

Play-Based Design: Face-to-Face Interaction for Young Children Voices in the Design Process

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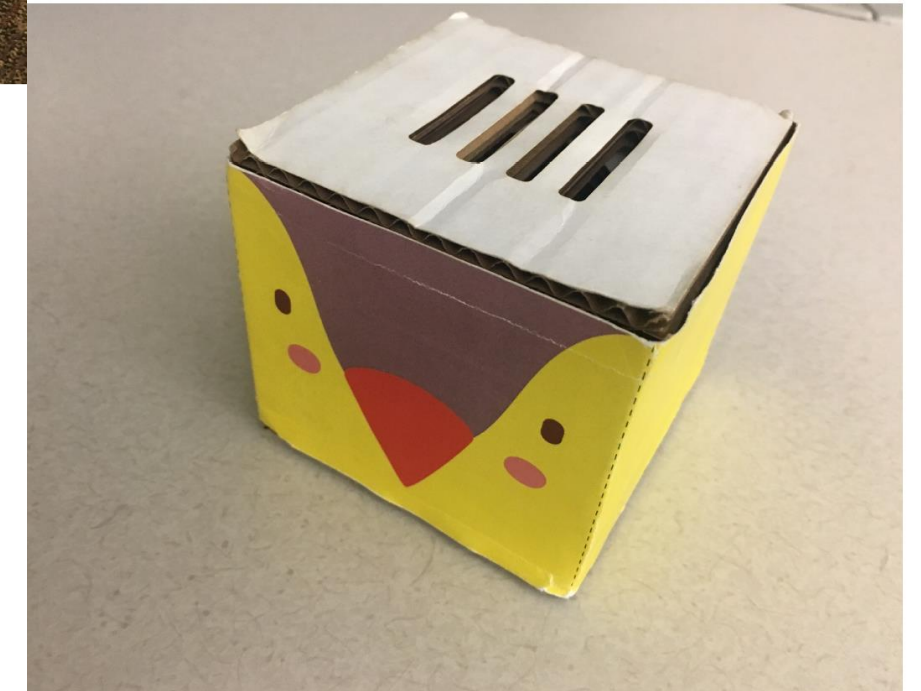
Research Setup

- Collaborative, child-centered design activities
- Support lightly-structured creative social play in the style of the Tools of the Mind (ToM) curriculum
- 7 of 101 publications over last 20 years include children under 5 in design process as informants
- 12 sessions with 4-year-olds and 7 sessions with 3-year-olds

Story Carnival



➤ Generic Props

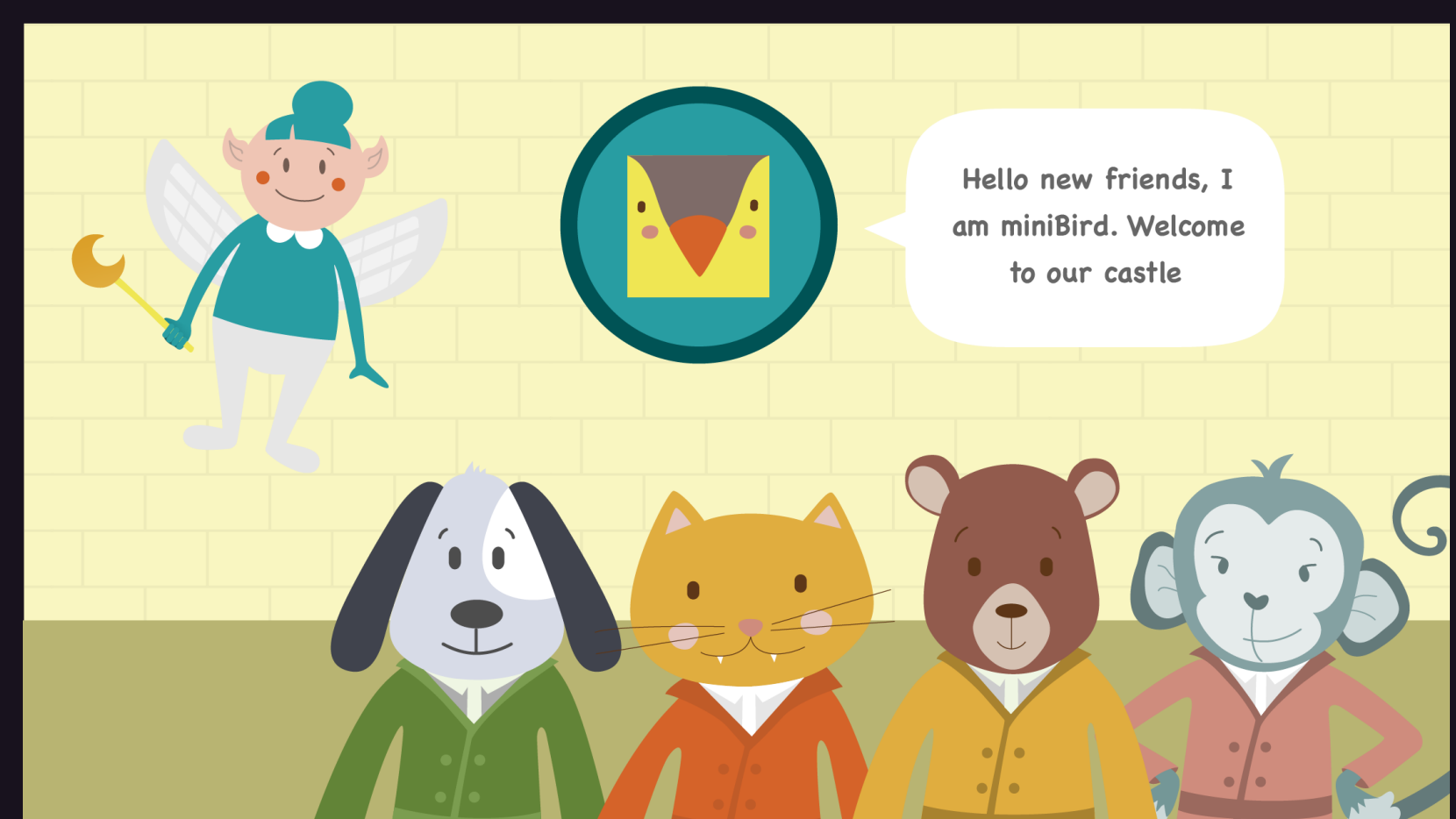


➤ MiniBird

High Quality Social Play

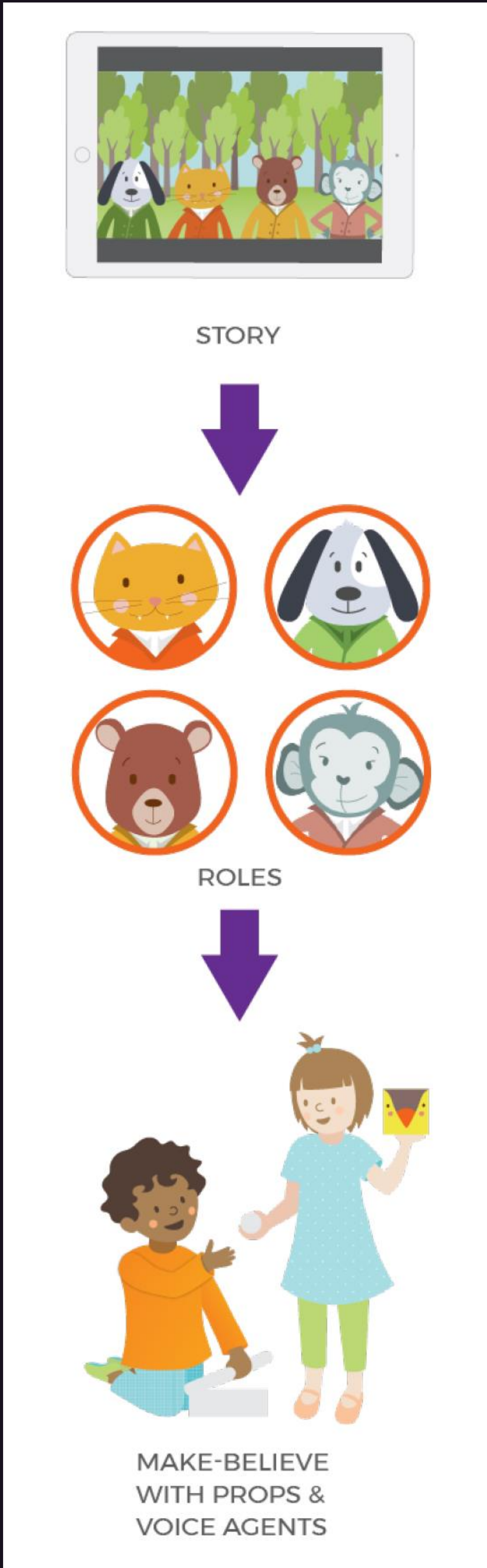
- Children engaged in pretend role-play
- Common goals to plan play session
- Social dialogue and negotiation
- Use of generic physical props

Play-Based Design Sessions



A Castle in the Woods

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Benefits

- ToM growth of self-regulation and executive function skills
- Improve math ability, reading, literacy and vocabulary, theory of mind, and creativity
- Feels like play and activity that children enjoy
- 32 ideas generated (19 from 4-year-old and 13 from 3-year-old)

Impact of Voice Agents

- Mean time off task: 8.1% 4-year-old and 4.2% 3-year-old
- Children mediate voice agent
- Voice agents promote peer interactions and redirect behavior
- Voice agents support communication between children and facilitator without interrupting play

Future Directions

- Facilitate design of technologies to promote children under 5 **creating, connecting, and communicating** (3Cs)
- Increase sustainability and inclusiveness
- Set up tools to allow non-programmers to create components
- **Goal:** Understand the roles of technology between the types and interactions supported

