Focus for Interactive Systems Design through the Incorporation of User in the Development Process

Amelec Viloria¹* and Jenny-Paola Lis-Gutiérrez²

¹Universidad de la Costa, Barranquilla, Colombia; aviloria7@cuc.edu.co
²Escuela de Negocios de la Fundación Universitaria Konrad Lorenz, Bogotá, Colombia;
jenny.lis@konradlorenz.edu.co

Abstract

Objectives: To propose Focus for Interactive Systems Design through the Incorporation of User in the Development Process. **Methods/Statistical Analysis:** This work was within the designs of non-experimental field. **Findings:** Usability is becoming a key factor in the success of a software product, and it is necessary that the software industry begins to become aware of the need to take into account the usability from the early stages of system development by introducing a focused perspective the user. For this big reason that this research raises different proposals for the establishment of methods, techniques and tools in order to guide developers on activities to follow during the software development process to ensure a level of usability previously established. Presenting a study of the integration of usability in the development process of software engineering, analyzing proposals from both the field of Usability Engineering (UI) and the Software Engineering (IS). **Application/Improvements:** In a summary of some of the models proposed by the UI for the development of interactive systems and a new proposal Process Model User Centered integrating the IS processes is collected, Human Computer Interaction (IPO) and accessibility in the context of multidisciplinary development teams. The Process Model presented in the international standard ISO 13407: 1999 establishes a framework for regulatory reference guides to ensure usability in the development of interactive systems incorporating user - centered (DCU) during the life cycle development Design.

Keywords: Interactive Systems Design, Process Models, Software, User Incorporation Process Development, Usability

1. Introduction

For a long time in the development of Interactive Systems it has forgotten the importance of usability of such systems, relegating it exclusively to evaluation activities of the final product[1]. This may be due on one hand to the fact base the systems development primarily on the available technology and on the other, to the wrong relationship developers have established between usability and appearance of the user interface in their aesthetic characteristics.

As a result, systems have been developed with a poor level of usability, which translates into a decrease in the degree of acceptance of them because of the frustration that users may suffer by interacting with them[2]. It is important to note that the usability of a system, not only is linked to the appearance of the user interface but mainly to the way in which the user can use the system, i.e., interaction with the same, and therefore it is related to the overall structure of the system and business logic.

However, despite the economic and social benefits giving the DCU[3], the software industry still balks to use process models proposed by the IU[4]. Many software development organizations want to increase the level of usability of their products but are not willing to completely change their development process towards an iterative process and user-centered.

Then a series of conclusions drawn from the conducted studies that can motivate organizations software development do not apply any methodological approach

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that includes usability throughout the software development are as follows: The proposed models imply radical change in the process, software engineers do not believe sufficiently justified. The models proposed by the IU are complex to understand and apply. Managers of software organizations believe that usability is not economically justified. There are differences in concepts and terminology between the two disciplines (IS and IU)[5]. There is no adequate integration of activities usability in the process of development of Software Engineering.

2. Theoretical Foundations

The term usability is defined in ISO 9241-11 as "the degree to which a product can be used by specified users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use"[6] The ISO 9241-11 explains the benefits of usability of the systems is mainly measured by the degree of achievement of the objectives set in terms of use (effectiveness), for the resources used to achieve these goals (efficiency) and the degree of acceptance of the product by the user (satisfaction). It emphasizes that usability is closely dependent on the context of use, i.e., a working environment and specific users and therefore is not an inherent quality of the software.

From this it follows that to develop a usable product is not enough to consistently apply certain general guidelines or guidelines of usability, it is necessary to apply a process of DCU that allows to integrate the user in the development from the early stages of it and thereby widely known the context of use. The User Centered Design is an approach to the design of interactive systems dealing specifically make the systems more usable through the incorporation of usury or in the development process.

The identity of the DCU may be defined by other approaches or differentiation design philosophies as those described Kalbach (2007):

- ocused on the designer (Designer-centered design) Design:

The designer, from his personal vision, knows what is best at all times.

- Focused on the enterprise (Enterprise-centered design) Design:

The website is designed in response to the structure and needs of the company.

- Focused on the content (Content-centered design) Design:

The body of information is the basis for organizing the site and the navigation structure.

- Focused on technology (Technology-centered design) Design: everything revolves around technology and seeks the easiest way to implement a solution.

There are different proposals process DCU, but may consider incorporating a user- centered approach is characterized by l to active participation of users and a clear understanding of the requirements of the user and the task. A clear allocation of functions between users and technology. The iteration of design solutions. A multidisciplinary team or design the benefits of implementing that DCU Proc may include: reduction of production costs[7].

Costs and development time can be reduced by avoiding the envelope design and reducing the number of subsequent changes Product[8]. Increased user productivity and operational efficiency of organizations. Improving product quality and its appeal to leading users to a competitive advantage. Systems easier to use and learn which reduces costs technical assistance, training and maintenance are performed. Increases user satisfaction by reducing the discomfort and stress (Figure 1).

Figure 1. Usability and user - centered design[9].

As mentioned, there are different methodological approaches, from different disciplines (IU and IS) for the development of interactive systems based on user-centered approach. All these proposals try to guide

developers on how to proceed in an organized manner to achieve the usability of an interactive system during its development, although the way in which the integration of the IPO proposals (Human Computer Interaction) is performed in Process Models SI remains under investigation today.

This paper focuses on the process model developed in the standard international ISO 13407:1999[10] to be considered the basic framework for the development of user-centric processes by the IPO community[11]. It is not linked to any existing method, it provides a complement to any design method and establishes a general user-centric perspective that can be integrated into different development processes, according to each particular context. All design activities posed are applicable[12], to a greater or lesser extent, each of the stages of development of a system, but prior to their application must process planning user centered established.

3. Methodology

As for the design of research, this work was within the designs of non-experimental field in which the variables are not manipulated for the purpose of describing variables and analyze their impact and interaction in a given time, just as found in reality, these authors also specify a non-experimental research design is a study performed without deliberate ion Mastering the variables. In this vein[13], it is mentioned: "what is done in non-experimental research is to observe events as they occur in their natural context and then analyze them". This indicates that there is no manipulation of variables by the researcher, only observes and describes.

Around the research design, it arises[13] which is a plan or a strategy that is developed to obtain the information required in the study. As noted above, and given that the data will be obtained directly from the reality, the design of field research is not experimental.

4. Research Results

Process User Centered the system meets user requirements and the specified organization understand and specify the context of use specify user requirements and design solutions producing organization evaluate the designs against the requirements.

The standard describes four principles of human-centered design:

- Active involvement of customers.
- Appropriate allocation of function.
- Iteration of design solutions.
- Multi-disciplinary design.

For an approach to the design of interactive systems through the incorporation of river usual in the development process, it should be used in each activity and the investment to be made on each depends on the size and type of product that is to be developed. A brief comment on each of the activities DCU which includes the process:

- Understanding and specifying the context of use. Must identify the characteristics of potential users, tasks that these will develop as well as the environment in cu system to be used.
- Specification of user requirements and organization regarding the description of the context of use. They should set goals and commitments identifying priorities among the different requirements.
- Production of design solutions. From existing knowledge from multidisciplinary teams should carry out specific design solutions using some kind of prototyping.
- Evaluation of designs against the requirements. The evaluation should be present throughout the life cycle intended to provide a return of information to help improve the design, it will also determine whether they have achieved the objectives set and verify the long - term use of the product (Figure 2).

Figure 2. Human-centered design processes for interactive systems.

5. Conclusion

Simulation can help in the process of decision- making aspects of process improvement because it allows predict

what the effect a change in the process before it occurs. In this area, it is of great importance that the dynamic model is presented, along with the original model Abdel-Hamid, one of the dynamic models representing a greater level of detail throughout the process or software development. Describes a model to show the effect of conduct formal inspections on cost, time and quality of projects. Likewise, the use of simulation models proposed to predict quantitatively, the impact of process changes.

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