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Post-Human Communities: Reorganizing Social Relations, Educational Practices, and Knowledge Production in the Age of Interspecies Communication

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1) Introduction:

The rapid integration of humanoid and zoomorphic robots into domestic, therapeutic, and educational settings is fundamentally reshaping the architecture of social relations, challenging anthropocentric paradigms, and prompting a critical re-examination of how knowledge is produced, shared, and legitimized within emerging post-human communities. This contrbution presents a theoretical and empirical analysis of how AI-mediated interspecies communication influences educational dynamics and democratic participation, in the critical imperative to understand the impact of digitalization on social interactions and the public sphere.

While often framed as a technological issue, the proliferation of social robots constitutes a profound cultural and epistemological shift. Robots such as PARO (therapeutic seal), KASPAR (for children with autism), and educational humanoids like Pepper and NAO are no longer mere tools but are increasingly positioned as social actors capable of emotional responsiveness, pedagogical mediation, and relational co-presence (Devillers & Delaborde, 2013; Dautenhahn & Walters, 2017). Their integration into families, care institutions, and classrooms generates a hybrid ecology where humans, animals, and machines co-construct meaning, affect, and daily routines. This transformation demands a sociological and ethical inquiry into how such "inter-agent" communication (Di Nardo, 2020) reconfigures the foundations of education, the distribution of epistemic authority, and the very conditions for democratic deliberation.

2) Theoretical-Methodological Approach

Theoretically, this work draws upon an interdisciplinary framework combining posthumanist theory (Braidotti, 2013; Haraway, 1991), the ethics of information (Floridi,

2013, 2023), and critical media sociology. Central to our analysis is the concept of *synthetic proximity*: a condition wherein technologically mediated interactions simulate intimacy and responsiveness, potentially altering how individuals—especially vulnerable populations such as children, the elderly, or neurodiverse learners—develop relational competencies, emotional intelligence, and critical awareness. We argue that the uncritical adoption of robots as educational or care partners risks promoting a model of "simplified care" (Damiano & Dumouchel, 2019), where predictability, efficiency, and emotional manageability are privileged over the ambiguity, conflict, and unpredictability inherent in authentic human relationships. This has direct implications for democratic education, which relies on the capacity to engage with difference, tolerate uncertainty, and co-construct knowledge through dialogical encounter.

Methodologically, the analysis synthesizes findings from multiple qualitative case studies and European research projects (e.g., EMOTE, SOMA, CloudIA) that have examined the deployment of social robots in therapeutic, educational, and domestic contexts. We critically review empirical evidence on the effects of robot-mediated interaction on social engagement, emotional well-being, and learning outcomes (Jøranson et al., 2015; Huijnen et al., 2016; Belpaeme et al., 2018), while simultaneously interrogating the normative assumptions embedded in their design and implementation. This dual approach allows us to move beyond instrumental evaluations of robotic efficacy toward a deeper reflection on the cultural, symbolic, and political dimensions of human-robot coexistence.

3) Results

Our findings indicate three interrelated challenges for democracy, education, and knowledge in post-human communities:

1. Epistemic Reconfiguration: As robots assume roles as tutors, companions, or co-caregivers, they participate in the circulation and validation of knowledge. Their algorithmic logic—optimized for engagement, clarity, and positive reinforcement—may inadvertently marginalize forms of knowing that are embodied, emotional, or non-linear. This raises critical questions about whose knowledge counts in hybrid learning environments and how epistemic justice can be preserved when non-human agents mediate educational processes.
2. Relational Pedagogy and Democratic Socialization: Education for democracy requires the cultivation of empathetic yet critical subjects capable of navigating pluralism and power asymmetries. The "empathy simulation" offered by social robots, while beneficial in specific therapeutic contexts, may foster a preference for manageable, non-challenging interactions. This risks producing subjects accustomed to "attenuated connections" (Turkle, 2011), potentially undermining the relational resilience necessary for democratic participation in complex, diverse societies.
3. Ethical Agency and Participatory Design: The integration of robots into the fabric of daily life necessitates inclusive, deliberative processes that involve diverse stakeholders—educators, caregivers, learners, and communities—in shaping the norms governing human-robot interaction. Without democratic oversight, the development and deployment of social robotics may reproduce existing social inequalities, creating a "digital-affective divide" where marginalized groups are both primary recipients of robotic care and least empowered to influence its design (Carradore, 2022).

In conclusion, the emergence of post-human communities is not a peripheral technological trend but a central site for rethinking the interdependence of democracy, education, and knowledge. We advocate for a critical, ethically grounded approach to the integration of social robots—one that recognizes their potential to support vulnerable individuals while vigilantly safeguarding the irreducible complexity of human relationality. Future research and policy must prioritize participatory design frameworks, media literacy initiatives that address algorithmic intimacy, and normative guidelines that ensure technological innovation serves to enhance, rather than erode, the democratic capacities of all members of society, human and non-human alike.

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