

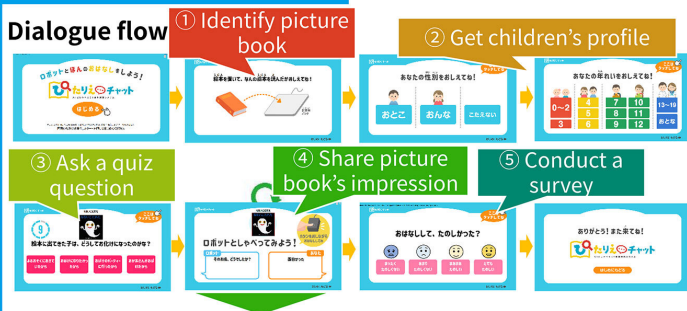
Abstract

Dialogues about picture books are known to enhance children’s interest in reading and support their language development. However, parents around them cannot always secure sufficient time for such interactions. To address this issue, we are developing a dialogue AI system, “PitarieChat,” that enables children to discuss their impressions of picture books. By using a large-scale picture book and children’s book corpus constructed by NTT, we achieved empathetic dialogue that elicits children’s impressions and enhances their motivation to read. Furthermore, by adopting tsuzumi 2 for the dialogue engine, the system enables natural conversations grounded in the attributes of the robot and the user, as well as the content of the picture books. In future work, we aim to develop personalization methods based on children’s age and individual characteristics, as well as dialogue control techniques to realize a conversational AI that enables each child to enjoyably develop their thinking and expressive abilities.

PitarieChat

- Conversations about picture books not only **enhance children’s interest in reading** but also **contribute to their language and emotional development**
 ⇒ **Securing sufficient time is not easy**
- Constructs **PitarieChat for talking about picture book impressions**
 - Utilizes **NTT’s proprietary picture book corpus**
 - 9,000 books, with ongoing expansion
 - Employs a robot† that engages children in dialogue to **encourage spontaneous impressions** about picture books, **shows empathy**, and **deepens their reflections**

System overview



Implemented two types of systems

- Scenario-based**
 - Rule-based empathetic dialogue
 - Small language model (SLM)-based chat-chat
 - Uses Japanese Dialogue Transformers
- LLM-based**
 - Empathetic dialogue **grounded in picture book content** using a large language model (LLM)
 - Uses NTT’s LLM tsuzumi 2
 - Basic information is provided in the prompt:
 - Picture book title and text
 - Brief profiles of the robot and the user

Field experiments

- Iwata City Childcare Support Center**
 - Scenario-based
 - 2023/10/11-2025/4/3 (about 18 months)
 - Number of users: 5,970*
 - Okinawa Prefectural Library**
 - LLM-based
 - 2025/10/27-2025/11/3 (7 days)
 - Number of users: 148人*
- *Only children aged 12 or under were counted.

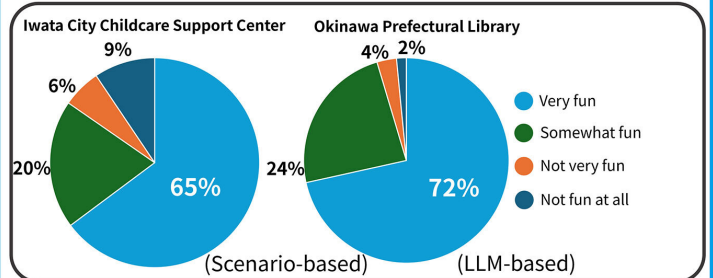


Dialogue example (LLM)

Robot: Okay, let's talk about *Harry the Dirty Dog*. How was the story?
User: It was fun.
Robot: It was fun seeing Harry get all muddy and go on lots of adventures! What part did you like the most?
User: The part where he got muddy.
Robot: You liked the part where Harry got all muddy and played a lot the best. Playing in the mud like Harry is really fun, isn't it? Let me know if there were any other scenes you liked.
User: The part where he became clean again.
Robot: The part where Harry came back clean was nice too. When everyone brushed and washed him, his white fur showed again, and he looked really happy.

User evaluations

Q. Did you enjoy talking with me?



Q. Want to read more picture books?

Very much (Scenario-based) **63%** (LLM-based) **79%**

- Improvements in response performance by the LLM significantly increased ratings of **enjoyment** and **reading motivation** (χ^2 test, $p < 0.001$).
- In future work, we plan to investigate personalization methods based on children’s age and individual characteristics.

† Sota: <https://www.vstone.co.jp/products/sota/>

References

[1] NTT West, Inc., “Exhibiting an AI-powered system at the Okinawa Prefectural Library to support new encounters with picture books – Toward fostering reading habits among local children –,” 2025, https://www.ntt-west.co.jp/newscms/okinawa/14861/1_20251024.pdf (in Japanese).
 [2] Mynavi News, “NTT West, Inc. exhibits AI reading impression dialogue system “PitarieChat” in Okinawa,” <https://news.mynavi.jp/article/20251107-3624023/> (in Japanese).

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