

Elements and Principal Stages in the Design of Non-Profit Websites*

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Abstract: - The principal elements of the methodology for the creation of websites for non-profit institutions will be shown through the development of a website for a regional museum. In this methodology, two principal stages stand out: in the first stage final user models are created, characteristics of the most successful regional museum websites are researched, and concrete recommendations for the creation of the website are made taking into account what specific characteristics of the region the website will focus on. Based on these recommendations, a quick experimental prototype of the website is created for a regional museum dedicated to the Mixtec Culture. This prototype is later used as a collaboration tool with real users and at the same time considered the final product of this collaboration. The publication of the site permits the start of a process of monitoring various aspects involved in the accessing of the site, based on which the proposed user profiles will be verified and the site updated.

Key words: regional museum websites, user profiles, access monitoring, sample of successful websites.

1 Introduction

The Non-profit websites that this study focuses on can be divided into two principal types: Cultural Centers and/or Museums and public educational institutions such as primary or secondary schools. One of the main characteristics of this type of non-profit websites, is that the stakeholder who pays for the creation of the site is not the final user. Sometimes these sites are part of cultural, educational, or portals of governmental institutions, which are responsible for the development of their system. The final user models in this case are more identifiable but greater in number. We do not take university websites into account here because, in general, in their websites, there is usually a stakeholder from within the university who is responsible for and pays for the content and design of the website.

For the non-profit websites previously mentioned, there could be versions of websites in various languages, and each site in each language could take into account the individual characteristics of the users who access the site and include this information in

the final user model. For example, local cultural centers that are oriented towards inhabitants of their region and who all speak the same language can also have a different presentation for foreign tourists who speak a different language. The topics that are interesting for foreigners (tourists) might not be as interesting for local users and vice versa. In general, for-profit websites have not taken this difference into account and the translations of these sites are literal. That's to say that the websites in different languages are the same.

There is a problem in regards to the feedback aspect of these sites. This problem can be resolved by preparing an experimental website to be a model for a group of websites which share some creation principals to enable the study of real users of the experimental site and the potential users of this group of sites. This way we can establish design principals for the creation of other similar sites for this region or this portal, respecting the individual characteristics of each site. In the case of websites for institutions of public education the identity of potential users is evident (students, teachers, parents, and alumni). In

general, non-profit websites lack the human and financial resources for the hiring of a design specialist, creation, and maintenance of the website. For this reason, these sites are created by the same users who are involved in the day to day life of the school. It's these same users who can correct the website and at the same time organize themselves as user group with common interests.

2. Formulation of the problem

The goal of this methodology is to create a website that focuses on the user, a user interested in the subject of the website, and motivate this interested through the content of the website. Perhaps the user does not always know what his expectations are for the website. Initially, it is necessary to guess what the users needs are and propose some additional options that could fall under the special interest area of the site, enticing the user to receive and give more information to the site.

The creation of this type of non-profit website requires a methodology that covers two principal aspects:

- On one hand consider the technical aspects and the content information taking into account the problems in the formalization of the final user models, methods and criteria for investigation, etc., considering existing websites in the internet that are similar to the objectives for investigation.
- On the other hand the humanitarian aspect, involving the social technologies that provoke user participation and increase the motivation of those who participate in the design and maintenance of the site. The objects of the investigation are: similar sites, the site developed, and the user. This humanitarian aspect considers the use of active methods, for example user feedback and passive methods such as the monitoring of the activities and characteristics of the user without the user's knowledge of such monitoring.

Each of these aspects predominates in it's corresponding design and development stage:

- The first stage begins with the formation of the parameters or attributes of successful non-profit websites that correspond to one of the two

previously mentioned main types. Furthermore, methods for the mediation of these parameters should be developed if necessary. A representative sample of websites with the chosen attributes should be formed. Then a cluster-analysis should be preformed on this sample and the principal groups of these sites revealed. The result of the analysis is used to form recommendations for the creation of an experimental website as a prototype of the final website and as a model for the creation of other similar sites. Thus reducing the amount of time required to create the other sites. This prototype must have a structure that can be filled, renovated with new materials within the limits of the defined structure, and expand the structure with new elements for interaction with the user.

- The second stage begins with the official opening of prototype on-line, using this prototype as a research tool and as a tool for dialog with the user. Once the site has been published, user monitoring, which is an implicit form of information exchange with the real user, can begin. Through this monitoring, the objects that generate the most interest can be identified, and user characteristics such as: location of the users, their habits in space and time, which days of the week they visit, traffic sources, and the characteristics of the equipment they use, among others. In this stage it is necessary to enrich the website with new forms of interchange or collaborations with the user and move from prototype to final product. In this case, the means of contact with the user should be established in the most direct and flexible form, located in the levels closest to the main page or directly on the main page.

3. Stages in the development of the website for regional museums

The methodology developed is shown through the design and creation process of the website of a regional museum.

3.1 Development of a quick prototype of a website for the regional museum

The first stage of development of the website is based on the research of successful websites of regional museums in place of collaboration with the

Stakeholder or main user of the future website. This stage consists of the following activities:

- A collection of 180 websites of regional museums was obtained through three search engines, Google, Yahoo, and Yandex. These sites were in three languages, English, Spanish and Russian, and all were in the first three pages of results of searches with the keywords “regional museum”, “museo regional”, and “krayevedcheski musei”.
- Among the 180 results of the searches, a group of 45 actual websites of regional museums were revealed and from this sample we obtained the most typical and numerous attributes of the sites such as: the number of principal colors used in the main page, the number of tones of the principal colors, the percentage of area covered with texts and images, the font size of the main body of text, the presence of a logo and meta-tag, location in the search engine, and complex characteristics such as the structure of the site, with this last characteristic an attribute such as “closeness” of the structure of the analyzed site to the proposed ideal site. For this comparison special metric was created that in a general manner is similar to the Edit Tree Algorithm. This metric consists of two terms:
 - The first term is the amount of similar options between the two structures on the first page, what the names of the buttons are, accounting for their synonyms and equivalent notions.
 - The second term is $\sum_k \min(h_{k,r}, h_{k,i})$ the number of hyperlinks in the option k for the real site (index r) and the ideal site (index i). Without accounting for the name and content of these nodes.
- From the sample of 45 sites with the above mentioned attributes, excluding the existence of the logo and meta-tag, and the location in the search engine, “an object (sites) - attribute matrix” was prepared with which we analyzed the clusters using the principal components method [2].
- As a result of this analysis [3] we obtained two groups of regional museums that have different missions and character in the representation of material.
 - The first group, in addition to expositions, is orientated towards the functions of a cultural, educational, research, and recreational center. This type of museum’s activities include events such as theater productions, traditional regional dancing in the streets, archaeological zones or in the museum facilities, concerts, conferences, workshops, courses, contests, expeditions, the preservation of archaeological pieces, etc. The websites of this type of museums have many more options for interaction with museum visitors and website users, for example; forums, guestbooks, questionnaires, email addresses, telephone numbers, etc. These functions, or multidisciplinary roles of the museums of this group, show that the website is orientated towards at least three types of users: researchers, the local public and tourists. This type of site has options adapted for these groups of users.
 - The second group is made up of websites of museums having special expositions well known through a wider region, and often have links to places that it would be impossible to show their visitors through other means, for example the house of a painter or other national celebrity, or a railway museum, etc. The content of the web sites of these museums is more or less fixed, they don’t have the tendency to update frequently, and the mission of these museums is primary focused on tourism. For this reason the websites of these museums have different attributes than the sites of the first group. For example, the structure of the site is more or less developed, the texts are written in a smaller font, they have few tools for user feedback.
- Based on the results of the analysis of the websites, the parameters for the model of the ideal model of a website were corrected for the creation of the website of the Regional Museum of Huajuapán de León, (known by its’ Spanish acronym MureH) in the Mixtec Region of the state of Oaxaca, Mexico. This museum has all of the traits that are characteristic of the first group. For this reason a website with the attributes and structure typical of sites from this group was created. This site is used as a research object for the future creation of other websites for regional museums in the Mixtec Region in the states of Oaxaca, Puebla and Guerrero.
- The results can be seen in the Internet [4]. This site is orientated towards three types of users:

youth from the Mixtec Region, Scientists and Specialists of Mixtec Culture, and immigrants from the Mixtec Region to other regions or countries. For this last type of user is important because they feel the need to maintain contact with their cultural roots.

- The speed of internet connection available in the region was considered in the creation of the prototype. The site should be easy to use, with a balanced tree type structure that eases the addition and renovation of content, anticipating the possibility of including feedback devices in places with easy and fast access. Some of the most important recommendations for this first stage in the design of the website for the regional museum, the recommended parameters and structure, have been published in [3].
- The web pages designed for MureH meet the standards of the W3C as they have been verified with the tools provided by the W3C [5]. This shows that there are no errors or warning in the design of the templates used in the pages of the MureH website.

3.2 Preparation and use of the website for interaction with the user.

As a result of the first stage of development of the MureH website as an experimental prototype for the development of regional museums' websites that function and a cultural, educational and scientific center.

This type of museum corresponds to the first group of the sample of websites of regional museums, which as well as having specific design characteristics also need to focus on not losing the user on the first visit.

In this second stage of development, we need to supply the site with feedback elements for the user. These elements provide contacts for different levels of collaborations with the user. As a first action to make contact with the user, there was an event to present the museum's website to the public and CDs containing the first version of the website were distributed to educational institutions in the region. This action generated a small group of users who have been included in the design team for the development of a sub-page about the Mixtec

Language and an English version of the website. The email address of the design group has been included on the main page of the site. Later, a visitor's forum and a user register will be added to the site. The later is necessary to expand the function of the site's digital library.

At the same time, access to the site was monitored. This is a passive, but very productive way to study the characteristics of the users and their areas of interest. The monitoring showed that during the first three months 23% of the visitors accessed the site through a web reference, 34% through search engines, and 42% directly accessed the site. We have identified an increase in the number of accesses through search engines as well as the number and type of words used to find the site through these engines.

The proposed user models have been reaffirmed, through monitoring the locations of users who have accessed the site. The location with the largest number of visitors is Mexico City. The second largest group was users from the state of Oaxaca, which includes the Mixtec Region. The third group was made up of users from the United States of America. We have identified an increase in the users from the state of Oaxaca compared to the visitors from Mexico City. In the case of users from the United States, we have identified the largest concentration of users in the states of California, New Jersey, Texas, New York, and Oregon. States which are know to house a large number of Mixtec immigrants. We have noticed that visits from users located in the United States are distributed more or less uniformly throughout the week, but in the case of visitors from the state of Oaxaca and Mexico City accessed the site primarily on workdays (Monday to Friday).

4. Conclusions

The methodology developed in this study is useful in the creation of websites for regional museums and can also be applied to the creation of websites for public educational institutions.

In order to obtain more detailed results from the monitoring longer analysis periods are required in order to generate more data for the analysis. Presently we can obtain some results from this monitoring such as:

- The results of the monitoring the geographic distribution of users to access the site and which days of the week they accessed the site. This shows us that the three proposed user models (youth, researchers and immigrants) are correct.
- The results of the analysis of words used to search for the website in search engines can be used to modify the content and meta-tag of the site, adapting it to fit the needs of the user.
- The access tendencies of MureH's website during these three months show that the website can be considered successful in the near future among the group of regional museum websites.

We have planned the following steps for ongoing research: The preparation of versions of the web page in different languages, the integration of a library of documents about the Mixtec Region with special search features [6], the creation of web pages about the Mixtec Language, including educational and research materials, the design of pages on specific topics that meet the preferences of the active users, and adding new material to the existing website including pages about archeological zones and community museums. The site can be considered as a support in the self-organization of cultural processes in the Mixtec Region.

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