INTERACTION DESIGN

Carlos Xavier Rosero C.

APPENDIX 1: USABILITY GOALS

For each goal, we describe it in more detail and provide a key question.

Effectiveness is a very general goal and refers to how good a system is at doing what it is supposed to do.
Question: Is the system capable of allowing people to learn well, carry out their work efficiently, access the information they need, buy the goods they want, and so on?

Efficiency refers to the way a system supports users in carrying out their tasks.

Question: Once users have learned how to use a system to carry out their tasks, can they sustain a high level of productivity?

Safety involves protecting the user from dangerous conditions and undesirable situations. In relation to the first ergonomic aspect, it refers to the external conditions where people work. The second aspect refers to helping any kind of user in any kind of situation avoid the dangers of carrying out unwanted actions accidentally. It also refers to the perceived fears users might have of the consequences of making errors and how this affects their behavior. To make computer-based systems safer in this sense involves **(i)** preventing the user from making serious errors by reducing the risk of wrong keys/buttons being mistakenly activated (an example is not placing the quit or delete-file command right next to the save command on a menu) and **(ii)** providing users with various means of recovery should they make errors.

Safe interactive systems should engender confidence and allow the user the opportunity to explore the interface to try out new operations. Other safety mechanisms include undo facilities and confirmatory dialog boxes that give users another chance to consider their intentions (a well-known example used in e-mail applications is the appearance of a dialog box, after the user has highlighted messages to be deleted, saying: "Are you sure you want to delete all these messages?".

Question: Does the system prevent users from making serious errors and, if they do make an error, does it permit them to recover easily?

Utility refers to the extent to which the system provides the right kind of functionality so that users can do what they need or want to do. An example of a system with high utility is an accounting software package providing a powerful computational tool that accountants can use to work out tax returns. A example of a system with low utility is a software drawing tool that does not allow users to draw free-hand but forces them to use a mouse to create their drawings, using only polygon shapes.

Question: Does the system provide an appropriate set of functions that enable users to carry out all their tasks in the way they want to do them?

Learnability refers to how easy a system is to learn to use. It is well known that people don't like spending a long time learning how to use a system. They want to get started straight away and become competent at carrying out tasks without too much effort. This is especially so for interactive products intended for everyday use (e.g., interactive TV , email) and those used only infrequently (e.g., videoconferencing). To a certain extent, people are prepared to spend longer learning more complex systems that provide a wider range of functionality (e.g., web authoring tools, word processors). In these situations, CD-ROM and online tutorials can help by providing interactive step-by-step material with hands-on exercises. However, many people find these tedious and often difficult to relate to the tasks they want to accomplish. A key concern is determining how much time users are prepared to spend learning a system. There seems little point in developing a range of functionality if the majority of users are unable or not prepared to spend time learning how to use it.

Question: How easy is it and how long does it take **(i)** to get started using a sys- tem to perform core tasks and **(ii)** to learn the range of operations to perform a wider set of tasks?

Memorability refers to how easy a system is to remember how to use, once learned. This is especially important for interactive systems that are used infrequently. If users haven't used a system or an operation for a few months or longer, they should be able to remember or at least rapidly be reminded how to use it. Users shouldn't have to keep relearning how to carry out tasks.

Unfortunately, this tends to happen when the operations required to be learned are obscure, illogical, or poorly sequenced. Users need to be helped to remember how to do tasks. There are many ways of designing the interaction to support this. For example, users can be helped to remember the sequence of operations at different stages of a task through meaningful icons, command names, and menu options. Also, structuring options and icons so they are placed in relevant categories of options (e.g., placing all the drawing tools in the same place on the screen) can help the user remember where to look to find a particular tool at a given stage of a task.

Question: What kinds of interface support have been provided to help users re- member how to carry out tasks, especially for systems and operations that are used infrequently?

APPENDIX 2: ASSIGNMENT

This assignment is intended for you to put into practice what you have understood about this lecture. Specifically, the objective is to enable you to define usability and user experience goals and to use design and usability principles for evaluating the usability of an interactive product.

Find a handheld device (e.g. remote control, handheld computer, tablet, or cell phone) and examine how it has been designed, paying particular attention to how the user is meant to interact with it.

(a) From your first impressions, write down what first comes to mind as to what is good and bad about the way the device works. Then list **(i)** its functionality and **(ii)** the range of tasks a typical user would want to do using it. Is the functionality greater, equal, or less than what the user wants to do?

(b) Based on the knowledge you have so far and any other material you have come across, compile your own set of usability and user experience goals that you think will be most useful in evaluating the device. Decide which are the most important ones and explain why.

(c) Translate the core usability and user experience goals you have selected into two or three questions. Then use them to assess how well your device fares (e.g., Usability goals. What specific mechanisms have been used to ensure safety? How easy is it to learn? User experience goals: Is it fun to use? Does the user get frustrated easily? If so, why?).

(d) Repeat (b) and (c) for design concepts and usability principles (again choose a relevant set).

(e) Finally, discuss possible improvements to the interface based on your usability evaluation.