

WCES-2010

## Multicultural aspects in HCI-curricula

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Received October 13, 2009; revised December 22, 2009; accepted January 7, 2010

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### Abstract

In the developing of any kind of interactive and information applications, multicultural aspects, usually, have not been considered. Therefore, people need to adapt to the interfaces instead the opposite, interfaces adapting themselves to the user characteristics. Designing products for international users all above the world is a non solved challenge and will be one of the main goals for future marketing strategies. HCI area has experimented a growth that has occurred as a result of the generalization of computer use and of problems which originate from use by people who are not specifically trained in these appliances. Despite this growth, multicultural aspects in many cases are not included in the HCI Curricula. In recent years, diverse symptoms have expounded that the Ibero-American market is growing very fast to incorporate professionals with HCI backgrounds and solid knowledge about User Centred Design methods. Indeed, these kind of professionals are currently required when developing or localizing interactive systems in this particular scenario. In this paper, we describe the experience of starting the first HCI master in Spanish language for the wide Spanish speaking context held in the University of Lleida (Catalonia, Spain), where we have included specific courses including the multicultural aspects. They will orient the students to have in mind cross-cultural factors when developing international interfaces. In many cases, even it implies adapting evaluation techniques such as usability heuristics traditionally used in HCI courses.

*Keywords:* Curriculun and instruction; human-computer interaction instruction; multicultural aspects.

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### 1. Introduction

Because of the incredible technological change, today the computer is reaching out to a huge number of people all over the world. Almost all software for computers is directed by Western countries (especially the USA). The values, beliefs and culture of those countries are also carried by them to other countries. When we are developing any kind of interactive and information applications, aspects related with multicultural ones usually, have not been take into account. We are living in a globalized world but local or cultural identities strongly influence our patterns of behavior and our interpretation of behavior in others by establishing norms and values. Nevertheless, current interfaces seldom reflect such cultural particularities. Thus, users are forced to adapt their way of interaction and

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interpretation to a given (most of the time western) perspective. Communication uses subtle mediums to express feeling, thought, identity and action like language, writing, color, artifacts, icons, social hierarchy, etc. [McKenna, 2000].

Nevertheless, Human-Computer Interaction (HCI) is a challenging discipline with a strong interdisciplinary character that has experienced a spectacular growth over recent years. This growth has occurred as a result of the generalization of computer use and of problems which originate from use by people who are not specifically trained in these appliances. And, one of the emerging research areas in HCI is cross-cultural research. In that way it is necessary (and not easy) try to understand users' cultural background and possible consequential responses to the designed interactive systems. Designing products for international users all above the world will be one of the main goals for future marketing strategies. Despite this HCI growth, multicultural aspects in many cases are not included in related Curricula. Moreover, in recent years, diverse symptoms have expounded that the Ibero-American market is growing very fast to incorporate professionals with HCI backgrounds and solid knowledge about User Centred Design (UCD) methods. Indeed, these kinds of professionals are currently required when developing or localizing interactive systems in this particular scenario [Granollers, 2008].

In this paper, we describe the experience of starting the first HCI master in Spanish language for the wide Spanish speaking context held in the University of Lleida (Catalonia, Spain), where we have included specific courses including the multicultural aspects. They will orient the students to have in mind cross-cultural factors when developing international interfaces. In many cases, even it implies adapting evaluation techniques such as usability heuristics traditionally used in HCI courses. The teaching methodology we have used for developing usable and accessible interactive systems considering multicultural aspects, known as User Centred Design (UCD), is based on an iterative development process based on a detailed study of the users' needs, the tasks they carry on in order to meet them and the context in which they are performed [Norman, 1986]. Next section will describe some of the aspects related with multicultural area. Then we will describe how we have included multicultural aspects in the Master HCI program. Section 4 will present some experiences we have done including multicultural aspects in HCI, and, finally, some conclusions and further work.

## **2. Multicultural-Aspects in HCI**

Culture is a shared, learned, symbolic system of values, beliefs and attitudes that shapes and influences perception and behaviour. Multicultural aspects is one of the emerging research areas in HCI. In Eastern cultures (e.g., China) people tend to have a more interdependent self, whereas in Western cultures (e.g., Britain and the United States) people tend to have a more independent self [Jiang, 2009]. During last years multicultural HCI research has moved from issuing guidelines, importing some models from the social sciences [French, 2000] to try to produce and build its own frameworks [Hofstede, 1991]. Multilingual and multicultural features are usually not enabled automatically and therefore a plethora of applications and interfaces are monolingual or hard-coded into a single language or cultural interface (usually American English) [McKenna, 2000]. Globalization leads to extensive interaction between different cultures, either directly or indirectly. Differences in cultural mentalities and environments lead to different needs towards computing systems across different cultures, and this will often influence the interaction between computers and users. To support current complex use of technology, previously narrow and static vision of culture and the approach by simply applying cultural conventions in localization work are far from sufficient. In that way it is necessary to take into account aspects like colors, language, idioms, icons, honorific titles, text, audio clips, Addresses, etc. [Nielsen, 1990].

## **3. Multicultural-Aspects in a Master HCI Program**

HCI is one of the nine thematic areas defined in the ACM curricula, an important aspect when situating its education in graduate study programs. In 1988 the ACM's Special Interest Group in Human-Computer Interaction (ACM-SIGCHI) put into practice a project with the objective of composing an HCI curricular proposal. The committee's task was to draw up a series of recommendations for education in HCI. This committee drafted the document ACM SIGCHI Curricula for Human-Computer Interaction in 1992 [ACM], which contain a series of recommendations for the realization of HCI courses. To be able to cover all aspects of definition and the objectives, HCI must be comprised of a large number of different areas, which include different aspects of human beings and

computers: computer science, psychology, sociology, anthropology, industrial design and fine arts. Later, in Spanish context, AIPO<sup>2</sup> members described a professional HCI curricula for high studies (as a master) [Granollers, 2008]. Since current 2007-08 academic course the University of Lleida (Spain) offers the first edition of the Master in HCI (MHCI). The master starts as consequence of a large HCI teaching history in this university and as response to the society demands. Certainly, the study plan takes the above mentioned curricula proposed by AIPO as main reference but adapting to the particularities and teaching specificities. The master is offered, with a virtual online campus as support, in semi-distance mode, using Spanish as main language and with a large participation from other reference universities and HCI related companies. By other hand, being HCI a discipline that involves a large number of different disciplines, the master also should be like this, multidisciplinary. This aspect is also achieved with the participation of departments and knowledge areas such as Experimental Psychology, Lecture Accessibility, Library Science, Documentation, Audio-Visual Communication, Sociology (ethnography) and, not to say, Computer Science. Other important challenge was to offer a master, mainly for professional line, as much close to the real HCI marketplace as possible. This is achieved with the participation of experienced people coming from HCI related companies [Granollers, 2008b].

Finally and focusing to our interest in this paper, the master offers a course named “Multiculturalism and Internalization” that has the next goals:

- Recognize the importance of multiculturalism and internationalization in the HCI area.
- Identify how diverse Cultural values and communicative preferences shape users and uses of Computer-mediated Communication Technologies.
- Introduce requirements of cross-cultural product development
- Introduction into models and approaches to systematically understand users from a different cultural background

The topics covered in the course includes culture concept, cultural demonstrations, cultural standards, elements, differences, internationalization and localisation, international symbols, the meanings of colours, calendars, icons, numbers, currencies, measures. This course is taught by a Colombian Professor to Spanish students using telematic technologies, in order to apply the concepts of multiculturalism into the course. Also, during the course the students develop a practical work integrating multicultural aspects into usability testing methods, which will be described in the next section.

#### 4. Practical Experiences

During first two years in the HCI Master course we have developed some practical experiences trying to involve aspects of Multiculturalism into some HCI topics. In that way we have developed several works about how to integrate cultural aspects into the usability evaluation heuristics. It is common for example to evaluate a web-site using some of the most well-known usability heuristics like Nielsen ones [Nielsen, 1994]. However if we, for example, evaluate a Chinese web-site perhaps we will do it from the Western point of view and we will not consider that Chinese web-sites are more complex, and more oriented towards entertainment. They are more complex because of guiding principle of “give the people what they want at once” and clearness and transparency in Chinese not only means, to ‘get an overview’ but also means ‘to find quickly what one is looking for’. In contrast to western websites, characterized by a deep hierarchy and fewer elements on each level, Chinese websites have a flat hierarchy with as many elements on each level as possible [Bucher, 2002]. Therefore, some heuristics (such as like “*Are the colours and distribution of the elements in the screen distributed according to the specific culture of the region the web-site is used?*”; “*Is the website adapted to the mental model of the users?*” Or “*Are the language and icons adapted to the cultural background of the users?*”) have been adapted take into account multicultural aspects. Also, we have analyzed different aspects that could influence the understanding of products we design based on the Communication theory proposed by Hall [Hall, 1976] where he mention culture High Content/Low Context, which are dominant cultures in US and use standards ASCII email and are explicit, direct, formal and written; and High context/Low content, which are traditional/oral cultures like Asian Societies, where the communication style is indirect, informal, symbolical. Taking into account if culture is Low Context or High context we have developed

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<sup>2</sup> Asociación Interacción Persona-Ordenador (AIPO, [www.aipo.es](http://www.aipo.es)) is the main HCI association in spanish-speaking countries.

some experiences. Also, we developed an experience where we have considered two cultures (Spanish and Colombian) that according to Hall Theory belong to the same level, however in spite of that there were many problems related with idioms and expressions used in these countries [Masip, 2009]. In that way, it is not only important to design take into account standards classifications but also within a same country could have different cultures according to the place a person belongs. In order to develop interfaces considering multicultural aspects we have to take into account elements like language, history, icons, screen layout, colours. All these aspects contribute to understand the same interface in different countries, avoiding possible misunderstandings and risks. Our experiences have used some heuristics adapted to the multicultural aspects; however it is important to use different usability evaluation techniques adapting them to the cultural background.

## 5. Conclusions and Further Work

Culture is an important aspect in the CHI area. Culture-oriented interaction design is focused on the user and his specific needs, dependent of his cultural context (background). Design indeed is highly culturally specific, and internationalization practices should not be reduced to the interface as the visible part and operable layer of the system, but to a consideration of the whole computing system as the “interface” linking people to their socially constructed and determined activities. In that way it is necessary to design culture-oriented User Centred products, where the cultural background must be take into account. We have described a HCI experience that includes aspects related with multiculturalism and internationalization, highlighting some practical experiences we have carried out in order to depict the importance of cultural aspects in the products design. As future work we are going to experiment with different cultures analyzing what aspects must be considered, in fact we will have to consider cultural communities because our countries are multicultural. These results will provide a new paradigm design; we will formalize it to guide designers to deal with cultural diversity.

## Acknowledgements

This paper was partially supported by the Microsoft Research Project Fund, Grant R0308LAC001

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