The Social Robot as a Biological HRI Exoskeleton: Projecting Neuroqueer Sovereignty onto the Elementary Classroom Environment

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Abstract

Traditional assistive technologies for neurodivergent students often reinforce a "Medical Model" of disability, necessitating the performance of neurotypical behaviors—or "masking"—to avoid "Social Eviction". This abstract introduces the **Biological HRI Social Exoskeleton**, a project that reconceptualizes the social robot not as a tool for behavioral correction, but as a mobile "Cognitive Exoskeleton" and "Status Proxy" projected onto the elementary classroom environment.

By integrating the robot into a reconfigurable system, the classroom environment is transformed from a "fixed" space into an adaptive "Social Ramp". The robot serves as a "Diplomatic Attaché" that manages "executive heavy lifting". Through the "Advocacy Pivot," the robot validates raw, non-verbal emotional data and translates it into "Standard" requests, effectively reducing "Executive Function Fatigue" and the "Social Penalty" associated with neurodivergent communication.

The physical classroom projection includes "Sensory Niches" for regulation, "Kinetic Synchrony" stations to support processing through movement, and "Intrawareness Dashboards" that foster metacognition and student agency. To ensure "Cognitive Sovereignty," the robot and its integrated environmental stations feature mandatory physical kill-switches, legally protecting the student’s private thought process from surveillance.

Success is evaluated using the **Neurodivergent Scale for Interacting with Robots (NSIR)**, shifting the metric from compliance to "Queer Kinship" and the relief of "Masking Debt". This model demonstrates a shift toward "Prosthetic Success," where neurodiversity is empowered as a sovereign identity within an inclusive, reconfigurable educational landscape.

Required Citations

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