Written Versus Spoken Words

AUDIO · VIDEO

Updated on November 30, 2024

The availability of multiple forms of media allows us to communicate through distinct sensory channels. A dilemma is, which sensory channel do we choose to present a piece of information?

When to Use Spoken or Written Words

In the case of presenting textual information, it may be best to avoid speaking and printing the same passage of text simultaneously (Fiorella & Mayer, 2021). The redundancy principle explains that the extraneous processing required to reconcile two redundant pieces of word-based information may impair learning (Kalyuga & Sweller, 2021). Reading off a PowerPoint presentation is an example to consider avoiding (Kalyuga & Sweller, 2021). Audiovisual word-based redundancy is particularly inhibitory to students with high self-reported ADHD symptoms (Brown et al., 2016).

If there is an option of either written or spoken text, the general advice is to go with spoken text (Kalyuga & Sweller, 2021), especially as a way to share the cognitive load between audio and visual channels (Jiang & Sweller, 2021). The combination of written text with visual information — such as in the form of pictures, graphs, or animation — may overload the visual channel (Jiang & Sweller, 2021).

However, lengthy passages of text (about 350 words or more (Kalyuga et al., 2004)) are better presented in a written format than spoken (Kalyuga & Sweller, 2021; Leahy & Sweller, 2011). A possible explanation is that spoken text is transient, and there is not enough working memory to hold and process large amounts of transient information (the **transient information principle** (Jiang & Sweller, 2021)). Working memory can only hold about 20 seconds of information (Peterson & Peterson, 1959). Alternatively, break up extended passages of spoken text into smaller segments (Kalyuga & Sweller, 2021).

When to Use Both

There are also instances that may favour the simultaneous presentation of written and spoken words. Small amounts of audiovisual word redundancy may improve knowledge retention — for example, emphasizing key words or labels by displaying the written text simultaneously with narration (Fiorella & Mayer, 2021; Kalyuga & Sweller, 2021) — and may be beneficial for learners who need more help, such as novices (Liu et al., 2015), older adults (Zheng et al., 2016), and individuals with chronic pain (Smith & Ayres, 2016). Redundant graphics, text, and/or audio may also benefit those learning English as a foreign language (Lee & Mayer, 2015; Liu et al., 2018).

Closed captioning is a form of presenting written and spoken words together that may not be a form of redundancy. Of note, for accessibility, BCcampus requires videos to have closed captions. In a study, students watched a video about Antarctica in either the students' native or second language. Comprehension was improved with closed captioning when the narration was in the students' second language rather than their native language (Lee & Mayer, 2015). It appears that closed captioning may be helpful for understanding an unfamiliar language, and thus, written text is apparently not redundant with spoken text in such situations.

Summary

- Short passages of text may be better presented as spoken rather than written, while lengthy (about 350 words or more) passages are better written than spoken.
- Redundancy can be helpful or hindering for learning, depending on the subject matter, nature of students, and the amount of redundancy.
- Videos produced with BCcampus are required to have closed captioning.

References

Brown, V., Lewis, D., & Toussaint, M. (2016). The redundancy effect on retention and transfer for individuals with high symptoms of ADHD. *Journal of the American Academy of Special Education Professionals*, *Fall 2016*, 34–46.

Fiorella, L., & Mayer, R. E. (2021). Principles for reducing extraneous processing in multimedia learning: Coherence, signaling, redundancy, spatial contiguity, and temporal contiguity principles. In R. E. Mayer & L. Fiorella (Eds.), *The Cambridge handbook of multimedia learning* (pp. 185–198). Cambridge University Press.

Jiang, D., & Sweller, J. (2021). The transient information principle in multimedia learning. In R. E. Mayer & L. Fiorella (Eds.), *The Cambridge handbook of multimedia learning* (pp. 268–274). Cambridge University Press.

Kalyuga, S., Chandler, P., & Sweller, J. (2004). When redundant on-screen text in multimedia technical instruction can interfere with learning. *Human Factors*, *46*(3), 567–581. https://doi.org/10.1518/hfes.46.3.567.50405

Kalyuga, S., & Sweller, J. (2021). The redundancy principle in multimedia learning. In R. E. Mayer & L. Fiorella (Eds.), *The Cambridge handbook of multimedia learning* (pp. 212–220). Cambridge University Press.

Leahy, W., & Sweller, J. (2011). Cognitive load theory, modality of presentation and the transient information effect. *Applied Cognitive Psychology*, *25*(6), 943–951. https://doi.org/10.1002/acp.1787

Lee, H., & Mayer, R. (2015). Visual aids to learning in a second language: Adding redundant video to an audio lecture. *Applied Cognitive Psychology*, *29*(3), 445–454. https://doi.org/10.1002/acp.3123

Liu, T.-C., Lin, Y.-C., Gao, Y., Yeh, S.-C, & Kalyuga, S. (2015). Does the redundancy effect exist in electronic slideshow assisted lecturing? *Computers & Education*, *88*, 303–314. https://doi.org/10.1016/j.compedu.2015.04.014

Liu, Y., Jang, B. G., & Roy-Campbell, Z. (2018). Optimum input mode in the modality and redundancy principles for university ESL students' multimedia learning. *Computers & Education*, *127*, 190–200. https://doi.org/10.1016/j.compedu.2018.08.025

Peterson, L., & Peterson, M. (1959). Short-term retention of individual verbal items. *Journal of Experimental Psychology*, *58*(3), 193–198. https://doi.org/10.1037/h0049234

Smith, A., & Ayres, P. (2016). Investigating the modality and redundancy effects for learners with persistent pain. *Educational Psychology Review*, *28*, 401–424. https://doi.org/10.1007/s10648-014-9293-z

Zheng, R., Smith, D., Luptak, M., Hill, R. D., Hill, J., & Rupper, R. (2016). Does visual redundancy inhibit older persons' information processing in learning? *Educational Gerontology*, *42*(9), 635–645. https://doi.org/10.1080/03601277.2016.1205365

#Audio #Foreign language #Redundancy principle
#Transient information principle #Video