Teaching HCI with a Pinch of Chillie: A Perspective from Mexico

Víctor M. González
Department of Computer Science
Instituto Tecnológico Autónomo de México (ITAM)
1 Río Hondo, Col. Progreso
Mexico City, Mexico
victor.gonzalez@itam.mx

Eduardo H. Calvillo Gámez
Nuevas Tecnologías de la Información
Universidad Politécnica de San Luis Potosí (UPSLP)
San Luis Potosí, México
eduardo.calvillo@gmail.com

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Abstract
In this paper we discuss our experience of teaching Human Computer Interaction in two different Mexican Universities. We start by discussion some of the general conditions faced by the HCI community in Mexico and how they shape teaching. Each experience of teaching HCI is analyzed with an emphasis on highlighting the methods, lessons learned and challenges.

Keywords
Teaching; hci; Mexico

ACM Classification Keywords
H.5.1[Multimedia Information Systems], H.5.2[User Interfaces], H.5.3[Group and Organization Interfaces]

Background
Human Computer Interaction (HCI) is quite a small but emerging field in Mexico. There is a bi-anual research conference (MexIHC) to showcase the outcomes of the Mexican state of the art research, as well as to promote and evangelize undergraduate students about HCI. Even though the established research groups are localised in few (and disperse) parts of Mexico, there is an on-going effort to join forces across the country to pursue research and share teaching practices.

In Mexico, the HCI community emerges as a sub-discipline of Computer Science. All of the HCI communities are hosted in computer science departments, even if they have other names, with very little influence from social sciences. More ever, traditional computer science in Mexico typically sees HCI as a topic about developing interfaces, learning HTML or making systems "user friendly". Wrong understanding of the contribution of HCI to computer science, remains common among the academic community, and in spite that Mexican HCI scholars work on well-defined fields and have international recognition (e.g. information visualization, usability, internationalization of products, user experience, etc.)

The common lack of understanding about HCI and its potential contribution to CS often makes difficult to include HCI contents within the undergraduate and graduate academic programs. There are just a few academic programs in Mexico where HCI content is part of the core. Many of the HCI educators in Mexico are doing this job by offering optative (elective) courses or offering extracurricular workshops or seminars. Having no (or limited) HCI courses in the academic programs results on having fewer students interested in the topic, and eventually less people continuing postgraduate students in the area. Access to sources of information is also a challenge. Most the bibliography is in English, with only few books translated into Spanish. And even though it is expected that all students who enter university can at least read in English, this is not always the case.

The opportunity that we have as HCI scholars in Mexico is that we can open the path, we can innovate in terms of teaching HCI content, combining teaching and research in HCI, and work on reposition the value of HCI with regards its contribution of CS training. There are many ways to move forward on this direction and we have implemented some of them as part of the teaching we do in two different Mexican universities. Given our academic training, we are adopting best practices seen and learned in two different and equally rich contexts: the USA and the UK, HCI communities. We believe that by taking the best of both contexts we can find a way to make HCI teaching to work for the realities and challenges faced Mexico.

Teaching HCI in Mexico at a State Funded University

HCI is placed in the 5th semester, out of 9, as an optional course at Universidad Politecnica de San Luis Potosi for the Information Technology Major. The prer-requesite is that students should be able to program using the OO paradigm with Java. Regular students should be about to be certified in the Cambridge University's First Certificate of English exam, but most students are not regular students in relation to English courses.

The term lasts for 16 weeks, meeting 3 hours per week for a total of 48 hours for this course. There has to be 4 evaluations: 3 partial and one final. The partial evaluations amount for 60\% of the course's grade, while the final is 40\%. The minimum passing grade is a 7 out 10. Finally, the University follows a competence based learning curricula, which requires to design the courses with a very hands on approach.

I divide the course in 3 big topics, following the partial evaluations timeline. On the first part, we review Don Norman's "The Design of Everyday Things" (2002). We go over the psychology of things and design principles, and I ask the students to design a mock of a radio, a cell phone or something similar. The group is divided into smaller groups of 3 students, and all groups have to work on the same topic. I provide all functionality that their mock-up should have. I include at least 20 different functionalities, including some that are not related to the device. For example, when the students had to design a cell phone, I asked them to include a stapler. They have to present the mock-up to me for an oral evaluation, and submit a written report where they explain how they used the material covered in class to pursue their design. They usually have one week to do all this.

The objective of this exercise is two-fold: that the students get an experience in designing something by following basic design principles. And secondly, that students learn that HCI is not an exact science. It is not about right or wrong answer, but following and applying the principles and methodologies we reviewed in class. Usually the students are unease and try to justify every single design decision they took.

In the second and third part of the course we follow the User Centered Design (UCD) methodology using the book by Preece, Rogers and Sharp (2011). In this part I assign them their final project. So during the 2nd and 3rd partial evaluations, the students have to submit advances of their final project.

For their final evaluation, the students have to submit a working prototype, even if using Wizard of Oz in some stages, and all the documentation of their project. By their final evaluation, students are aware that the results are not as important as the process of using UCD to develop a project. This time they take note of what it is missing from their prototype, unlike their previous mock-up as they would have tried to justify it.

The usual comments that I receive is that the students like the class because they can see from multiple applications, such as the governmental websites, that UCD and HCI are not being used in Mexico. They feel that they had a hands-on-approach, and they understand that they are working in a cutting edge area.

I have seen them work in other projects later on, I am happy to report that they usually apply a UCD approach. If not formally, then they are at least wondering about the users and their needs.

Teaching HCI in Mexico at a Private University

HCI is offered since 2010 in the Instituto Tecnológico Autónomo de Mexico (ITAM) as an optative course to be taken by students after covering core courses on Databases, Design of Informatics Applications, and Analysis and Design of Information Systems. Students taking the HCI course are usually at their final year of their majors and most of them are very proficient in understanding, writing and reading in English. Consequently, all the materials are in English and we use textbooks that are used in other parts of the world. In particular we use books such as User Interface

Design and Evaluation (Morgan and Kaufmann) [3] and Interaction Design (Wiley) [2].

Similar to the case of UPSLP, our course runs for 16 weeks and lectures and labs are offered in two weekly sessions of 1.5 hours each.

At ITAM the HCI course is titled Design and Evaluation of Interactive Systems (Diseño y Evaluación de Sistemas Interactivos - DESI. The main goal of DESI is to provide students with the fundamentals on perception models, cognitive processing and ergonomics that guide the design of interactive systems. Based on those fundamentals students are introduced to popular design techniques and methods that help them to move from requirements, to models, and from models to prototypes. There is also equal emphasis on teaching students how to evaluate interactive technologies covering both qualitative and quantitative methods. Lectures are combined with lab sessions, which are offered to analyze tools, have design sessions and demos of technologies.

The DESI course has been offered to ITAM students two times. Each time we have connected the course with Student Design Competitions. The main derivable of the course are prototypes, poster and paper describing the design idea. From the beginning of the semester students receive instructions about the topic of the Student Design Competition, as well as examples of previous successful projects (from other universities, winners of previous competitions). The contents of the course and the partial products to deliver are defined in such way that students are gradually building a full proposal for the competition.

The results of the previous editions of DESI at ITAM are quite encouraging. During the Third Mexican Workshop in Human-Computer Interaction (MexIHC) in 2010 three teams from the course qualified to the finals, and one of them receive the third place award. This year, three teams submit their projects to the SDC of SIGCHI 2012 and one of them qualified to the finals to take place in May in Austin, Texas.

Having DESI project linked to Student Design Competition has been a good strategy. Students appreciate the fact their efforts are focused on challenging objectives set by an external body of academics, the goals of the projects are seen as more relevant as they work on global issues, and they feel motivated to compete and more united as a group as they know that their actual competitors are in other universities around the world.

The course is also shaped to include guest lectures by people working as professionals of interaction design. We have invited people working in Mexico and in other countries. The list of speakers includes people from industry (e.g. Tobbi) and academia (e.g. Universidad de Monterrey).

Feedback from students shows that HCI content is useful to enhance their understanding on how to design for real people, how to measure the degree of success of an interactive system, and how to create applications that are aware of the cognitive characteristics of human beings. All these conclusions put HCI content as material which go well beyond of just creating "user friendly systems".

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References

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