Chatbots against COVID-19: Using chatbots to answer questions on COVID-19 in the user’s language

Summary of the initiative

Access to information in the desired language has been a challenge in many multilingual and multidialectal countries for a long time. This issue has been even more critical during the coronavirus disease (COVID-19) pandemic because people’s lives and safety depended on receiving comprehensible information at the right time. Translators without Borders (TWB) developed multilingual, conversational chatbots to provide real time, reliable information on COVID-19 to the users in their own language.

The chatbots were developed in the Democratic Republic of the Congo in partnership with the International Federation of Red Cross and Red Crescent Societies (IFRC) and Kinshasa Digital; and in the Federal Republic of Nigeria in partnership with Mercy Corps.

The chatbots operate on multiple platforms (Facebook, Telegram and WhatsApp) and use natural language processing, which gives computers the ability to understand text in much the same way humans can. This enables users to ask questions in their own words and receive relevant responses in the same language. These chatbots thus convey locally relevant, multimedia content to audiences, including those who speak marginalized languages or have lower literacy levels. Furthermore, the responsible team analyses the questions users ask; the results of which support humanitarian responders to identify people’s information needs and tailor their communication efforts. The information is also used to develop language models that can be used in a range of applications like machine translation as well as certain components of an interactive voice response solution for local languages.

Image above: Introducing Uji, the first multilingual chatbot in the DRC. It responds to questions related to COVID-19 and Ebola and is available in French, Congolese Swahili, and Lingala.
Innovation factors

Effective communication has been one of the most important factors in controlling the COVID-19 pandemic. At the beginning, most people relied on news and broadcast media for relevant information. However, a massive limitation was the one-way communication system. If individuals did not have access to the media channels or were not sufficiently literate, they risked missing essential information, which could prove life-threatening. It was also difficult to determine who accesses which information and when through the traditional media. Other information media were internet-based platforms through which users could obtain text-heavy information from a menu of predefined topics in official languages. These failed to meet the needs of the information-vulnerable community with marginal reading or language proficiencies.

The chatbots have enabled users to manage the information they access in their own language via a dynamic two-way conversation format. The information provided is free, available on demand, resolves specific queries in an explanatory way, is locally relevant, culturally adapted, and accessible to individuals who use indigenous languages or have low literacy levels.

To ensure that content is targeted and comprehensive, the team followed a thorough development and operational process by collecting information needs to identify preferred languages, formats, and channels for engagement. The team was thus able to reach the target audiences in their own language, with content that was of interest and relevance to them.

During the pandemic, there has been an overabundance of information, including false information and misinformation. Interestingly, the chatbots track rumours with the aim to prevent their spread. For example, users will only receive information on whether their pet can catch COVID-19 upon asking that question. The chatbots can then ask follow-up questions to gain more insight on the users’ potential sources of misinformation which can then be traced and reported.

Accuracy of scientific information

To ensure accuracy of scientific information, the chatbots use reliable sources including the World Health Organization, IFRC, and local health authorities to find information for the user.

Impact on knowledge, attitudes and behaviour of the target audience

The chatbot in the Democratic Republic of the Congo was operational from September 2020 until February 2021, and a monitoring and evaluation survey was sent to users via the chatbot. The results of the survey showed that 73% of users rated their interactions as helpful. Additionally, the team received feedback that the staff and volunteers at IFRC and the Congolese Red Cross Society used the chatbots as a tool to access the latest information about COVID-19. This reflects that the chatbot is equally useful to people seeking detailed information and to those who want a straightforward answer to their questions in simple language. Volunteers who had been trained in French reported that the chatbot helped them identify appropriate words and answers to provide to communities in local languages. Analysis of the frequently asked questions also helped community engagement teams understand the needs and concerns of the communities; for example, responses to trending questions on mother-to-child transmission used specific communication materials developed for pregnant women in collaboration with partners.
Gender equality, equity and human rights considerations

The project has given significant attention to diversity and inclusion, underpinning that access to information is a human right. The Democratic Republic of the Congo and Nigeria are very linguistically diverse, with over 200 and 500 languages spoken in the countries, respectively. In the Democratic Republic of the Congo, while French is used in education and by the government, there are four national languages: Kituba, Lingala, Swahili and Tshiluba. The chatbots can respond to queries in three languages: French, Swahili, and Lingala.

In Nigeria, while the official language is English, people in rural areas or with lower education levels do not communicate in English. To meet the information needs of the population, especially in the conflict-affected north-east, the team consulted with the community and opted to develop the chatbot in Hausa and Kanuri, in addition to English. Hausa and Kanuri are also the languages that 95% of the women used to ask their questions.

The chatbots provide information in multiple formats and operate on a range of platforms to reach vulnerable and marginalized groups who might face barriers to accessing information, such as women, older people, and people with disabilities regardless of their digital skills. Additionally, the team in north-east Nigeria appears regularly on a local radio show (with a reach of 3.5 million) that focuses on the most vulnerable. By combining the novel technology of the chatbot with traditional radio, the project is able to reach more people with critical information and reduce the gap in information access.
Limitations

Limited resources and competing priorities were a limitation in both countries as there were existing humanitarian crises. Moreover, because of the nature of communicable diseases like COVID-19, there was limited option for direct access to communities to develop baseline assessments of information needs and communication preferences, as well as limited opportunities for partnerships with other organizations responding to the pandemic, on top of other pressing humanitarian needs.

Another limitation is that chatbot does not provide the sources of information in its response to user questions. Providing the source could increase trustworthiness and may encourage the habit of self-verification of information.

Looking forward

The team plans to expand the chatbot development to other countries, and disseminate information and responses in real time to user questions about any given topic. As part of this expansion, in partnership with the International Organization for Migration, the team has launched a chatbot in Spanish in Ecuador, Mexico and Peru.

Innovation is also evolving with regard to collected feedback and analyses. The team is developing a platform that allows people with low literacy to engage with a chatbot by speaking to and receiving audio responses using an affordable, solar-powered tablet device. Users will be able to share their own feedback and questions through the platform as well. The analysis of user interactions can also be used to develop language technology like machine translation for local languages. This can eventually enable crisis-affected people to access the information they want directly, without dependence on responders.

References


Illustrations by Sam Bradd

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