

A Teaching Strategy for Usability Evaluation to Human-Computer Interaction Courses

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ABSTRACT

The Human-Computer Interaction (HCI) aspects concerning education, research and development are increasing due to this area importance in the development of interactive systems. The usability evaluation is an important HCI area and should be a concern in HCI's courses and subjects. This paper presents the proposition of a strategy supported by two software developed for specific evaluation activities. The software are used to submit the students to real situations that can be found in a real evaluation.

Author Keywords

Interação-Humano Computador; Ensino; Disciplinas de IHC; Avaliação da Usabilidade

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI):

INTRODUCTION

The great amount of software users and their varied skills and limitations is leading to systems with different interface resources and the quality of the interaction is acceptance criteria. One way to analyze whether the interface has quality and so, usability, is performing the usability evaluation.

The usability evaluation activity can be described as a group of methods and techniques that must be performed in order to identify usability problems [1,7]. Two approaches are widely used to support the usability evaluation: (1) Usability inspection: the usability inspection is performed comparing the interface with a guideline to analyzing whether the software interface is not according with Human Computer Interaction (HCI) quality concepts. This

approach is usually performed by HCI professionals and must be done for at least five participants. (2) Usability test. The test is done using real users that perform their tasks in real applications or prototypes in order to identify whether the software interaction has problems. The usability test is usually monitored by resources such as filming or verbalization (evaluator registers what the participants say) and is recommended by several researches and developers due to the reason that provides real information about the HCI quality[1,3,7].

The usability evaluation techniques are subjects of Brazilian HCI courses [2,4] and sometimes presented as mandatory by university and other schools. This paper presents a strategy to support the teaching of usability evaluation using two specific software for usability inspection and usability test allowing the students to simulating a real environment of evaluations.

USABILITY EVALUATION TOOLS

Two software are used in order to support the usability evaluation. The first one, named ErgoCoIn, is a checklist-based environment initially aimed at supporting objective ergonomic inspections of web site. The ErgoCoIn features automatic inquiring services to identify context of use aspects (users and environment attributes) and to recognize web page components. Consequently, it is able to propose to inspectors only questions applied to the specific task context of use and to the associated web page components [5].

The second, named ErgoSV, is an application that uses face and speech recognition to generate usability test information and reduce the analyze time. The software collects keywords such as "Excellent", "Good," "Bad", "Terrible" pronounced by the participants, the face image (using a webcam) and the images of the screen in the moment that participants pronounce a word or in an interval time previously determined by evaluator [6].

After this step, the system compiles the data and generates information to support a fast and safe analysis by evaluation.

THE USABILITY EVALUATION TEACHING STRATEGY

The teaching strategy is focused on the usability evaluation activities and aims to submit the students to real situations that can happen in an evaluation process.

In this approach, the students study the usability inspection and test techniques and are supported by ErgoCoIn and ErgoSV software.

The inspection technique is presented in initial phases of the courses in order to teach all the concepts that the student needs to analyze a web site supported by the ErgoCoIn[5] and so, create relevant questionnaires to be used in and simulation. After, in a second time, the student performs the usability inspection as a HCI professional according to Nielsen [3] that explains this technique as a best applied by professionals.

Using the inspection data, the participant needs to compile and analyze all the answers in order to generate relevant information. The questionnaires creation, inspection, performing and generated data analysis is presented at the end of this stage of the course, all the students or group of students discuss the results to fit all the information.

The ErgoSV Software [6] supports the usability test activity. This evaluation technique is considered effectiveness, however slow and expensive because the evaluator needs to review all the data files in order to make relevant information.

In order to facilitate the usability test teaching, the ErgoSV is used as a resource, mainly because uses only one camera and one microphone, i.e., it is easy to install and configure and, as tool that was not developed specifically for academic use, it provides all the resource that is used in a test and was done to generating information and identify usability problems fast and safe.

When the test stage starts, the participants are encouraged to create the scenario of the web site utilization, establish which activities must be relevant to the test and also select the participants' profiles and the verbalization of the desired keywords. So, after that, the students, as evaluators, should guide the software tester (participants) in an initial instruction of how use the tools and about the ErgoSV approach, the keywords meaning and inform all of them about the registration of face images and words pronounced and so, they can observe the tester using the software. After these tests, the students should use the data collected by ErgoSV in order to create relevant information and identify, fast and safely which moments the users had good or bad reactions.

In both evaluation approaches, the participants should choose one or two software/websites to be evaluated. They use the same application in the evaluations due the reason that they will perform an analysis and comparison of methods and techniques that were used in order to discuss which were more appropriated to support the usability evaluation.

CONCLUSIONS

Using these tools we intend to submit the students to real usability evaluation situations such as preparing the evaluation scenario, environment and analyzing data in order to generate relevant usability information allowing them to prepare inputs to improve the software interaction quality and achieve quality results of the evaluations.

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