
Integrating Culture Theory and HCD to Design Global Government Interfaces

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Abstract

Governments are continually seeking new ways to connect with citizens, and a number of platforms have emerged. However, most of these platforms do not follow a human-centered design (HCD) approach. As a consequence, these applications are not always user-friendly, and might not be empathetic with users. To address this problem, we propose a framework that integrates culture theory and human-centered design into the design of government applications. Culture theory helps to provide the necessary context and initial lens to study citizens living across different countries, in an inexpensive way. Human-centered design helps to understand them in greater depth, but combined with culture theory it can become much more inexpensive to integrate. We study our proposed framework within the context of designing a virtual assistant for Mexico's Ministry of Foreign Affairs. The goal of the virtual assistant is to be usable and appropriate for both local Mexican citizens and Mexican citizens living abroad. With our framework, we propose an approach to design more culture- and user-friendly interfaces for governments across the globe.

Introduction

A number of government applications have emerged to deliver services to citizens. However, most of these interfaces do not follow a human-centered design approach.

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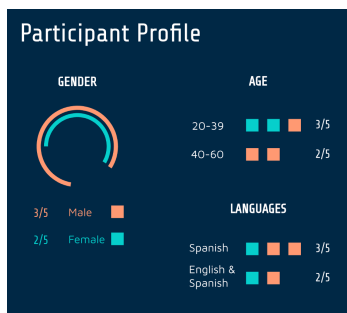


Figure 1: Participant Profiles

Many times, it is because governments lack the infrastructure and resources to thoroughly conduct mixed-method user experience researches such as usability testing and interviews to make informed design decisions from a human-centered perspective; they might also have personnel that are not familiar with human-centered design, and hence not able to implement it. Furthermore, when thinking about human-centered design, a critical part that we need to take into account is how the design adapts to the needs and context of users. For government platforms it is particularly important to design interfaces that are adapted to the needs of the citizens. We argue that it is crucial to integrate culture theory into the research process, so that the governments can provide their citizens with adequate services.

In this work we present how to integrate human-centered design and culture theory into the creation of government interfaces. We present our framework within the context of designing a virtual assistant for the Federal Government of Mexico, specifically Mexico's Ministry of Foreign Affairs. Our framework provides governments across the globe with an effective way in which they can design new usable technological solutions for their citizens that are adapted to their culture, local context, and needs.

Framework: Combining Culture Theory and HCD

We argue that to design effective government interfaces we need to combine Human-Centered Design and Culture Theory. For this purpose we present our framework that combines the two to guide the creation of usable government interfaces.

Using Culture Theory to Drive the Initial Design

To effectively design a government product, understanding the citizens and their experience is critical. For this

purpose, we use the culture theory of Geert Hofstede who has characterized countries and their citizens based on different metrics.

Culture Theory: Hofstede's Cultural Theory

Hofstede's cultural theory offered some valuable insights for our team regarding what design affordances might make sense for this experience.

First, Mexico's high power distance and low long-term orientation scores indicate an established hierarchy and system of rules that is not often questioned. This could mean, for example, that many people trust the government with their information or personal data, and respect governmental requirements. Second, according to Hofstede's model, Mexico has a low score on individualism, meaning the culture prizes relationships especially those of family or extended family groups. Because of this, pursuing a supportive, personal, and conversational experience like the one the government had envisioned seems like a good way to improve the relationship between the government and its citizens. Third, Mexico scores high on masculinity, meaning that it's a work-driven society that values decisiveness and assertiveness. Combined with Mexico's high uncertainty avoidance score, it indicates that citizens might be frustrated with a process that lacks clarity and an unsure outcome.

There are two other important cultural theories that impact design: high vs. low context communication and polychronic vs. monochronic. Mexico is both high context and polychronic, meaning that personalization is important and that people may prefer to multitask as opposed to focus on one thing at a time.

Based on the Hofstede theory we argue that an initial interface to explore is a conversational and web experi-

ence that blends into one interaction that feels guided, informative, and friendly.

Using HCD to Improve and Iterate the Interface

Once an initial design based on culture theory is created, we argue that we can use human-centered design to drive the details of that interface.



Figure 2: Affinity Diagram showing different themes

Human-centered design is an approach to develop products, services, and interactive systems that are focused on user needs. It involves deeply getting to know the people who will use the design: how they think, how they'll feel when they're using it, and what they're trying to achieve.

For this purpose, it is important to conduct interviews. In the case of designing an interface for the government of Mexico, we gathered insights from real people through qualitative research. We chose a semi-structured interview method as it allows for more open-ended responses while retaining some planning, which allowed us to gather more in-depth information on the participants' experiences with passport renewal in Mexico.

The interviews were conducted remotely via Zoom. A moderator led each session in collaboration with a translator and a note taker. The participants were first invited to share background information about themselves, and then guided through an open discussion on topics such as their last passport renewal experience, their evaluations of the process, and their thoughts on virtual assistants and chatbots.

Human Centered Design: Participant Profile

A total of five interview participants were recruited through snowball sampling. Our interviews included Mexican citizens who were living abroad and Mexican citizens

living locally in Mexico. We aimed to recruit these broad range of Mexican citizens as we wanted to understand the perspectives of Mexicans who would interact with the virtual assistant (both locals and those living abroad.)

Human Centered Design: Data analysis

We collected qualitative interview data in two languages (Spanish and English) from our five participants. To familiarize ourselves with the data, Antonio (native Spanish speaker on the team) translated the Spanish transcript into English so that the English speakers on the team could interpret the interview data. After a thorough review of the text and audio recordings, we extracted a series of thoughts, suggestions, and feelings from the participants' responses. These snippets of data were then group by themes and visualized into an affinity diagram.

FINDINGS

Trust in authority: Overall, 4/5 of the participants said they trusted the government with their personal information, and that they would not have any issues with supplying the bot with any personal information it requested. This is supported by culture theory which suggest that Mexicans trust and follow the government that they are part of a hierarchical society.

What's difficult about the current experience: People were overwhelmed by documentation and wanted help keeping track of what documents were needed. The top pain point we identified was around errors in documentation. Participants said these errors were often identified over the course of several in-person visits, which made the passport renewal process frustrating, stressful, and inefficient. They also wanted empathetic individualized service, since different documents may be required based on specific circumstances.



Figure 3: Salient Quotes

Expectations of the passport renewal experience: The high uncertainty avoidance in Mexican society manifests in the unwillingness of Mexican citizens to continue experiencing anxiety and ambiguity in the current passport application experience. People would rather avoid all uncertainty and be very clear as to what documentation is required or any prior procedures before going for a passport appointment. This means that passport application rules need to be set at the beginning of the process to avoid deviation and confusion. Because of the frustration around documentation, people wanted a way to check their documents beforehand to make sure they are complete and error-free. They also wanted to be able to book an appointment online, where they could pick the time and date of their appointment followed by an appointment reminder. Moreover, people preferred to have access to human support when needed.

Expectations of the bot's functionalities: People wanted to be able to access the bot on both web and mobile devices. Some participants specifically mentioned WhatsApp. People also wanted the bot to be able to answer questions based on their specific needs/situation, and to be able to look up their info, if possible.

Bot personality: Participants expressed that they would like to interact with a bot that is friendly, courteous, helpful, conversational, inclusive, and clear.

Future Work and Conclusion

We argue that our framework might be especially beneficial for governments in developing countries where they might not have the budget to conduct extensive human-centered design studies (using culture theory to guide the design might be helpful and impactful). This framework could also help governments who want to better

understand their citizens who are abroad, but they might not have the budget to conduct excessive interviews with participants. Using the lens of culture theory could be an initial step to drive their design.

Limitations

One limitation of the Hofstede model is that it relies largely on generalizations. It is likely that the model we referenced does not account for indigenous populations in Mexico. Given more time, we would have liked to interview more people due to the complex nature of passport application and renewal. Additionally, we did not have the opportunity to interview the participants in person - valuable contextual cues might be missing and could have limited our understanding of their experience.

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