Telling Stories with Green the DragonBot: A Showcase of Children's Interactions over Two Months

Jacqueline Kory Westlund
MIT Media Lab
20 Ames St.
Cambridge, MA 02139
jakory@media.mit.edu

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1. LANGUAGE LEARNING COMPANION

The language skills of young children can predict their academic success in later schooling [3,4]. We may be able to help more children succeed by helping them improve their early language skills: a prime time for intervention is during preschool. Furthermore, because language lives in a social, interactive, and dialogic context, ideal interventions would not only teach vocabulary, but would also engage children as active participants in meaningful dialogues [1,2]. Social robots could potentially have great impact in this area. They merge the benefits of using technology – such as accessibility, customization and easy addition of new content, and student-paced, adaptive software – with the benefits of embodied, social agents – such as sharing physical spaces with us, communicating in natural ways, and leveraging social presence and social cues.

To this end, we developed a robotic learning/teaching companion to support children's early language development. We performed a microgenetic field study in which we took this robot to two Boston-area preschools for two months [5,6]. We asked two main questions: Could a robot companion support children's long-term oral language development through play? How might children build a relationship with and construe the robot over time?

The robot played with 17 children ages 4-5 for eight sessions. During each session, the robot and child played a storytelling game in which they took turns telling stories about characters shown on a tablet screen. The tablet was inset in a small wooden table and acted as the shared context for the game. The robot (Wizard-of-Oz controlled) introduced new words during its stories and modeled more complex ways of telling stories (e.g., using slightly harder words or more complex sentence structures). At the start and end of each session, robot engaged the child in small-talk about how the day was going, shared little stories about its own 'life', and reflected on the time spent together. The results showed that the robot was effective: children enjoyed telling stories and playing with the robot for all eight sessions, and also learned new words, told longer stories, and used more different words in their stories.

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2. INTERACTIVE STORYTELLING

This video showcases children's interactions with the robot – conversations, stories told, and reactions to the scenario. The video highlights several important aspects of the interaction. First, we can see the interactive nature of the game – the robot and child take turns telling stories, listen to each other's stories, and play together as peers. The video also shows how children construed the robot as a friend and companion. They talk with it, show excitement about playing together, and touch and hug the robot. The children were actively engaged as participants in storytelling, creating as well as consuming stories.

3. ACKNOWLEDGMENTS

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