

Transcript

Video: ICT Accessibility. Perception.

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

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Alejandro Rodríguez Ascaso

Hello, I am Alejandro Rodríguez Ascaso, lecturer at the Department of Artificial Intelligence at UNED.

In this video, we will review some important aspects concerning perceptibility and accessibility in information and communication technologies.

Visual description

While Ana is in the kitchen, the lights turn on and off. After noticing it, Ana goes out of the shot.

Ana

There are important aids that help in daily life. For example, at home, I have a system installed so that when the doorbell rings, the lights flash on and off as an alert.

Alejandro Rodríguez Ascaso

Ana can tell that someone is ringing her doorbell because the sound information is also available in visual form.

Víctor

Screen readers are programmes that scan the screen and read aloud, through the sound card, everything they encounter.

Screen reader

Welcome to the JAWS installation console. To start installation, press Enter. To cancel, press Escape.

Narrator

Some blind people use the screen reader together with a braille display.

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Víctor can access his computer partly because he perceives the information that was originally visual as sound.

It is also important to ensure that this sound information is in the foreground compared with other background noises that could make it difficult to perceive.

Víctor also uses his screen reader to access information in tactile form through his braille display.

Visual description

A man is driving a car.

Narrator

GPS systems guide drivers on their journeys. Speech synthesis is very useful for giving driving directions, because, for safety reasons, the driver's vision must always be focused on the road.

Visual description

The GPS screen shows the current position of the car and the instruction "Turn right".

GPS

Turn right in 500 metres.

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The driver perceives the GPS information because it is also produced in sound form.

Visual description

Ana is sitting on a staircase, studying. She wears a pendant around her neck. A call notification appears on the mobile phone screen. Ana feels a vibration in the pendant, presses a button on it, and begins to speak.

Ana

Hello? No, not yet. No, I'll let you know. When I finish the exam, I'll tell you to come and pick me up, alright?

Alejandro Rodríguez Ascaso

Ana knows that she is receiving a call and can also check visually who is calling her. Before that, she had perceived a vibration in her pendant. This vibration tells her that a call is coming in. Different vibration patterns should be used—for example, one for a call and another for a message—because the priority for responding to each event can be different for the user.

It is also important that the support product—in this case, Ana's vibrating pendant—is compatible with her mobile phone.

Woman

Do need anything, Miguel?

Visual description

Miguel controls a screen scan using a chin-operated mouse. The pointer moves vertically and horizontally until it reaches the desired symbol.

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Miguel can perceive the information because the screen is attached to his wheelchair by an aluminium arm, allowing it to be positioned at an appropriate distance from his eyes.

Sometimes important information, such as that on a bus stop post, is placed too high. Here, the details about routes and timetables are at the top of the post, where a wheelchair user or a person of short stature might not be able to read them.

In addition, this design lacks visual simplicity and does not highlight the useful information that travellers actually need—the stops and timetables.

From a visual perception perspective, it is important that text can be read easily, even with reduced visual acuity. In this example, by increasing the font size to an adequate level, the text becomes much more legible for everyone.

The appropriate font size will vary. It is not the same when watching a video on a television from a sofa, where the viewing distance is greater, as when sitting in front of a computer screen, or when projecting a presentation in a classroom or auditorium.

It is also important to be able to see information without reflections. Here we see a bus stop display showing the arrival times of the next buses, but reflections on the glass make it hard to read. Therefore, it is essential to avoid reflections.

Now we see the screen of an iPad just after updating to the latest version of the iOS operating system. In this version, a new graphic design style has been used—one that was very fashionable among designers at the time—a flat design without shadows or outlines. This affects colour contrast. For a person with low visual acuity, it is difficult to read the text properly because the colour of the letters has too little contrast with the background. That is why it is so important to make sure that visual information can be perceived in the foreground, clearly separated from the background.

To summarise this video on perception and accessibility in information and communication technologies, we can say that information must have alternative forms—tactile, visual, or auditory.

Information must also be distinguishable—by volume or frequency in the case of sound, by size, distance, or colour in the case of visual information, and by different vibration patterns in the case of tactile information. We must also avoid interferences, such as reflections or background noise. Finally, we must ensure that users can use their assistive products together with the system.