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### Beyond anthropomorphism: Unraveling the true priorities of chatbot usage in SMEs

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# Beyond Anthropomorphism: Unraveling the True Priorities of Chatbot Usage in SMEs

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## ABSTRACT

This study examined business communication practices with chatbots among various Small and Medium Enterprise (SME) stakeholders in Singapore, including business owners/employees, customers, and developers. Through qualitative interviews and chatbot transcript analysis, we investigated two research questions: (1) How do the expectations of SME stakeholders compare to the conversational design of SME chatbots? and (2) What are the business reasons for SMEs to add human-like features to their chatbots? Our findings revealed that functionality is more crucial than anthropomorphic characteristics, such as personality and name. Stakeholders preferred chatbots that explicitly identified themselves as machines to set appropriate expectations. Customers prioritized efficiency, favoring fixed responses over free text input. Future research should consider the evolving expectations of consumers, business owners, and developers as chatbot technology advances and becomes more widely adopted.

## CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI)**.

## KEYWORDS

chatbots, Small and Medium Enterprise, SME, interview, qualitative, transcript logs, business communication

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## 1 INTRODUCTION

Globally, AI adoption rates have reached 50%, with natural-language text understanding and conversational interfaces being crucial capabilities [5]. Chatbot usage has particularly surged in Asia, especially during the COVID-19 pandemic, where 63% of internet users interacted with businesses and brands through this channel [12]. Small and Medium Enterprises (SMEs), representing over 97% of all businesses and 69% of the national labor force in the region [2], deserve more attention regarding how they use chatbots. Yet, to date, only a few studies encompass SMEs and only in specific industries [6, 18, 19], preventing us from understanding how SMEs and their customers use chatbots. Our study aims to fill some of this gap with a particular focus on Singapore, one of the most developed digital economies in the region, where customers' business communication rates with chatbots recently reached 79% [2]. We explore local SME stakeholders' perceptions, attitudes, and needs about using chatbots in business communications. Hence, our first research question is: *RQ1: How do the expectations of SME stakeholders compare to the conversational design of SME chatbots?*

Previous studies suggested that the relationship between anthropomorphism and business outcomes is complex [3, 13]. The uncanny valley effect and negative customer experiences can adversely impact attitudes toward the business. Furthermore, customer attitudes, such as ease of getting help or trust, extend beyond anthropomorphism and warrant additional practical considerations in chatbot design [1, 7, 17, 20]. Therefore, our second research question is: *RQ2: What are the business reasons for SMEs to add human-like features to their chatbots?*

This paper presents initial findings from an exploratory study that collected qualitative data from SME stakeholders about their expectations and experiences communicating with business chatbots. We interviewed three stakeholder groups: (1) Customers who interacted with SMEs via a chatbot, (2) SMEs who are owners or employees using chatbots as part of their business communications, and (3) Developers who designed and developed chatbots for SMEs. Next, we collected biweekly conversation logs from eight SME chatbots over a period of three months. The findings are presented in thematic categories, briefly comparing how the observed business chatbot communication practices from the logs stack up against stated expectations and conversational design principles.

## 2 METHOD

### 2.1 Participants

To explore how stakeholder expectations compare to their experiences when interacting with SME chatbots, we first conducted semi-structured qualitative interviews with 10 Customers, 4 SMEs, and 5 Developers. Participants were recruited through emails, public postings on online forums, and LinkedIn searches. Each participant received S\$50 compensation.

All 10 Customers interacted with an SME chatbot at least once within the past six months. They identified as 7 females and 3 males, between 18 and 57 years of age ( $M=27.9$  years). The 4 SMEs were owners or employees of Singaporean small businesses from healthcare (2), e-commerce (1), and services (1) industries. The 5 Developers worked with various clients, including SMEs, larger enterprises, and governments. Four were also local SMEs themselves, while one was from a larger company. On average, they have been in business for 9 years. Their product offerings range from simple rule-based intent recognition chatbots to more sophisticated NLP capabilities and even generative AI.

The study followed the ethical guidelines as approved by the Singapore Management University's Institutional Review Board IRB-22-081-E044(722). Participation was voluntary, anonymous, and accompanied by written informed consent. Participants were paid SGD50 as a token of appreciation. Additionally, all collected data were anonymized to preserve participant confidentiality. There was no conflict of interest between the researchers and the research participants, including the SMEs.

### 2.2 Procedure

First, we conducted 60-minute semi-structured face-to-face or remote interviews about general expectations and specific experiences with SME chatbots. Questions for customers focused on their goals (e.g., "Why did you interact with the chatbot?"), impressions of the chatbot (e.g., "What were your general impressions of the chatbot?"), and impressions of the SMEs (e.g., "Based on your interaction with their chatbot, what is your overall impression of the SME?"). Questions for the SMEs and Developers centered around the business context (e.g., "What business need(s) does the chatbot address?"), design (e.g., "Who designed the content of the chatbot?"), and development (e.g., "How was the chatbot designed.") The interviews were recorded, transcribed, and analyzed using thematic analysis to search for themes related to our research goals. We followed a six-step approach [4], in which we first read all the transcripts multiple times (Step 1) and developed an initial set of codes (Step 2). Next, we independently generated a preliminary list of themes (Step 3), followed by a discussion to aggregate a common list of themes (Step 4). Finally, we defined each theme based on existing literature (Step 5) and reported them with representative verbatim examples (Step 6). As a follow-up, we gathered transcript logs from 8 chatbots operated by Singaporean SMEs. For each chatbot, we chose a representative scenario (e.g., buy a property, find a nurse, order/return a product, ask for bus arrival times, change the delivery address, etc.) and recorded the conversations with the same user intents biweekly for 3 months. Then we analyzed the transcripts based on the themes we found during our previous interviews. During this data gathering, we only observed half the chatbots making any

changes to their responses, such as adding or removing fixed input options for improved functionality or more chatter responses for additional personality.

## 3 RESULTS

We identified 6 themes from the interviews: (1) Identity, (2) Self-disclosure, (3) Feedback, (4) Human Operator, (5) Personality, and (6) Text Input.

### 3.1 Theme 1: Identity (Name & Gender)

**3.1.1 Name.** Customers (5-5) and SMEs (2-2) were split on whether chatbots should have a name. For half of them, names helped to "feel that personal connection." For the others, "The name doesn't matter, but if they want to name it, I prefer the business name." In contrast, all Developers (5) preferred chatbots to be identifiable as "users will remember what to call the bot."

Six of the 8 SME chatbots we analyzed had a name. Of those with a name, 4 had human names, and 2 kept the company's name.

**3.1.2 Gender.** Nine Customers were indifferent or preferred no gender, "Don't believe a chatbot should have a gender." Interestingly, the healthcare SMEs (2) preferred "having a female gender [chatbot] for healthcare services [because it] evokes a nurturing impression to hear about issues." One Developer "recommend[ed] genderless because [their chatbots] do not have any ML or NLP capabilities." Another Developer suggested a context-dependent approach "If, as a brand, you tend to be more forthcoming like Razor [a gaming company] in gaming or retail, you always have to make a stand and need to have a gender. But if you're professional, like insurance and healthcare, and you tend to be on the safer side, we would say don't give your bot a gender."

Four chatbots were genderless, while 3 implied genders with traditionally female (e.g., Daphne) or male (e.g., Ryan) human names. One used a self-referencing male pronoun and the addition of "Uncle" in its name, a term of respect toward elderly males in Singapore.

### 3.2 Theme 2: Self-disclosure

Customers felt chatbots should be introduced as a machine because they wished to "manage expectations in terms of [how humans ask] questions and [expect] responses." One customer declared that "I speak differently depending on whether it's a person or chatbot." Utterances directed at machines are shorter and simpler compared to conversations with humans because customers don't want to "waste time" by rephrasing phrases that chatbots wouldn't understand. SMEs felt that upfront disclosures increased trust with customers. A Developer mentioned that with self-disclosures, "[people] can be more forgiving when a chatbot fails to deliver."

However, we found that most (6) chatbots kept their identity ambiguous by not referencing themselves as either humans or machines when they initiated a conversation. Four disclosed upfront what capabilities they had "Enjoy these features when you subscribe: Track your parcel, Receive live updates." One pretended to be human "Hi, I'm [Feminine Name] from [Company]! Are you looking for care for yourself or a loved one? How can I help you?", while another explicitly stated to be a machine, "Hi, I'm [Robotic Name]! I am [Company]'s virtual assistant, ready for your service 24/7."

**Table 1: Themes with corresponding citations, stated stakeholder preferences, and observed frequencies of chatbots**

Theme	Customers (n=10)	SMEs (n=4)	Developers (n=5)	Chatbots (n=8)
Name [1, 9]	Split preferences	Split preferences	All prefer	6 with a name
Gender [14, 15, 21]	Genderless or indifferent	Female or indifferent	Depends on the industry or genderless	4 genderless, 3 female, 1 male
Self-disclosure [1, 9–11]	Yes to manage expectations	Yes to gain trust	Yes to lower expectations	6 ambiguous, 1 as a machine, 1 as a human
Feedback [7]	No 'blinking dots' or response delay	No 'blinking dots' or response delay	No 'blinking dots or response delay	6 'blinking dots or response delay
Human Operator [8, 16]	Yes for complex tasks only	Depends on the industry and task complexity	Depends on the industry and task complexity	4 with human operators
Personality [1, 7, 17]	Unimportant, limited to emojis, and a polite tone	Depends on the industry	Depends on the industry and the client	7 with a polite tone, 6 with emojis
Text input [7]	Prefer fixed response over free text due to low expectations	Prefer fixed response over free text to control options	Prefer free text or suggested response for better UX	7 had fixed responses, 6 had free text, 3 had suggested response

### 3.3 Theme 3: Feedback

Customers stated that business chatbots should have no delay in responding to a request, like the three blinking dots as a sign of 'typing.' Some even preferred immediate responses as a differentiator *"I prefer blinking dots for live [human] agents because it makes the user feel that the agent is really processing information, but [I] prefer chatbots not to have it because chatbots don't need the time to process the information."* SMEs and Developers concurred that *"[such] bells and whistles will kill you. [...] it increases the time."*

However, 6 of the 8 chatbots used either the 'three blinking dots' or a slightly delayed response. This was particularly surprising, given the stated expectations for instantaneous replies.

### 3.4 Theme 4: Human Operator

Customers preferred to connect with a human operator for complex tasks, *"I'm just looking to input my data and get connected to a real person."* Business chatbots were seen as simple problem-solving tools *"I try to go to the chatbot first to scroll through options to see whether my problem can be resolved. If not, I'll just go to the live agent option."* Developers and SMEs agreed they must think *"equal[lly about...] live agents and chatbots."* In some industries, like healthcare, real-time human representatives are more crucial. In others, chatbots are 'gatekeepers' of simpler queries, and only the complex ones are for humans.

Half (4) of the chatbots we observed could connect their customers with a human. These chatbots were from the (2) healthcare, (1) logistics, and (1) e-commerce industries.

### 3.5 Theme 5: Personality

For Customers, personality was unimportant that should be limited to a few emojis and polite expressions. SMEs said that the level of

formality depended on the industry. For example, retail and lifestyle businesses can afford to be more casual. In contrast, professional services should sound more formal, *"due to the seriousness of requests and urgency in [for example] the healthcare industry, the tonality of the chatbot has to be more formal and succinct."* One Developer built his business around offering various 'quirky' chatbots. For him, chatbot personality was central and a means to *"creating a brand out of the chatbot experience."* The other 4 Developers didn't consider personality important unless their client explicitly asked for it. Instead of designing detailed personality documents, most Developers suggested having 3-4 layers of variability in standard responses to avoid *"[the same] fixed responses over time to erode positive feelings of friendliness."*

All but one (7) chatbots had a polite tone with frequent usage of "sorry", "please," or "thank you." Six of them also used emojis. The one exception had an intentionally 'grumpy uncle' personality.

### 3.6 Theme 6: Text Input

Six Customers preferred fixed responses over free text because they didn't think the chatbots would understand them. When entering free text, Customers used strategies like *"dumb[ing] down the language [of my requests]"* because *"[I] know the bot picks up [only some] keywords."* Fixed responses, on the other hand, were *"easy to use"* and *"less effort."* Developers offered a different perspective: *"free text [...] is important for user experience and improvements,"* and *"If you want to call it a chatbot, it must have free text."* Suggested responses could be an alternative because these *"give people an idea"* of what to do next.

Seven of 8 SME chatbots used fixed responses at some point in the conversation, and 6 also allowed some free text. One chatbot had only free text input. Interestingly, only 3 used suggested responses.



## 4 DISCUSSION

In this exploratory study, we looked at business communication practices with SME chatbots. We observed that despite the rapid increase and availability of advanced AI algorithms, customers and SMEs today still interacted with simple rule-based chatbots. They expected little from these interactions and lacked the trust that such conversational technologies would understand complex human intents. Limited to basic functions, all SME stakeholders expected business chatbots to keep interactions functional and machine-like. Getting fast to the point and efficient task automation were valued over uniqueness. Personality and other anthropomorphic cues were minimalist as they carried the risk of becoming a hindrance to business outcomes. Low customer expectations disincentivized typically resource-constrained SMEs to experiment with more advanced conversational technologies.

We compared SME stakeholders' expectations with chatbot implementation practices. Previous literature suggested that names and gender made chatbot interactions more natural [1, 7, 14, 21]. Indeed, we found that many SME chatbots had human identities. However, our results also showed that SMEs and customers viewed such traits as unimportant and undesirable. Past studies encouraged chatbots to include social cues to imitate, for example, 'typing' or 'thinking' of humans [7]. The chatbots we observed implemented these features. Like before, however, SME stakeholders did not prefer these types of anthropomorphic feedback.

Consistent with previous studies [9–11], all stakeholders wanted to know the identity of the agent conversing in the chat (i.e., whether it is a human or a bot). Interestingly, we found different reasons behind this preference for disclosure. Customers wanted to know if they were speaking to a machine and understand its capabilities and limitations, hoping to avoid wasting time saying things the chatbots wouldn't understand. Businesses aimed to increase trust, and developers hoped for forgiveness during error recovery. Yet 6 of the 8 chatbots we observed kept the agents' identities ambiguous.

Similar to previous findings [7], SMEs and customers preferred using chatbots with fixed or suggested responses. Again, the reasons for their preference varied. SMEs explained that fixed options gave better control over customer requests, while customers lacked confidence in the chatbots' ability to process free text input. In contrast, Developers felt strongly about allowing free text input because they argued that previously unrecognized user intents were excellent sources of future chatbot improvements. However, during the three months of transcript log analysis, we found only infrequent and minor updates to most SME chatbots.

The second research question asked if SMEs had business reasons for including anthropomorphic features in their chatbots. We found that personality and identity were less important for customers than functionality. Thus, there is no business rationale for more human-like interactions, as these would not improve the perceived value of the chatbot. Instead, developers could implement multiple layers of standard responses to avoid repetitions without focusing too much on building a complex personality. This is further supported by previous studies of word variability leading to greater acceptance of chatbot responses [7]. Another potential alternative is to include an option for reaching a human operator. Admittedly, this could be costly and not feasible for every SME. Nevertheless, it was a

commonly discussed option amongst the interviewed stakeholders, and the feature existed in half of the observed chatbots.

Our findings indicate that SME stakeholders prefer functionality over anthropomorphism. SMEs with limited resources and simple rule-based chatbots are better off increasing automation efficiency over implementing novel features or human-like personality traits. In the near future, as the cost of more advanced technologies, such as generative AI, decreases, this is likely to change. However, the expectations and implementation of chatbots for small and medium-sized entrepreneurs today are closer to a machine than a human.

## 5 LIMITATIONS AND FUTURE WORK

Our study took place before generative AI gained widespread adoption. Considering this new experience, the reported expectations of our stakeholders may also evolve over time. Although participants were carefully selected, the study was conducted on a small scale, which may not reflect all SME segments. In the future, we plan to have a larger study with more stakeholders across different industries. We also plan to conduct a quantitative survey to validate these initial themes on a representative sample in Singapore and beyond.

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