

# Guideline universal design

## Sheet 13: Multimedia



### What? <sup>3</sup>

Multimedia refers to the use of both words and images for the purpose of promoting learning. To illustrate lesson contents, multimedia files such as tutorials, videos, audio clips, or Flash animation can be used. The use of universal multimedia ensures that lesson content is offered to every student through an appropriate information channel.

### Why and for whom? <sup>1, 2, 3</sup>

The use of multimedia has several advantages. With appropriate use, it can lead to more learning, more motivation, allow student autonomy and control, and increase interactivity. Certain groups of students not only benefit from, but even need the use of multimedia (the combination of word and image) in the educational context. For example: a blind or visually impaired student who sees an image without explanation or a deaf or hearing impaired student who can only watch a film without subtitles. But the use of multimedia is not just a good idea for them. Consider a foreign-language student who has not yet mastered the Dutch language completely: subtitling can also be a help for this student. Finally, learning follows the dual channel assumption both according to a verbal system (word) and a non-verbal (image) system. More learning material can be processed by offering learning content through both systems.

## Tips & Tricks <sup>1, 2, 3</sup>

- Personalization principle** | Use a communicative writing style (me and your form) and a friendly voice.
- Signaling principle** | Focus on essential aspects of the learning material through additional markings.
- Spatial proximity principle** | Make the distance between corresponding words and images as small as possible.
- Temporary proximity principle** | Have corresponding words and images appear at the same time.
- Coherence principle** | Avoid unnecessary, unrelated words, images and sounds.
- Voting principle** | Choose a human voice over a computer voice.
- Image principle** | Only show the images that are essential.
- Operation** | Choose software which has control buttons for starting, stopping and pausing the medium (preferably via the keyboard: hot keys).
- Do not play automatically** | Do not let video and sound start automatically (disturbing when using reading software).
- Flickering images** | Avoid flickering images (may provoke epilepsy).
- Subtitles** | Provide audio clips with subtitles. Choose closed captions, the user can choose whether or not to show these subtitles.
- Description** | Give a description of all visual images or actions that you show.
- Limited capacity assumption** | Ensure that the learning contents offered through word and image are related to each other (less pressure on working memory).
- Ask for help** | In doubt, consult the institution's ICT department or educational development department.

## Know more?

- Read the blog post: '[Five simple ways to remove barriers from your Multimedia](#)' from Essential Accessibility.
- Get acquainted with [OzPlayer](#), the most accessible media player according to research.

## In practice

“It is mandatory to provide a transcript and subtitle for a movie within our MOOCs. That's not very difficult via YouTube. For our regular blended courses we strongly encourage at least to provide the transcript.”

“Providing a transcript is an example of universal design: you do it for students with a disability, but many other students also look at the transcript. For example, if your internet is not strong enough or to repeat the theory. It supports the learning and studying of all students. The teachers relate to that.”

“We have a media lab: two colleagues who make films and are there for colleagues who want to experiment with them.”

“A trigger to provide subtitles is: if you do not provide it, the student cannot watch it on the tram or on the bus, or you must have earphones. When you think about that, everyone understands why it is important. That is not only for deaf people.”

“We have a student with dysphasia who benefits greatly from visual stimuli, we don't have to do anything extra for this. A lot of videos are already being used as a standard. For example for lab operations, students can read the manual before they go to the lab, but they can also watch the videos. This way we are open to everyone. You don't need dysphasia to benefit from watching movies.”

## References

- <sup>1</sup> Kirschner, P. (2016). 10 gehoorde maar twijfelachtige redenen om multimedia te gebruiken. Geraadpleegd op 29/01/2019 via <https://onderzoekonderwijs.net/2016/11/10/10-vaak-gehoorde-maar-twijfelachtige-redenen-om-multimedia-te-gebruiken/>
- <sup>2</sup> DaCosta, B., & Seok, S. (2010). Multimedia design of assistive technology for those with learning disabilities. In *Handbook of research on human cognition and assistive technology: Design, accessibility and transdisciplinary perspectives* (pp. 43-60). IGI Global.
- <sup>3</sup> Steunpunt Inclusief Hoger Onderwijs (2017). Universeel ontwerp [onuitgegeven intern document]. Gent: Steunpunt Inclusief Hoger Onderwijs