# **Seamlessly Integrating Factual Information and Social Content** with Persuasive Dialogue

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## **Background & Challenges**

Yeah, a lot of developing countries don't have systems or infrastructure to protect children from these causes. That's why organizations like Save the Children are so important.

#### **Response-Agenda Pushing Framework**



User

I am going to donate a bit of my money to Save the Children.



developing countries, especially in war zones. It's so hard to imagine what it's like for a child to grow up facing the daily threat of violence.

l agree. There is a lack

of support for children in



**Response A: Typical Chatbot** 

**Response B: Chatbot on RAP** 

- **Persuasive dialogues**<sup>1</sup> are neither strictly social nor strictly task-oriented.
- Social chit-chat does not make progress towards a targeted behavioral change.
- Contextually unaware argumentative strategies do not build rapport with users.

- The Dispatcher determines whether a user response warrants invoking the Factual Answer and Social Response modules.
- The Factual Answer Module retrieves answers to information-seeking questions by examining similar previous questions.
- The Social Response Module invokes Blender Bot 2.0<sup>2</sup>, an open-domain social chatbot with internet augmentation to generate contextually aware social responses.

### **RAP in Action**

RAP is better at ensuring users feel acknowledged.



**RAP (Invoked Social Response)** 

ш.

θ.

**RAP (Invoked Factual Answer)** 

RAP ensures that users receive *factual answers* to their information-seeking questions.

Do you have a link or something I could

• The Persuasive Agenda-Pushing Module ensures that the conversation stays along the persuasive conversation agenda using conditional generation with BART<sup>3</sup>, fine-tuned with a penalized loss.

#### **Evaluating RAP**



directly go to?

#### sure do as a matter of fact it's <URL>. Sorry, I have to go now, but it's been great talking to you! Thanks for your time!

Factual 0.5 3.5 2.0 0.0 1.0 1.5 2.5 3.0 Rating (1-5)

- Conversations are a cooperative and collaborative process<sup>4</sup>.
- RAP builds rapport with users and is rated more favorably across all dimensions according to interactive human evaluation.

[1] Xuewei Wang et al. 2019. Persuasion for Good: Towards a Personalized Persuasive Dialogue System for Social Good. In Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics, pages 5635–5649, Florence, Italy. Association for Computational Linguistics. [2] Mojtaba Komeili et al. 2022. Internet-Augmented Dialogue Generation. In Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics, pages 8460-8478, Dublin, Ireland. Association for Computational Linguistics. [3] Mike Lewis et al. 2020. BART: Denoising Sequence-to-Sequence Pre-training for Natural Language Generation, Translation, and Comprehension. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics, pages 7871-7880, Online. Association for Computational Linguistics.

[4] H Paul Grice. 1975. Logic and conversation. In P Cole and J Morgan, editors, Syntax and Semantics: Vol 3, Speech Acts, pages 43–58. New York: Academic Press.