ViTu: A System to Help the Mexican People to Preserve and Celebrate their Culture.

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Abstract

ViTu is the entire development of a system focused on appreciating and highlighting the culture and traditions of native Mexican communities. It also contributes towards preserving and regaining the lost Mexican roots of the Mexican-Americans living in the United States. To achieve this, a culture, customs and traditions storage device of the Mexican village of San Jeronimo Silacayoapilla, was created. The main objective of this system is to encourage people to love and be proud of their cultural roots through technology. We are confident that this project will not only highlight the lifestyle of the native communities in Mexico but it will raise awareness on the importance of sharing, celebrating and appreciating our differences.

Keywords

Cultural preservation and celebration, traditions, native people, HCI, experiences, Android, WiFi.

ACM Classification Keywords

H.1.2 User/Machine Systems (Human Factors), H.4.3 Communications Applications(Information browsers), H.3.5 Online Information Services (Web-based services).

Figure 1. Percent of inhabitant Mexican migrants.

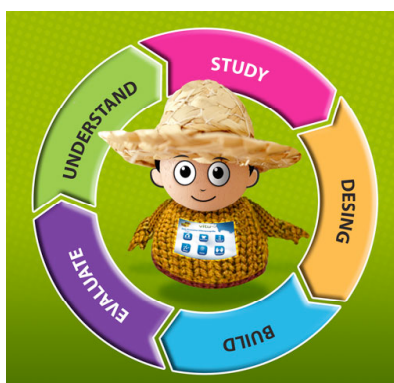**Figure 2.** Map of Silacayoapilla, Oaxaca.

Figure 3. UCD Methodology.

General Terms

Interactive toy, Internet booth, Mexican – Americans, indigenous people.

Introduction

Since the beginning of colonization, poverty has prevailed in the southern Mexican state of Oaxaca, and as a result of this, migration is still a current issue in the state. Over the years, the migration of Oaxacans to the United States has risen due to the state's large economic poverty [1]. Oaxaca, traditionally, has one of the biggest migration indexes in Mexico.

During the migrants´ initial period of integration when they try to be part of the American culture, they tend to forget and change their traditions and culture, leaving behind their Oaxacan roots.

The Mexico-born population living in the United States reached 11.8 million people, in June 2006. [2]. Nowadays, there are approximately 2 million Oaxacans living in the USA, being California the US state with the largest Oaxacan population. [1]

Much to our surprise, Oaxaca has the largest number of indigenous migrants in the country, which is approximately 16.95% (See Figure 1) of the total population of Oaxaca [3].

The Mexican State of Oaxaca is divided into eight regions of which the Mixteca region has the largest migration index. The Silacayoapilla town is an example of this phenomenon, as more than 50% of its population lives in the United States. Although a significant number of its own residents have migrated, its present community still wishes to recover or preserve its culture and traditions. It is these residents' wishes that helped us to realize that we can celebrate our differences and connect cultures through the recovery of the Oaxacan traditions that may have been lost. See Figure 3.

Methodology

The development and research of this project is based on the User Center Design Methodology (UCD), in its extended version, comprising five stages [4]. This methodology allowed us to create our own approach or design based on the needs of our users.

Interviews carried out as well as a bibliographic study helped us to identify the problems faced by the people. An ethnographic study was then carried out and based on its results design proposals were made leading us to the making of the prototype. This was evaluated through the Wizard of Oz testing. The usability study shows the interaction between the users and the prototypes of our technology. Based on the evaluation and the research done, it was decided that the system should be easy to use, friendly, functional, emotional and attractive to the users.

Undestanding

ViTu which means "Bridge", in the native language of Mixteco, allows the creation of communication between the indigenous communities in Oaxaca and the Mexican – American people in the United States in order to preserve, communicate and recognize each other's cultures.

Native communities are considered a vulnerable group with a great treasure: they are the keepers of the rich and ancient Oaxacan culture. I.e. how to make the

Figure 4. Traditional festivity.

Figure 5. Aunt Luisa making tortillas.

Figure 6. Craft, a generational tradition.

traditional Mexican tortilla, (see Figure 5), as well as the popular Mexican weaved palm tree *sombrero,* worn by most in the community (see Figure 6).

However, when these native people migrate to the US, looking for better opportunities they feel the need to be part of their new environment, leaving aside their Oaxacan traditions and adopting the American ones as their own.

Our own study suggests that Mexican-Americans are very interested in recovering their roots. The community of San Jeronimo Silacayoapillan is also eager not only to preserve and share their traditions but also to understand better the US way of life their people experience in America

Oaxacan traditions have been at risk of becoming extinct for a long time and as Oaxacan students and Mexicans, we need to contribute to take care of this.

Making a decision
Analyzing the statistics and comparing the contextual inquiries carried out in Oaxaca, especially in the town of Silacayoapilla, we could see that local customs and traditions have been lost. It is therefore evident that our help is needed.

We had to design an easy to use system, functional and attractive to the users which can successfully satisfy their needs. Technology is our great ally, allowing us to connect our different users and highlighting the differences between those two cultures [8]. By being part of this bridge, which generates a sense of belonging in the user, a feeling of personal pride is achieved resulting in a celebration of cultures.

Two interfaces were created: an Internet terminal booth for the people of Silacayoapillan and an interactive toy for the Mexican – Americans residents in the US. The communication is achieved through the interaction of our two types of users with their interfaces, becoming more significant once the two cultures start exchanging experiences.

Study
In order to find an initial solution, we came up with two main issues: 1) Mexican-Americans are loosing their cultural roots and 2) native people in Oaxaca have got their native culture to share. Therefore, we had to research on the three main objectives of the project: 1) communicating differences: Mexican-Americans as well as native Mexicans will be able to share their customs and traditions. 2) To make the children and grandchildren of migrants feel proud of their own roots: by creating a sense of belonging through emotions. 3) Using technology to build this bridge. To understand these objectives visual ethnographic studies were conducted in the community of San Jerónimo Silacayoapilla. This is a Mixtec native group in the municipality of Huajuapan de Leon, in Oaxaca.

Structured and unstructured interviews were carried out with two different groups of people. The first group was the people of San Jeronimo Silacayoapilla and the second group included people between 20 and 35 years old, born from Mexican parents in the United States.

Previous work
In Mexico some attempts have been made, especially on Internet, to let the world know about the richness of its native customs and traditions. NGOs such as "The Net" and "Indigenous Networks" [5,6] are samples of
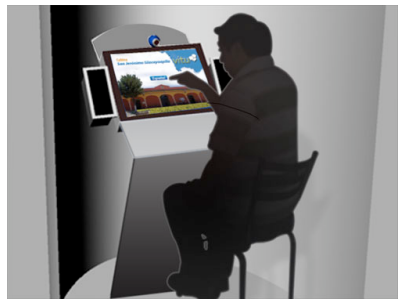
Figure 7. Six different types of multimedia.

Figure8. Our proposal of the Internet booth.

Figure 9. Our proposal for the interactive toy.

organizations involving the indigenous communities in audiovisual contents. Blogs discussing specific aspects of indigenous communities can also be found. However, there are no suitable types of media available in which these communities can share their lifestyles. A related work on mobile phones in Peru is also an interesting insight [10].

On the other hand, the project e-Mexico [7] is an interesting attempt by the Mexican government to bring the Internet closer to its native communities. Due to the high cost of its implementation and maintenance, it has been set up in very few municipalities.

There is another governmental project in Oaxaca, called: "Mobile Units", which runs through the 512 municipalities in the state providing both health services and paperwork support. Its utilization as a mobile platform for our project is totally feasible and would not require a lot of investment

Design
Our project is based on a proposal made by two interfaces, which together generate communication between the indigenous inhabitants of the Oaxacan communities and the children of immigrants in the USA, which in turn helps the native inhabitants to share their cultural differences with the rest of the world.

The first interface is an Internet terminal booth which native communities can interact with. See Figure 7. This terminal has to collect the main traditions of the native people of small towns in Oaxaca.

The second interface consists of an interactive toy. See Figure 8. It will portray the identity of a native

community, obtained through the general opinion of the interviews carried out. This interface aims to transmit the cultural and traditional native knowledge to the children and grandchildren of indigenous migrants in the USA. See Figure 9.

Considering our user experience model it is necessary to attract the attention of our users and to create a sense of belonging [9]. It is because of this that elements simulating the perceptual potential of the toy will be incorporated: what it hears, what it sees and what it perceives. Both devices will use interactive elements to attract the attention of the user contributing to keep interaction, creating a pleasant experience.

The functions of this interface are: voice capture, video and pictures. These features will allow users to create their own material and will be able to browse the tag to get these same elements, but made by professionals. This way, they can enjoy Mexican traditions and make them their own.

The terminal booth will communicate with the toy in order to share experiences of culture and traditions. See Figure 10. This way, migrants can ask specific questions about traditions and customs to the people of a specific community. The locals, on the other hand, will also be able to share their opinions or ask questions about the life abroad.

An imaginary scenario could be: Jhon Martinez, a 19 year old who records a question in his ViTu device in the suburbs of Los Angeles, CA. Hours later, auntie Luisa goes into the booth in Silacayoapilla and answers the question through a video message.

Figure 10. Overall diagram system.

Figure 11. Wizard of Oz test for the toy.

Figure 12. Wizard of Oz test for the Internet booth.

Features

As a result of our contextual studies we were able to identify the main features of each interface:

For the Internet Terminal Booths: Initial settings; enter customs and traditions, to receive comments about their culture and to see and to hear customs and traditions of other native communities.

For the **Interactive Toy:** Initial settings, user authentification, explore the community, experiences of the Oaxacan region and to enter an experience.

This project is viable and part of the profits will be invested in the communities. And this is due to two facts: a) the approximate cost of each toy will be $225 USD. On the other hand, the booth will have to be subsidized by the government because its price is approximately $1,110 USD. b) The use of video calls using Skype is common in these communities; as an example, in the city of Huajuapan there are almost 40 of these phone booth internet shops.

Build

For the design of the interfaces we relied on the study of our users' needs. The colors, shapes and style of the interfaces were created focused on users who would use these interfaces. These elements are important for the interface to be functional and usable.

Benefits

ViTu will highlight cultural differences of indigenous communities in Mexico and the culture of Mexican-Americans who will use the system. Also, the native communities would know what the world thinks about their culture, using technology. This project is intended to bring culture to the Mexicans and the Mexican–Americans. The interactive toy will help the Mexican–Americans to connect with the native communities as a result of the features included in the interface. The booth will be the bridge connecting the native communities with their compatriots. Through this interface the cultural differences of communities can be visually appreciated and listened to.

Usability Testing Evaluation and Results

For our project it was necessary to evaluate two user groups, one for the booth and the other one for the toy. For the first group the usability tests took place in the community of San Jeronimo Silacayoapilla; for the second group; Mexican – Americans living abroad but visiting Mexico, the tests were in Huajuapan. The usability tests (Wizard of Oz prototyping [6]) were done using a simulated touch screen (Figures 14 and 15).

For the booth the problems mentioned by the users were: problems with the use of the icons, however 70% could relate with the iconography used and its meanings; having no contact with the technology, the users were afraid to interact with the interfaces; and the navigation at the interface was confusing. Improvements were made to the product based on the results of usability testing. Icons were changed in order to be more understandable, also an avatar was included for guiding the users, making the process system more friendly and reducing distress caused by the use of technology. It was also necessary to make a reduction of steps, achieving greater simplicity in the process. (See Figures 10 and 11)

The main comments made about the toy were the following: the icon used was confusing; however, the

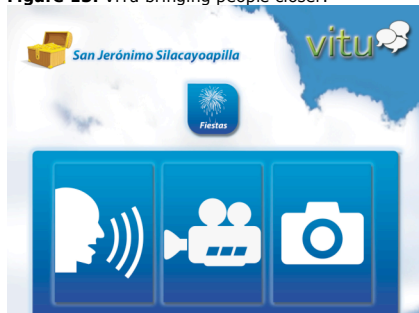**Figure 13.** ViTu bringing people closer.

Figure 14. Sketch interface.

Figure 15. Corrected interface.

majority of users thought the toy size is right but the size of some of the typography was small. As a result of this observation we plan to change some icons putting some descriptive text; also we changed the size of the typography and added a scroll; we will include an avatar to guide the users and to encourage the use of the system.

Conclusions

While doing our research we realized the cultural wealth of Mexico's native community. The project we are proposing is a viable way to appreciate the world from their perspective. A globalized world must respect their differences. The communication of how people see the world in each region has to be strengthened in order to enrich the identity of each community, and what better way to achieve this goal than by using technology and involving native communities and their displaced people in a symbiotic project?

Future work and possible limitations

For the implementation of the Internet booths the participation of the Oaxaca local government is necessary in order to include the project as part of the program "Mobile Units". See Figure 13. This is one of the main constraints because the government tends not to give continuity to the projects.

On the other hand, the used app for the toy could be downloaded into any mobile device with the Android operating system, or different platforms like iOS, Blackberry OS, WebOS o even a Windows Phone 7, with the aim of spreading the culture of Oaxaca worldwide.

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