Chancho Assistant: Smart Shopping Guided by Consumer Habits

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Abstract. This paper presents a solution to consumer habits that, against of various economic and personal factors, affect the economy of the Mexican population. The solution is developed through a tool that offers different options of purchase in different places according to the cost of the product. Besides, the tool has an intelligent assistant which proposes other products according to the user consumption habits. In order to develop the tool an User-Centered Design process was conducted which allow to find user's needs. Also, iterative prototyping and evaluation was considered to give a pertinent solution by using a digital prototype.

Keywords: User-Centered Design · Iterative prototype · Intelligent assistant
Consumer habits

1 Introduction

This work has as a central element the design process of a proposal that helps to orient purchases through consumption habits and economic savings. For this, the starting point is to question and problematize what is a habit and the importance it has within the human-centered design methodology.

Later, in a second section, other proposals that have the same purpose are analyzed; that is, to help buy through the consumption of habits. In this point, the advantages and disadvantages of these proposals and the elements that characterise them will be explored.

A third section details the design process based on the User-Centered Design methodology, which was divided into 6 processes: observation, search scenarios and user's profile, delimitation and visualization of the proposal, and finally the development of a prototype. At each of these points the process was iterative, so the opinions and responses of the focus group were always taken into consideration.

The last section looks at the conclusions, which will be centered on the importance of habit in the development of interface design. The last section looks at the conclusions, which will be centered on the importance of habit in the development of interface design.

2   Habits

As will be detailed in the methodology section, the present work focuses on finding a proposal that will provide a solution to the needs of a certain group of the Mexican population, which considered young women between 25 and 30, who recently left university and are working and living independently.

It is then that the needs of this certain group are very specific, differing even for small periods of time. So a question arises: what is habit?

In the specific case of the design of tools that allow human-computer interaction, Pinder [1] comments that the habit has had little theoretical attention, since most of the questions have been addressed to a practical sense of habit generation. On the other hand, Frøkjær and Hornbæk [2] comment that discussions about the nature of habit have been on the psychology side. It is then that, on the one hand, the habit has been little questioned or taken as a tool to the psychological sciences.

For the present work, habit is considered from Peirce's semiotic studies and his work after 1907, which defines it as a state of fixed belief that occurs through the same kind of repeated conduct multiple times, and a tendency to similar behavior under similar circumstances [3].

Considering habit from Peirce's posture allows us to understand not only a relationship of the subject and his cognition, but also the relationship of the subject and the action he usually performs with the object; that is, a repeated action charged in principle by a mode of knowledge that later becomes something definitive. Moreover, the way in which the knowledge of something finally becomes habit allows us to understand also the moment in which this happens, thus assigning a temporality to the mode of action, of something seldom realized, to the formation of a habit.

3   State of the Art

In recent years, advances in artificial intelligence have allowed exiata a wide variety of applications and platforms that help and guide the user, in addition to those that come out more are those that work with a large database.

An example of this is the Mona app, developed by Atik in 2014 [4]; the Personal Shopping Assistant app, developed by Microsoft [5]; and Ps Dept [6]. All of these tools are characterized by a large database, stores that back them up, and a well-developed AI.

However, the problem observed is that it does not focus on the local market and does not take into account the context of users. This last part is of the utmost importance where there is a large wage gap, payments are not uniform and not everyone has access to online shops.

4   Methodology

The methodology used was based on User-Centered Design, which consists of bringing the end user to the centre of the product design and development process [7].

To do this, it was necessary to start from an empirical knowledge and to observe and ask about the needs of women between 25 and 30 years old. To achieve this objective, it was necessary to analyze a focus group of 4 women from different parts of Mexico, with the same degree of studies and a similar economic situation; that is, recently graduated from universities.

The reason why the sample was small is due to the generational generalities that exist in a certain sector of society, and whose needs are shared: i.e. lack of opportunities, unemployment, delinquency, etc.

An exploratory analysis was chosen first, but taking into account urban and semi-rural contexts.

4.1 First Step: Observation

In this step we observed the context in Mexico of middle-class youth and with the characteristics mentioned above. We considered the urban contexts of Mexico City and Guadalajara, and the semi-rural context of Sinaloa. It is important to emphasize at this point that culture and the signs to which young people are immersed are of vital importance in the process of acquiring habits.

4.2 Second Step: Interviews

The four persons interviewed share the same age range between 25 to 30. All are women and have a similar education (undergraduate degree). However, the place in which they live is different, since two live and work in the Mexico City and the other two work and live in the cities of Sinaloa and Guadalajara.

With the interviews performed, there was a disparity between the answers taking into account that there is a difference between their contexts and education. Users living at Mexico City with a constant relationship with technology in their daily activities (as at work) see the Internet and technology in general as necessary to the point of feeling bad when they don't have information. In contrast, people living in other states of the Mexican Republic (Sinaloa and Guadalajara) see the use of the Internet as indifferent to their activities.

The interviews were conducted with questions that went from the personal to general order, and trying to gain confidence and accelerate the answer, in order to obtained answers "without thinking". Therefore, there were no measures in the questions, and were opened while some observation was noted. It should be noted that the interviews were conducted through telephone calls.

In this way, the questions asked were:

- Say 5 habits that you have regardless of whether it´s good or not;
- Say 5 harmful habits you'd like to change;
- Say 5 harmful habits that you observe in the Mexican people;
- What do you consider to be the country's three main problems?
- How much do you use technology?

– How much do you use Internet? What feelings do you have when you don't use Internet for a day?
– Say 3 apps you use the most;
– Say 3 possible solutions that may have the technology according your needs.

As can be seen, the series of questions was directed from the general to the particular, leaving a wide margin to different types of responses. And although it starts with the hypothesis that corruption is the main harmful habit in Mexico, it was never mentioned in the answers.

4.3 Third Step: Detection of Needs

There were three main problems that resulted from the interviews: (1) bad administration and economic inequality; (2) education; and (3) disinterest. It is then that within the opportunities that allow to improve the performance of innovation are those linked to the management and control not of these axes, but of its derivatives, such as, irresponsibility, procrastination, to mention a few.

Why not use what already exists to solve the different needs? One of the answers is because there is a total lack of knowledge about the offers that exist. Some users, at the interviews, referred to problems whose solution is already in progress (for example, to communicate with their dog). Another reference to consider is that they do not have adequate information about what technology can do (due to the time it took them to respond). So, it is necessary to improve the information that exists between the user and the technology.

Therefore, the 15 needs that were considered relevant, were:

– Need to have better control of expenses.
– Need to obtain accessible information.
– Need to change habits in the city.
– Good food handling.
– Need to change habits at work. Need to not leave everything to the last hour.
– Need to have better ways to know what to study.
– Better ways to do paperwork.
– Bad administration and ingrained habit.
– Habit of procrastination. Need to control it.
– Respect. Need for better respect among citizens.
– Administrative needs. How much and how do I dispose of my money?
– Finance knowledge. Need for non-specialized economic information.
– Improve the relationship between humans and animals.
– Change habits of time waste.
– Need to leave drinking alcohol.
– Need to have a better sleep.

4.4   Fourth Step: Scenarios and Profiles

At this point, it became necessary to delimit the outcome of the information given by the interviews and to offer alternatives to users and their needs. For this purpose, 4 scenarios were developed with 4 different types of users, considering the characteristic attributes of the focal group, such as the place where they live and their relationship with the technology.

For this development phase, two options were considered: a tool that brings together several people to exchange objects among themselves or an intelligent assistant to help with shopping. However, when the users were asked again, they replied that the second option seemed more interesting and useful.

4.5   Fifth Step: Inspiration Panel and Storyboard

At this point we proceeded to determine an aesthetic element and to determine the influence that would have with the users to whom it was directed. For the first point an inspiration panel was elaborated that had in principle the following guiding words: saving, simplicity, decisions, open, learning, alternatives, intelligent, intuitive, economic, and evolution.

In the aesthetic section, three options were considered. The first were the palette colors and icons taken from Royksopp video, Remind Me (2009) [8]. In addition, in the use of the interface was considered the Uber app [9] because it have a simple learning curve and intuitive interface. Finally, it was considered the limitation of not overloading aesthetics with banal functions, so it was considered, at this point, the Keiichi Matsuda video, Hyper-Reality [10] in which a society is observed with an information overload which impedes considering the reality and simplicity of it. In functional terms, Amazon Echo was considered for its design and its promising of the project. Finally, the computer Holly, from Red Dwarf series, was considered as an inspiration in the discursive section of what would be an assistant.

It was even in the storyboard where it was chosen at the end that the tool was going to be an intelligent assistant who helped in the purchases, both in offering cheap products, even in making the purchases completely. The scenarios and the chosen users were two: a young independent student, and a gentleman father of family. In both cases the help came in saving money, which allowed them to travel and be with their loved ones.

4.6   Six Step: Rapid Prototyping

In the process of making paper prototypes, a total of 26 windows were created resulting in a path with a task to be performed, and that was the purchase of a specific product. Taking into account the aesthetics of the tool, the functionality and the users to which it was focused, the work developed were the interface and navigation. As can be seen in the Fig. 1, the principal idea had been born, having then the idea of an assistant in a Mexican context, also with a geolocalization that would indicate a variety of purchase options.
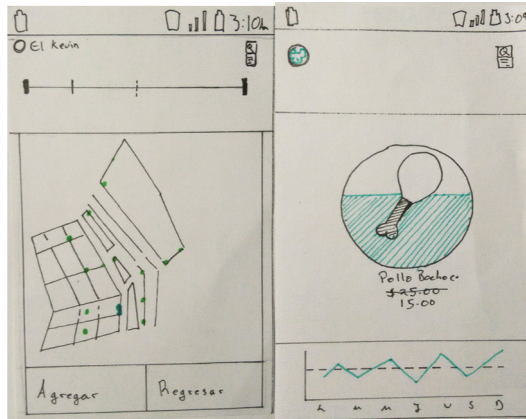
Fig. 1. Paper prototype with the some features, in this case the geolocalization and the product prices.

5   Usability Testing

The digital prototype was elaborated and evaluated with expert users; in other words, with the users to whom the tool was initially conceived. The platform that was used to create the digital prototype was JustinMind [11], which is characterized by the creation of wireframes through its own software and has the advantage of having more freedom than other tools for the same purpose. As can be seen in Fig. 2, the prototype, in its first phase, had aesthetic elements taken from the inspiration panel. In addition, during the process, a pet was created with the name of Chancho, that is a common name of the pig in America, a symbol that also means the act to save money.
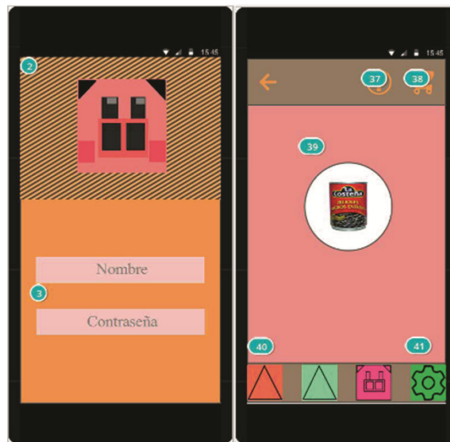

Fig. 2. Home menu of Chancho Assistant which allows to insert the name and the password of the user and the first screen with products.

In the creation of the first digital prototype there were a total of 22 navigable windows which had as its main mission the purchase of a specific food.

The first tests of the tool were with users that have similar characteristics, which are postgraduate students of the career of communication sciences. These tests allowed to have some feedback and from this it was changed the interface and color palette. Within the same comments, it was also considered to change the iconography and homogenize all the icons. One of the most important contributions that were taken into account for a later development was about the cancellation of certain products and certain habits that the intelligent assistant may consider.

After the relevant changes, tests were continued with users of different context, whether experts or not. In addition, in this part, the users who previously participated emphasized,[1] like the others users, in changes over design and in the usability. In these evaluations, the tool, also rescues a similarity that had in the storyboard, and that was the initial test with a user between 45 and 50 years old who suggested a limit by brand.

Finally, in the opinions expressed by users, both the aesthetic changes and the idea of having an assistant guided by the local economy were discussed. One of the ideas discussed with users is that the idea of the habit will be exploited in order to change bad habits for good ones, especially in the area of nutrition.

6   Conclusions

Three elements in the Chancho Assistant process are considered, which are: the process itself, that has been reiterative and open considering the needs of a particular group; the medium itself, the Internet, which not only considers the user, but also the connectivity and the connection that makes it possible; and the elaboration of a general framework that guided the process from the hypothesis proposal, to the development of the prototype and the evaluation with different users.

Thus, the first section shows that the heuristics and the feedback generated by different tests with different users. This produced a series of changes that allowed an improvement in the aesthetics, in the interface, and the handling of the tool.

Secondly, is considered the iterative feedback of this tool in the medium where will be used: the Internet. Thus, feedback followed an emerging line of behavior, and these are individual reactions that are difficult to predict and depend on a global interaction of an exponential number of possibility, as mentioned by Demers and Vorn [12]. Therefore, the tool (Chancho Assistant) will not limited to browsing, but will allow an interaction with different users and various stores, both supermarkets and medium and small businesses.

In the third section, it emphasizes that the tool was not made without purpose, but always maintained a general framework that guided the process from the development of the hypothesis to development and testing through the prototype. It is then that this tool shows a solidity both theoretical and methodological.

Finally, we need to remember that this paper presents only the proposal and that ends with the prototype, and the tool itself is in the process of being developed. That

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[1] In this part, the test were made through the web, since no was possible by geographical limits.

said, we do not have the definitive results that give proof of both hypothesis, discourse, and development. However, given the solidity that underlies, there is no doubt that the elaboration is a minor problem.

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