Dara: A Chatbot to Help Indian Artists and Designers Discover International Opportunities

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Abstract

Many designers and artists in India, because of limited domestic patronage, are interested in international opportunities. However, they experience difficulties in discovering such opportunities. Finding relevant grants, funds, residencies, jobs, and collaborators takes significant time and effort. Typically, this is best done via a human matchmaker - someone who knows of opportunities and makes introductions. However, this person might be limited by their own social circles and knowledge. The few websites available are usually intimidating and not personalized. Our vision is to design and develop Dara, a conversational chatbot that asks a series of questions to its users and is able to suggest relevant opportunities. As a first step we built a Wizard-of-Oz prototype and interviewed 9 users about their experience. We then designed the personality, conversation flow and referral nomination system for our next-level prototype. We conducted a preliminary evaluation with 14 users in Bangalore, India. We discuss the implications for design of chatbots targeted at the creative community in the developing world.

C&C '19, June 23–26, 2019, San Diego, CA, USA

ACM ISBN 978-1-4503-5917-7/19/06.
https://doi.org/10.1145/3325480.3326577

Author Keywords

Chatbots; artists; designers; India

CCS CONCEPTS

•**Human-centered computing** → **User interface design**; *user studies*

Introduction

Contemporary arts practices have poor patronage both from public and private sources, in developing countries like India [3], [6]. This leads to limited visibility for artists and designers, both domestically and internationally. Those artists and designers who manage to collaborate with international artists and institutions often have their careers leapfrog ahead [28].

International funders like the British Council [4], Goethe Institut [10], or even mailing lists like Funds for NGOs [8] have relevant open calls and grants. Invitations or calls from places like Schloss Solitude [1], V&A [24] or festivals like SXSW [21] are also desirable. Visibility to curators from Tate [23], MOMA [17] and similar institutions would also be appreciated by most aspiring artists and designers.

Yet the vast majority of aspiring Indian creatives lack the social connections or capital required to identify relevant opportunities abroad. The Indian art market pales in comparison to the US, UK and China [9] and in 2017 average per capita yearly income in India was just $1800 [9], with online Indian artists earning $3600 [13]. Hence opportunities to collaborate internationally often cost 6-9 months salary, with the price of European flights + boarding easily exceeding $2000.

Finding relevant opportunities in the creative sector—grants, funds, residencies, jobs, gigs, sponsors, etc.—takes significant time and effort. Traditionally this is best done via a human matchmaker or connector who knows of opportunities and makes introductions. This person, however, may be limited by their own social circles and breadth of knowledge. There are also a limited number of websites, platforms and forums that artists and designers could refer to [16], [22], but these are often overwhelming, intimidating and not personalized.

Conversational chatbots are becoming increasingly popular digital assistants for retrieving information. A chatbot is an AI chat agent that simulates a human-like conversation by allowing users to ask questions, and in return generating meaningful answers. Recent popular chatbots include Xiaoice in China (available on the messaging app WeChat) [29], Nataasha in India (available on Hike messenger) [18] and also Ruuh (developed by Microsoft and available on Facebook)[20]. Xiaoice, Natasha and Ruuh are all targeted at general purpose chitchat. There are also chatbots for specific verticals like banking, insurance, retail, healthcare, construction, and hospitality. However, chatbots aimed at artists and designers are few and far between, especially in the Indian context.

Our vision is to design and develop a conversational chatbot, Dara (or "thread" in the Indic language Kannada), that ask a series of questions to aspiring artists and designers and is able to suggest relevant opportunities in response. In this extended abstract we present some of our early work on Dara. We first describe our Wizard-of-Oz [15] prototype and interviews with 9 users about their experience. We then present the design for the next-level prototype and a preliminary evaluation of that prototype with 14 users in Bangalore, India. We close with our conclusions for design of conversational agents for the creative sector and future plans for Dara.

Related Work

The idea of chatbots originated at MIT [26], [27] where the 'Eliza' chatbot was built to emulate a Rogerian psychotherapist. The study found that Eliza's users

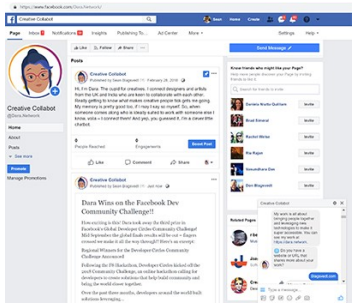

Figure 1: SCREENSHOT Dara's Facebook page with chat window engaged.

believed the computer program really heard and understood their problems and could help them in a constructive way.

In recent relevant studies researchers have studied the experience of first-time chatbot users and have found that participants preferred chatbots which provided either a 'human-like' natural language conversation ability, or used a familiar turn-based messaging interface [14]. Findings suggested providing clear indication of chatbot capabilities, indicating when the chatbot fails to perform a task, and ending a conversation gracefully. Other researchers have proposed design of chatbots with avatar and voice interaction to make conversations more alive and natural [2]

There have been chatbot studies aimed at specific application areas from assisting users to discover relevant MOOCS [11] to developing and deploying chatbot services that connect users seeking fashion advice with stylists [25]. Within tools to support designers, researchers have helped novice designers approach others for resources by scaffolding the help-seeking process and helping them write more effective introduction messages [12].

To our knowledge ours is the first chatbot study, at least within the Indian context, which aims at creating a chatbot to help artists look for better opportunities.

Background

Our work is done as part of an online digital arts project that is supported and in collaboration with the British Council [5]. It is also the third-place winner for the Facebook Community Challenge [7]. If successful, the project will potentially serve as a directory for artists and designers operating in India and the UK, and eventually worldwide. We drive the adoption of Dara with help from our partner cultural institutions.

Methodology

The chatbot under development

The gender of Dara is in keeping with existing chatbots, which are largely female—Xiaoice [29], Natasha [18], Ruuh [20]. When artists and designers start a conversation with Dara, she would guide them through a series of questions, learning about the user and then suggesting potential opportunities in other countries, and relevant potential collaborators. The questions would be about the user's demographics, practice and artistic or design projects. She would also try to get a sense of the user's personality if they chose to undertake the modified Big 5 personality test [19], to help suggest collaborators with personalities that complement.

Dara is built on top of the Microsoft Bot Framework and then connects to a web control on https://dara.network and Facebook Messenger (https://m.me/dara.network) (Figure 1). It leverages the LUIS language processing engine and Azure search features as well. Its backend logic systems reside on a Node.js server. As users interact with Dara, certain responses build a user profile and desired collaborators. The user profile consists of professional category (from synonyms in the "Tell me about your practice?" answer), location (using Google APIs to parse location from answers to "Where do you live?), plus organization, email, mobile, etc. Users are then matched using their profile and desired collaborator category, location (and later personality results).

The Wizard-of-Oz and initial interviews

When we began, our chatbot was still under development and not ready for a user experience test,

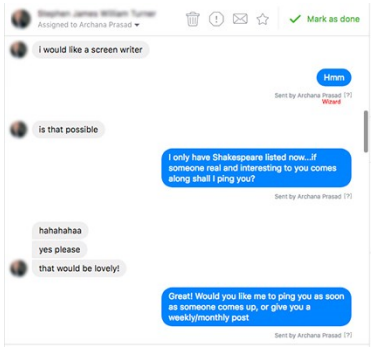

Figure 2: WoZ DETAIL. Chat log window during WoZ session.

so as a first step we decided to conduct an exploratory Wizard-of-Oz (WoZ) [15] study.

The link to the chatbot on a dedicated, private Facebook page was previously shared with users ahead of the study. The chat session was scheduled such that the Wizard would also be available and viewing the chat from their computer. The Wizard and study participant never came face-to-face. The participants were told that there might be a human involved in the chat, however the extent to which the human (Wizard) would be involved was not revealed.

Participants in our WoZ study started with using the actual chatbot, but when the bot was not able to return a meaningful response (usually because it could not process a question or statement from the participant), the Wizard would take over using a standard refrain:

"It looks like we've reached an impasse so let's move our conversation. Please click on http://m.me/1811970772440150 to continue to chat"

When the participant clicked this link, they would start a new conversation, but this time, the Wizard would continue the conversation (Figure 2), unbeknownst to the participant. The Wizard and user would continue to chat until the 10-minute session was completed. In the interview briefing participants were asked to conclude when there was a natural stopping point in the conversation around the 10 minute limit. If the participant did not choose to end the session, the Wizard asked to end the conversation at a natural stopping point.

The first set of questions that were primarily conducted by the bot included demographic queries - name, gender, email, age and location. Followed by questions on areas of practice and skills. Then there were 8 questions on tech usage spanning from type of hardware owned to social media engagement. This was followed by 3 questions focused on the user's profile - what areas within the arts they most wanted to learn about, their working style and areas of interest within the creative sector. The third section comprised of questions on notification preferences - if and how often would they like to be contacted by Dara. The last section focused on the user's previous and ongoing creative projects - whether they were skillsets and ideal personality characteristics they would prefer for their projects.

Once the chat was over, we conducted interviews with 9 users. There were 2 male and 7 female users between the ages of 26 and 35. Their backgrounds included dance, theatre, museology, visual arts, art conservation and art administration. 6 respondents were from the UK and 3 were from India. 5 respondents had never interacted previously with a chatbot, 3 had interacted with a service chatbot and one had previously interacted with a chatbot on Twitter. We asked participants about their experience with Dara, including before and after the Wizard handoff, getting into details about her tone, mannerism, interests and what she should ideally avoid or whether any behavior or question made participants uneasy.

First round observations

Participants liked that the experience with Dara was "more of a conversation". Having an exchange with someone "more human" and "getting immediate responses" was something they enjoyed. They found Dara to be "easy and fun". They also liked that they were able to "bat an idea with someone non-judgmental". At the same time participants did not want Dara to be "too chummy" or "over apologetic" if she could not return a useful result. They did not want her to

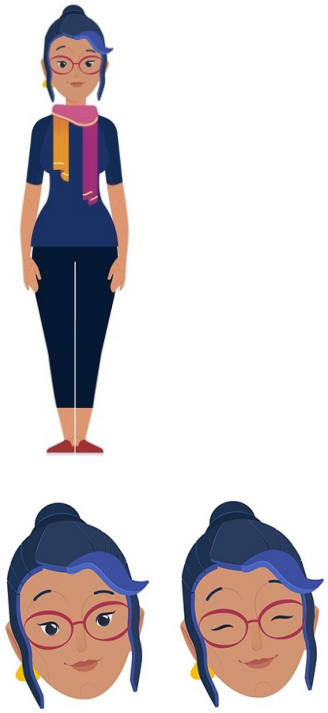

Figure 3: DARA CHARACTER DESIGN Details showing Dara as a stylized human figure.

be "over-inquisitive" and pretending to know her users too well. Some said they would not be comfortable sharing their photographs on their first chat encounter. They wanted the information Dara provided be "to the point" and for opinions to be positive.

They liked that Dara had the potential to increase their professional networks, giving them greater visibility, connecting and providing information about the work potential collaborators do. Participants wanted to know about the personality of potential collaborators (e.g. were they "particularly organized or extroverted?") and deemed it as a critical aspect of a successful pairing. They valued that the connections she would make would be personalized. They said online directories took time to sift through. They saw that the more people that they helped to bring onto Dara's network, the more useful it would be for them in the future. Participants did not want Dara to share their personal information without prior permission, especially to corporates. A visual identity, a way to imagine Dara was deemed to be necessary by most participants.

The working prototype, user study and follow-up interviews

Dara was illustrated as a 2D rendering of a stylized human figure (a female) (Figure 3). We used this as the primary profile picture on her Facebook profile. In addition, we adjusted the conversation flow for Dara to give information about herself, before seeking information about her user. Conversation flow led with questions on practice and interests, not projects and skills. This was found to be more authentic versus "nosey". Only when users clarified motives to engage with Dara, did she request for more in-depth information on the users' recent, showcase-worthy projects. Dara used open-ended and clean language to reduce her being perceived as opinionated. Dara would state clearly her usage of any information shared with her at the outset, to allay any fears they might have on their data privacy. We used a "coaching style of conversation", so that users felt encouraged to open up and "bat ideas around with" Dara. She would also try to get a sense of the user's personality if they chose to undertake the modified Big 5 personality test, to help suggest collaborators with personalities that complemented. She offered an option for participants to nominate others to join her network. When users had got to the end of her conversation flow, she would offer a menu that gave them options to view and edit their profile and projects, manage notifications from her or take a personality test. If she was unable to parse a query from the user correctly, she would request politely for more clarity and acknowledge without being apologetic that being early in her learning curve caused her code to break.

14 participants were asked to visit a dedicated Facebook page and engage with the fully automated Dara prototype (Figure 4). The age range of the participants was 31-46 years. There were 6 male and 8 female participants. All of them were from India. 7 of the participants had interacted with a service bot, but only on rare occasions. The average time in engaging with Dara was 6 mins.

We interviewed the participants immediately after their engagement with Dara. Interviews were conducted as a phone conversation where we ran participants through a series of 16 questions. We asked them about their experience chatting with Dara, their opinions on her personality and functions, the kinds of collaborations that

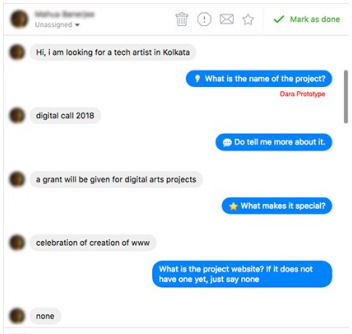

Figure 4: FACEBOOK PROTOTYPE DETAIL. Chat dialog window in our fully functional Facebook prototype.

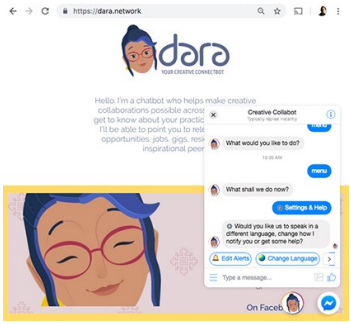

Figure 5: SCREENSHOT OF DARA'S WEBSITE Fully enabled web-based chat running on Dara's website.

Dara should suggest, and domains she should be proficient in.

Findings

Participants found the visual identity of the bot critical to engage. They liked the stylized human figure visualization. The personality tests as part of collaborator recommendations were perceived as both fun and useful. The ability to re-take the test or choose to display summarized results as part of one's profile was considered helpful to increase potential collaboration opportunities. Menus were found to be useful for navigation, but participants wanted to see them as a part of the conversation flow. Participants felt safe sharing about their work with the bot. They wanted the bot ideally to have an open and friendly personality, while not being opinionated or overly directive. They thought that the bot should have good domain knowledge, be self-aware and witty. They wanted to see the bot's tone ideally modify to context, and for it to fail "gracefully" without self-deprecation. To bring more people to Dara's "network", they felt that showcasing her community and their work would be key to new users.

Conclusions and Future Work

Through our work we observed that artists and designers found the one-on-one conversation style with a chatbot to be a personalized, human way to discover relevant opportunities and collaborators. The quality of the creatives in the seed network would hugely determine the growth of the bot's community. We have just released the web version (Figure 5) of Dara publicly on dara.network via the network of British Council. In the coming months, we plan to expand our user base via a series of online and offline events that are directed at the creative communities in India and later the UK to create awareness of Dara and her potential to connect creators. We will continue our iterative process of developing her personality, tweaking her conversation flow, style and tone, as well as adding features that users find critical to their continued usage.

Acknowledgments

We thank Shivang Suchak, Vipin Saini, Rita Dhankani and Deepika Arwind for their technical and creative contributions to Dara's development.

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