
Politeness Strategies in the Design of Voice Agents for Mental Health

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INTRODUCTION

There is growth in the development of conversational agents or chatbots to support (self-)management in mental health [3,10]. Previous work has shown how perceptions of conversational agents as caring or polite both can contribute to a sense of empathy and aid disclosure of sensitive information; but also risk inviting misperceptions of their emotional capabilities [2, 6, 7]. Recent research suggests that we need to better understand how the design of dialogue systems may impact people's perceptions of a conversational agent [4,5,9,11], and through this their readiness to engage or to openly disclose about their mental health. In this paper, we suggest the use of Brown and Levinson' politeness strategies [1] to create dialogue templates for a mental health 'mood log', which has been shown to be beneficial way for technology to support mental health self-management [8], as a theoretical underpinning to the design of conversational dialogue structure.

KEYWORDS

Mental health; health monitoring; voice user interface; voice assistant; accessibility; design concept.

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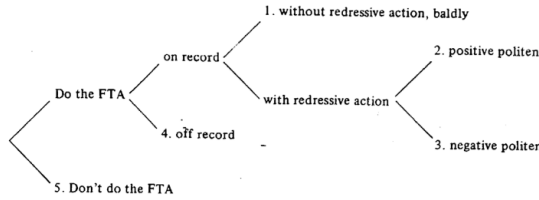


Figure 1: Brown and Levison’s politeness model from [1]

	Personal Agent	Passive Agent
Query		
<i>Log initiation</i>	Let’s get logging partner!	Okay, let’s begin the mood log.
<i>Mood rating</i>	If you rate to know your mood on a scale of 1 - 5?	If you rate your mood from 1-5, this will be added to the log
<i>Mood response (positive)</i>	I am glad to hear it!	Thank you, your mood has been logged as 5
<i>Mood response (negative)</i>	I am sorry to hear that!	Thank you, your mood has been logged as 2
<i>Mood situation</i>	It would be great for me to know about a specific situation that made you feel this way.	If you have the time could you log a specific situation that made you feel this way?
<i>Lifestyle choice</i>	Ok mate, could you tell me how many hours you slept last night?	You could also log how many hours of sleep you got last night.
<i>Diary entry</i>	It would be great if you could tell me how your day has been.	Could you also log how your day has been?
<i>Log completion</i>	That’s great! We have finished the log, I hope to speak to you again soon.	Now that you have completed your mood entry this will be added to your log for you to review later.

Table.1 Mood log questions built on politeness strategies that reflect either a more ‘personal’ or a more ‘passive’ agent.

DESIGNING POLITE CONVERSATIONAL VOICE AGENTS FOR MOOD LOGGING

At the heart of Brown and Levinson’ model [1] (Fig. 1) is the concept of the Face-Threatening Act (FTA), any act which challenges the face wants of an interlocutor. Face wants are divided into positive and negative face. A person’s *positive face* is their desire to be wanted. A person’s *negative face* is desire not to be impeded. We use these strategies to explore how politeness can be used to create different agent personalities and how this may impact people’s interactions with the agent and readiness to self-disclose about mental health. We created two dialogue templates by applying Brown and Levison’s strategies for FTAs to a set of relevant questions for logging a person’s mood (Tab. 1). Taking the initiation of a mood log as an example, we can apply the strategies of a **bold-on-record approach** that may translate to a direct question: “*What is your mood today?*”; or an **off-record approach** to ask indirectly: “*Mood logging is a good way to track how you are feeling*”. Neither of these strategies however offers much encouragement to respond. **Positive** and **negative politeness strategies** however include expressions that can motivate engagement. For example, statements such as: “*I would love to know how you are feeling today*” may provide encouragement to respond through appeals to positive face; while statements such as: “*You wouldn’t be able to tell me how you are feeling would you?*” offer appreciation for a person’s negative face. By comparing different options for politely asking a person about their mood, we further noticed how some queries are more passive, non-personable such as: “*It is good to log your mood often*”; whereas others seem to imply some vested interest in the person and their wellbeing. For example, a voice assistant asking: “*I would love to know how you are feeling today*”, implies both a personal connection to the individual, and can make a voice agent appear as more caring and emotionally intelligent. Other examples seem to part between a passive and personal agent, such as: “*If you let me know how you are feeling, I will log it for you*”. This implies a more passive agent, who upholds politeness, without overly implying an empathetic connection. To make this difference more explicit, we divided our politeness translations for the mood log (Tab. 1) into those that were more *personal* – reflecting a sense of care for, or personal investment in, the person, like a human companion; and those that were more *passive* – portraying a more indirect approach to asking for information, like an impersonal assistant to the user.

A clear distinguishing feature in the set of questions of each agent is the use of person pronouns for the personal agent. Its questions directly refer to itself and its relationship to the person, through expressions such as “*I would love to know...*”, “*It would be great for me...*”, “*We could...*”; and relating to the person as “*partner*”. It conveys a vested emotional interest in the person, stating to be “*glad to hear*”, “*love to know*” and to “*hope to speak*” to the person again soon; as well as placing the mood log as a shared activity between itself and the person: “*Ok logging-partner...*”, or “*We have finished the log...*”. This can create impressions of the agent as active contributor to the logging experiences, and – despite a technical system free of any sentimental capability – to be emotionally invested in the user. Conversely, the passive agent does not make use of any person pronouns and instead puts emphasis on the user: “*would you like to log your mood today?*”; and frames its role as an assistant to the person: “*Now that you have completed your mood entry this will be added to your log for you to review later*”. This conversational structure avoids emotional evaluations of the person’s responses; or expressions of own sentiment.

Thus, when translating dialogue structure from human-human conversation to voice agents, we have to be mindful of, and need to better study, how users come to perceive the agents and their purpose in supporting a specific activity (here: mood logging). Likely this requires a careful balancing in the dialogue design in ways that invites self-disclosure without risking unrealistic expectations of the agents emotional or relational capabilities.

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