hospital in Genoa with patients admitted to the Departments of Acute Geriatrics and Orthogeriatrics.

The research phases involve four key moments, to be pursued in each of the hospital services involved: non-participant observation of a social robotics intervention; semi-structured interview with the reference figure of the service coordinating the social robot-patient interventions; focus group with the professional figures involved in the interactions of social robotics; final member-checking in terms of public engagement and transparency of the research. Each of these phases implies specific objectives, timings, and tools. In particular, a methodological note regarding the focus group phase: the guided discussion will be stimulated by a speculative scenario, establishing a continuity anchor with methodological reflexivity lines that have characterized the research project from the start: referring to the speculative method of Jen Ross (2016) and to Futures Studies, we recognize that “working with the future” (Poli, 2019) can unlock an innovative theoretical-operative educational approach to creatively address complex themes, in a collaborative and shared manner. The careful and rigorously future-oriented attention indeed aims to restore the present to an authentic value of educational action (Poli, 2019) aimed at “making a difference” (Ross, 2016), actively pursuing the underlying ethical purpose of *good care*.

Proposing the futuristic approach as a formative practice means creating a path of educational agency that diverges from a merely reactive *modus operandi*, recognizing the importance of stitching the continuity of educational practice according to an anticipatory and projective “what if” logic. The data collected during the four research phases will be subjected to thematic analysis. The open expectations of the research group regarding the results are aimed at an understanding of the professional dimension that, for each hospital case involved, is implicated in the delivery of social robotics interventions. This expected understanding specifically aims to: highlight existing training lines, intercept the training needs of professionals, emphasize the critical-reflective implications that the use of social robotics entails for professionals in a perspective of *good care*; highlight the practical implications that the use of social robotics entails for professionals in a perspective of good care; bring out convergences and divergences among the cases involved; understand the relevance of educational professionalism in the hospital context that uses social robotics; contribute to documenting the use of social robotics in hospitals from the perspective of professional dynamics; contribute to sensitizing the scientific community on the importance of

“caring for those who care” to promote authentically ethical and educational contexts in relation to technology; generate novel reflexivity and new perspectives of formative action (for example, the construction of innovative professional learning tools).

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