

Joint Collaboration Efforts of Academia and the Software Industry for the Promotion of Usability

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Abstract. In spite of the importance of software usability, in Guatemala there has been traditionally little awareness of the fundamental concepts of this discipline. This document outlines a collaboration strategy between Universidad Rafael Landívar and the Guatemalan Export Software Commission to promote software quality, with emphasis on the topic of usability.

Keywords. Usability, Education, Software Industry, Academia-Industry Collaboration

1 Introduction

With the increasing dependence on information systems and the exposure of end users to a greater variety of software products, their sophistication tends to grow, along with their expectations regarding the applications they use. This calls for the basic concepts of human-computer interaction to grow in importance within academic programs, and justifies the increasing interest on them by the Latin American community [1]. Until fairly recently, however, there were no initiatives in Guatemala that were directly geared towards this issue. In the country there is a budding software industry for which it is of great importance to improve the quality of its products, in order to become more competitive, and a key quality attribute [3] which has been singled out as of particular interest is usability. It has been determined, though, that in order to achieve this attribute it is important to have personnel who are adequately trained on the key concepts of human-computer interaction. From these circumstances, parallel initiatives have sprung in the academia, as well as in the local industry, which are now coalescing to strengthen the software sector.

2 Sofex Training Program

For a long time, although there is a considerable number of software development companies in Guatemala, the sector had not been formally organized. This made it harder to meet certain challenges for individual companies. In 2005, two formerly separated initiatives to group software development companies and jointly addressing the needs of the sector happened to unify, and thus was the Guatemalan Export Software Commission (Sofex) born as a group within the Guatemalan Export Association (AGEXPORT).

An internal diagnostic in the commission identified as a priority the development of means to facilitate the training and professional development of the personnel of member companies, in order to improve the key development practices and, in turn, the quality of the software products and their suitability for the international market. Fortunately, AGEXPORT already had a unit specialized in training services, the Foreign Trade School, and it was determined that this was the ideal means to implement a training program.

The first step was a poll among member companies in order to identify the topics that showed greater interest. Among this stood the issue of software usability, and so a four-hour workshop was conducted on the subject. The workshop emphasized the “5 e’s” of usability, and the various techniques for usability assurance, such as user tests, inspections and heuristic evaluation. Additionally, the instructors showed videos, produced by college students, which showed dramatic results obtained during user tests. Feedback on the workshop was highly positive and led to a proposed series of courses on different aspects of human-computer interaction. Sofex has informally asked for the support of Universidad Rafael Landívar on the organization of this series of courses. Other series of course proposed as part of the Sofex training program include topics of software project management, models such as CMMI or MoProSoft, the use of tools to support software life-cycle activities like configuration management or quality assurance, and the implementation of a three-month program to train web developers specialized in Java or ASP.Net, which includes traineeship in companies that are members of Sofex. In order to coordinate this program, an Academic Committee was conformed and tasked with the identification of the most important needs of the sector in terms of training, implementing the required courses, or establishing alliances with other academic institutions that might offer them to a broader public.

3 University Courses

In 2004, Universidad Rafael Landívar implemented a curricular reform for all the schools and academic departments, including Informatics and Systems Engineering. A key element of the reform for this department was the introduction of elective specialization courses in order to provide a more flexible offering. A complete area of Software Engineering was created, with most of its courses being mandatory for all areas of specialization. This included a course geared towards teaching the principles of Human-Computer Interaction, even though it was given the more generic name “Software Engineering II” because this permitted to update the contents of the course

in a more dynamic fashion. The course has been offered twice, and student projects have yielded interesting results that are becoming part of the department's culture. In particular, students have produced, as an assignment, videos depicting actual user tests, which have been extremely useful for several conferences, including the workshop for Sofex.

This is not an isolated case in Guatemala. In the academic plan for 2003-2007, Universidad del Valle de Guatemala had already anticipated a course on Human Computer-Interaction. Topics from this discipline have also been briefly touched as units in other university courses.

It is important to mention that, in recent years, several universities in the country have approached industry for support in their curricular renewal efforts, in order to identify the critical competences to develop in students, and so keep the study plans aligned with the actual needs of the industry. HCI, in particular, is one of the topics that have raised greater interest, since awareness has been growing in industry about the importance of these topics. This is probably influenced by the newer professionals who have been exposed to the key concepts of the subject through their academic programs. This can be seen by the fact that merely a few years ago, usability was regarded as a mere intellectual curiosity for a few enthusiasts, while nowadays companies are seriously considering the evaluation of this attribute in their software products.

4 Proposal for a Software Quality Center

Sofex has identified the need for independent verification of the quality of its software products, including attributes such as security, robustness and, of course, usability. Given the importance of guaranteeing the neutrality of this certification, Sofex has sought to establish a Software Quality Center as a joint project with a reputed academic institution, whose faculty would give solid theoretical grounding to the tests performed. Students would find in this center a way to put into practice what they have learned, and it would serve as a living research laboratory.

We are aware of other successful, similar projects, such as the one in Universidad Tecnológica de la Mixteca, in Oaxaca Mexico (see <http://mixtli.utm.mx/~usalab>) about which there is ample documentation online, including the initial proposal for its establishment [2].

Universidad Rafael Landívar manifested, from the beginning, interest in participating in this initiative, realizing that the center would become the laboratory for their proposed Software Quality graduate program, whose target would be not only graduating students from the University, but also employees from software development companies or groups, including members of Sofex. This initiative, therefore, seeks to take advantage of the synergy between the two institutions, and strengthen the development of quality software in the country. Since this is an ambitious project, it has been proposed to implement it in stages spread through several years. It has been considered, though, that a good starting point, given the relatively modest infrastructure requirements, at least for the initial level of testing, would be the evaluation of usability for software applications. Further along, other

aspects will be included, such as functionality and load testing, specialized architecture and security inspections, and other aspects which require greater infrastructure investment. This would be financed through the income of the graduate program and fees for quality assurance services to the industry.

5 Next Steps

The relationship between Universidad Rafael Landívar and Sofex is currently waiting for the signing of a collaboration agreement; similar to the one Sofex already has with other national academic institutions. In parallel members of both institutions are completing the profile for the Software Quality Center project, in order to present it to national and international institutions that might provide funding for its establishment. Finally, the Department of Informatics and Systems Engineering has submitted a preliminary proposal for the aforementioned graduate program on Software Quality, developed in close collaboration with Sofex representatives, which is currently being reviewed by the Vice-president of Academic Affairs. All this seems to indicate that the cooperation between academia and industry is moving slowly, but steadily, forward, and one of the expected fruits of this alliance is, precisely, the development of the theory and practice of usability principles as applied to software. Even though more concrete results are still missing, there is a perceived greater awareness of these issues by software professionals and the conditions are set for the industry to assimilate them and hence improve the quality of its software products.

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