

When a Reading Club Meets a Robotic Don Quixote: Embodied GenAI for Literary Dialogue*

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Abstract

Recent integrations between Social Robotics (SR) and Generative Artificial Intelligence (GenAI) are opening new avenues for applications within the humanities [1-3]. In this abstract, we present RoBook, a social robot-led book club centered on Don Quixote by Cervantes. We employ NAO, the SR, inviting participants to interact with the novel's protagonist while taking on the roles of other characters. In this effort, we draw on SR's potential to enrich the book club through dynamic educational interactions. We offer an experience in which a group of participants engage deeply with literature, explore diverse perspectives, and take ownership of their learning processes [4]. RoBook builds on our prior findings that highlight NAO's role as a motivational catalyst in learning experiences [1, 5]. Our design was guided by five principles of the Educational Robotics Application (ERA) Framework: Intelligence, Interaction, Engagement, Equity, and Practical [6]. We align our design efforts of RoBook with current trends that are disrupting and transforming learning interactions by embodying GenAI within the field of Social Robotics. Accordingly, we propose extending the ERA framework to include advancements in Social Robotics and Generative AI. RoBook is structured for groups of 4 participants, who engage in four sequential phases. In the first phase, NAO introduces the book club and prompts participants to present their assigned character from the novel in the style of a dramatic performance. In the second phase, participants and NAO construct a scene, selecting props such as armor, clothing, and scenery that reflect the book's historical context. In the third phase, participants watch a short video related to Don Quixote and are invited to pose questions to its robotic representation. These may include philosophical or ethical inquiries that extend beyond the book's plot. The robot responds using GenAI, drawing from the values and spirit of the original text. In the final phase, NAO introduces global warming as a contemporary moral challenge and invites participants to respond. Based on their input, it generates a reflective monologue in character, expressing Don Quixote's imagined response to this modern dilemma. We use the OpenAI API for dialogue and PlayHT to generate a voice evocative of a Spanish knight. These outputs are accompanied by physical gestures and expressive animations, enhancing the robot's emotional presence and narrative realism. Additionally, NAO is equipped to detect visual markers and spoken keywords, enabling it to respond contextually throughout the activity. Preliminary results from four pilot sessions, each involving a group of higher education students, indicate that the activity was perceived as both educationally enriching and appealing. Participants described the experience as playful, surprising, and engaging. Most reported a deeper understanding of literary themes and character dynamics, particularly through the interaction with the robot. RoBook exemplifies our approach, reflecting the principles of ERA contextualized within contemporary advancements in SR empowered by GenAI, enabling to offer a book club experience that is vivid, immersive, engaging, and appealing.

Keywords

RoBook, Social Robot (SR), Human-Robot Interaction, Generative Artificial-Intelligence (GenAI), Reading-Club, Literacy Education

**EduRobotX 2025 – 3rd International Workshop of the EATEL SIG, hosted at the 20th European Conference on Technology Enhanced Learning, ECTEL 2025, September 15–19, 2025, Newcastle and Durham, United-Kingdom*

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Declaration on Generative AI

During the preparation of this work, the authors used Chat-GPT-4 and Grammarly in order to Grammar and spelling check. After using these tools/services, the authors reviewed and edited the content as needed and take(s) full responsibility for the publication's content.

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