Micro-NGO: Tackling Wicked Social Problems with Problem Solving and Action Planning Support in Chat

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Background and Motivation

In a plain chat system, it is challenging to discuss social issues and develop solutions and action plans.

Ordinary Citizens

 may lack the domain specific knowledge to solve social problems.

Social Problem

- are wicked problem (Unique problem with many possible solutions) [1].
- Wicked problem solving requires metacognitive process and domain-specific knowledge [2].



Plain Chat System

- does not support structured discussion.
- does not provide domain specific knowledge.
- does not provide a guide to generate a solution and action plan.

Solution Generation

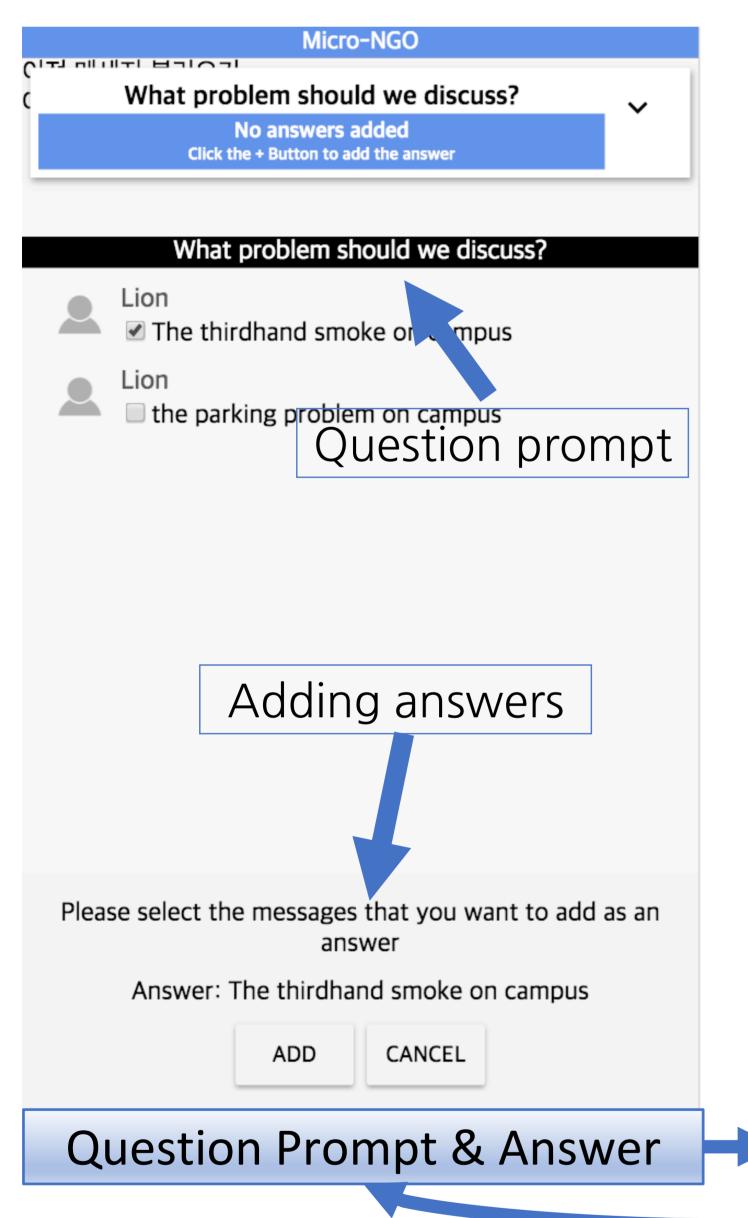
- There are many alternatives to consider in order to find a better solution.
- The proposed solution should be preferred to many members.

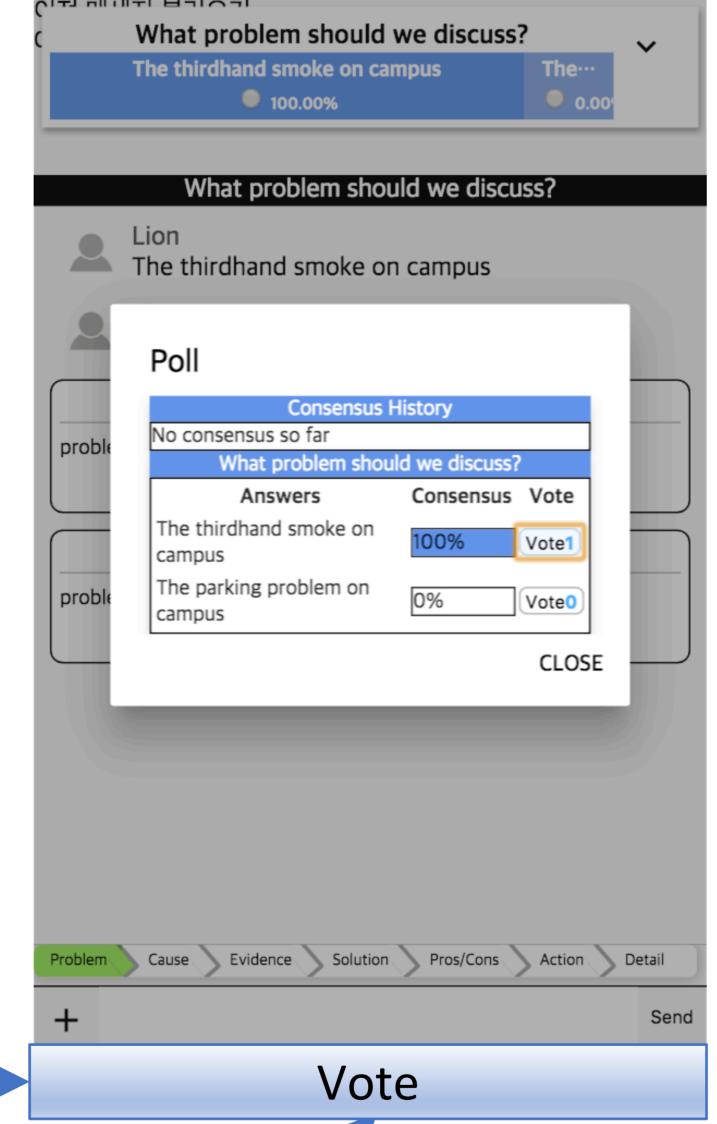
Action Plan Generation

- For actionable action plans, details should be discussed.
 - Ex) How should we write a petition letter?
 - Ex) How should we start an online campaign?
- 1. Head, Brian W., and John Alford. "Wicked problems: Implications for public policy and management." *Administration & Society* 47.6 (2015): 711-739.
- 2. Xun, G.E., and Susan M. Land. "A conceptual framework for scaffolding III-structured problem-solving processes using question prompts and peer interactions." Educational Technology Research and Development 52.2 (2004): 5-22.

Question prompting strategy may help to compensate domain specific knowledge [2]

Micro-NGO has a semi-structured discussion and voting workflow based on the question prompting strategy to support social problem-solving discussions





Micro-NGO

Problem Representation Questions

- What <u>problem</u> should we solve?
- What is the <u>cause</u> of the problem?
- What is the <u>evidence</u> of the cause?
- What solution can solve the cause?
- What are the pros of the solution?
- What are the cons of the solution?

We have chosen the questions to fit ill-structured problem-solving process that suggested by Xun et al. [2].

Action Plan Questions (ex: Send a petition letter)

- Who should receive our petition letter (name of the person)?
- What is the title of the person?
- What is the best petition letter delivery method?

Informal Lab Test Findings (n=7)

- F1. We observed self-regulation of off-topic messages
- F2. Action selection reminded participants of pros and cons of the action
 - They discussed the advantages and disadvantages of writing petitions and online campaigns.
- F3. Participants discussed solutions in the problem discovery phase

<u>Acknowledgements</u>

This work was supported by Institute for Information & communications
Technology Promotion (IITP) grant funded by the Korea government (MSIT)
(R7124-16- 0004, Development of Intelligent Interaction Technology Based on Context Awareness and Human Intention Understanding).