Designing Anthropomorphic Enterprise Conversational Agents

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Appendix (available online via http://link.springer.com)

Appendix

Table 7 Participants in qualitative requirements elicitation and evaluation

Design Cycle	Research Method	Pseudo-nym	Gender	Role and Individual Background
1 Awareness of Problem	Semi-structured interviews on requirements and iterative coding	HR01	Female	Head of Global HR Marketing & Recruiting at Company, Educational Background in Marketing
		HR02	Female	Senior Expert HR at Case Company, Educational Background in Marketing
		TP01	Male	Master Student of Information Systems at German University, Member of Company's Talent Pool
		TP02	Male	Bachelor Student of Business Administration at German University, Member of Company's Talent Pool
		TP03	Female	Student of Medicine at German University, Member of Company's Talent Pool
		TP04	Male	Master Student of Business Administration at German University, Member of Company's Talent Pool
1 Evaluation	Free form feedback in survey after interaction with 1st prototype and open coding	TP11	Male	Master Student of Business Administration at Danish University, Consultant Intern at Company
		TP12	Male	Master Student of Business Administration at German University, Member of Company's Talent Pool
		TP13	Female	Master Student of Business Administration at Swiss University, Member of Company's Talent Pool
		TP14	Male	Bachelor Student of Economics at German University, Member of Company's Talent Pool
		TP15	Male	Master Student of Business Administration at German University, Consultant Intern at Company
		TP16	Male	Bachelor Student of Engineering at German University, Member of Company's Talent Pool
		TP17	Male	Master Student of Political Science at German University, Member of Company's Talent Pool
2 Evaluation	Two focus group sessions with 2nd prototype interaction and gathering of strengths and weaknesses of the artifact	HR21	Female	Head of Global HR Marketing & Recruiting at Company, Educational Background in Marketing
		HR22	Female	Senior Expert HR at Company, Educational Background in Marketing
		HR23	Female	Junior Expert HR at Company, Educational Background in Business Administration
		HR24	Female	Expert for Marketing at Company, Educational Background in Marketing
		TP21	Male	Master Student of Information Systems at German University, Member of Company's Talent Pool
		TP22	Male	Master Student of Business Administration at German University, Member of Company's Talent Pool
		TP23	Female	Student of Medicine at German University, Member of Company's Talent Pool

Table 8 Meta-requirements and exemplary quotes from interviews (material translated to English)

Meta-Requirement	Exemplary Quote(s) and Source
User Understanding (MR1)	*"the bot should be able to answer detailed, follow-up questions that could come up in a specific topic area as long as they can be anticipated"* – TP04 *"it should understand context-specific questions for the recruiting process [..], for example, what are typical questions on the interview day?"* – TP03
Informative Responses (MR2)	*"the bot somehow represents the company's image, so questions should be answered informatively"* – TP01 *"the bot has to be able to remember and logically connect what has been communicated in the conversation [..]. It needs to understand and address what I have said, it should not always offer the same standardized reply" – TP04*
System Transparency (MR3)	*"In my opinion showing what the bot can do is good as people otherwise have the expectation that it is like Siri and can answer every kind of question [...] It would be useful if the bot says I can answer this and answer that at the beginning"* –HR02 *"The bot should say that it is here to only help and support [the user for the recruiting day], also without tracking individual performance or the like"* – HR01 *"It would be great if the bot would identify itself as a machine in a sympathetic, playful way"* – TP01 *"I think it is more appealing if the bot clearly describes that it is a computer but it also has certain human characteristics"* – TP02 *"the expectation gap is a problem [..] I'm always disappointed if I ask Siri something and she does not understand me. It should clearly delineate areas in which it can provide as good replies as possible"* – TP01
Exit Option (MR4)	*"Personally, I find it helpful if for example e-mail addresses of HR contacts are provided"* – TP02 *"In the best case, the bot immediately responds with contact data of an actual person that I can approach with my question"* –TP03
Support in Conversation (MR5)	*"I don't know if this is technically possible, but it would be great to have the opportunity to state a solution and then receive feedback whether it is correct and whether the solution approach is suitable"* – TP02
Conversation Repair and Fallback (MR6)	*"the bot should indicate that it is not able to answer the specific question – in a sympathetic way to reduce a user's disappointment"* – TP01 *"in the best case, the bot would support the reformulation of the user's request that would then allow it to understand the user"* – TP01 *"[if the bot cannot answer a question] it should politely state something like I am sorry that I cannot offer a reply, please feel free to contact us under..."* – TP04

Table 9 Issues of prototype and exemplary quotes from free-form feedback (material translated to English)

Primary Issue	Exemplary Quote(s) and Source
Mechanical and inhuman feeling in the interaction	*„it is not very human-like, you realize that the replies repeat themselves frequently and that follow-up questions are not possible. In comparison to a real-life job interview with a consultant, the bot is not able to respond to spontaneous questions"* – TP11 *„the chatbot is a bit too friendly, in my opinion it uses too many smileys"* – TP15 *"it is clear that the technology is still far away from simulating real human behavior [in a job interview]"* – TP12 *"the quantitative and multiple-choice parts of the interviews are okay; however, it lacks flexibility in the interaction for the more creative interview questions"* – TP15 *"the bot's name is strange, I would use a normal human name and image* – TP15 *„the job interview is too mechanic, a case-study interview is about (creatively) approaching business problems. This opportunity is currently missed"* – TP17 *"the bot's image is unappealing, I would use the image of an actual employee"* – TP15
Lack of responsiveness	*"the computer obviously reacts to keywords, which often leads to misunderstandings"* – TP12 *"I had to reply manually multiple times until the chatbot understood that I wanted to do a case-study interview [..] this could lead to very frustrated users and immediately diminished the human-like interaction (if it misunderstands me already at the beginning, how can it be able to do a job interview with me?)"* – TP16 *"the bot only understands straight-forward responses, creative approaches are not appreciated"* – TP17
Further technical issues with web interface	*„the input field does not allow to make line breaks; the field is extended continuously which makes you lose the overview"* – TP12 *"a long delay exists when pressing "Enter" after adding input, which led me to enter a response multiple times"* – TP12 *"the computer should recognize when the user starts entering a second statement and then wait for the message to be sent. This would be more in line with a natural chat dialogue"* – TP15

Figure 6 Evolution of design principles and qualitative feedback