

Transcript

Video: ICT Accessibility. Interaction Sequence.

Series: Human-computer interaction: design for all and assistive products.

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Hello, my name is Alejandro Rodríguez Ascaso, and I am a lecturer at the Department of Artificial Intelligence at UNED.

This video is entitled ICT Accessibility: Interaction Sequence. The interaction sequence summarises the stages in which accessible interaction occurs so that a person can perform a task within a system. This sequence can be a useful resource for assessing the accessibility of an existing system or for incorporating accessibility into a product that we are designing.

The stages of the sequence are as follows. First, we must perceive the existence and position of the system's controls. Second, we must perceive the state of those controls through the system's output. Next comes the operation stage, in which we use the system's input controls to carry out the task we wish to perform. After that, we expect some form of feedback—a confirmation that we have operated those controls and completed the task.

That is almost everything. But there is one more essential element that is always present in interaction, something that is very important yet is difficult to associate with a system's component or a particular interaction stage: comprehension.

To use any system effectively, we must understand the information it produces and, in general, how the system works. And here the cycle closes. More complex tasks will require us to perform several consecutive interactions. In that case, the cycle is repeated as many times as necessary.

Let's now have a look at this interaction sequence while I carry out a task myself on my computer. I am going to search for a term using the Google search engine in my web browser.

First, I must perceive the existence and position of the controls. Here I am, in front of my laptop. I can see that it has a keyboard, a smooth surface that acts as a mouse pad, a screen, and speakers. The keyboard layout is standard for Spanish laptops, and it is familiar to me, as I use this computer every day.

Regarding the task I am about to perform, I not only have the hardware controls of my computer, such as the screen and keyboard, but I am also on Google's search page, which is equally familiar. I can recognise its distinctive logo, a text field indicating that I am on the search page, and a button labelled "Google". Unlike the keyboard, mouse, and screen, the logo and text field are software controls.

The system provides information that helps me understand where I am and what controls are available, as well as where each one is located.

The next step in the sequence is to understand the state of these controls.

On Google's search page, there is a blinking cursor in the text field. This indicates that the field is active and waiting for me to type. It is an invitation I easily recognise because it has appeared in successive paradigms of human-computer interaction.

Therefore, the system and its controls are clearly signalling that Google expects me to type some information. We could say that this phrase rather neatly sums up what Google generally expects from us.

Next comes the operation phase, in which I use the system's controls to type my search term. For this, I use the keyboard, which is my preferred method of entering text. I type the word "UNED", and Google responds so quickly that I do not even need to press Enter or the "Google" button. The results appear automatically on the screen.

In this system, the display of results represents the feedback to my operation. By seeing this information, I know that the command I gave to the system has taken effect. I am reasonably satisfied to see that the system has behaved exactly as I expected.

As I said earlier, this whole process necessarily involves my understanding of how both my computer and the Google search page work. This understanding depends on the information that the system provides and on my familiarity with it.

In this video, I have demonstrated the task of searching for a term in Google, carried out by me—a user with specific accessibility preferences—using hardware and software configured to meet those preferences.

Other people perceive information about the location of controls, their state, or the feedback from their operation in non-visual ways, for example, through sound. Others enter text using different methods instead of the keyboard. Some need support to understand how to use something as apparently simple as an Internet search. All these situations require a personalised configuration of each person's equipment, and analysing these accessibility needs is what we will address in the next sections of our course.

There are other important needs besides perceiving, operating, and understanding. All users require safety and privacy when using a system, protection from personal risk, and compatibility between the product they use and any assistive technologies they depend on. The system must also be robust—it should not fail at the first difficulty.

Moreover, some essential conditions fall outside the scope of this interaction sequence, but are prerequisites for any use of information and communication technologies.

For example, to make this recording today, I got out of bed, washed up, had breakfast, came to UNED's facilities using public transport, found my way to the recording studio, communicated with my audiovisual colleagues, and finally sat down at this computer to use it.

As you can see, I am sitting in a chair in front of the computer. I can reach the keyboard with my hands and see the screen. For ICT interaction to be possible, all these previous conditions must be met —each adapted to the functional diversity of the user. That means ensuring access to personal assistance, accessible public transport, barrier-free and well-signposted buildings, and so on.