

# The Coherence Principle

## Theory

The coherence principle (also called *seductive details*<sup>1)</sup> effect) claims that extraneous material that may be interesting or motivating but is irrelevant for learning objectives generally wastes learning resources and **hinders learning of important material**. This assumption is grounded in the fact that human cognitive resources are limited. Still, [cognitive load theory](#) predicts this effect will only occur if the cognitive load imposed by important learning material is high enough.<sup>2)</sup>

Seductive details can be<sup>3)</sup>:

- relevant or irrelevant with respect to the learning goals, and
- redundant or non-redundant.

## Practice

Seductive details can appear in virtually any format, but most often as text.

## Research status

A number of studies on the effect of seductive details have demonstrated:

- **negative effects** on learning of important material<sup>4)</sup>
- **lack of negative effects** on learning of important material.<sup>5)</sup>

Surprisingly, a recent study even found an large **increase in learning** due to seductive details.<sup>6)</sup> Possible explanations offered for this phenomenon are:

- low cognitive load imposed by instructional material (**free cognitive resources**) in combination with
  - increase in **motivation** and cognitive engagement caused by interesting seductive details
  - **enhanced mental model** due to additional information which was successfully processed

<sup>1)</sup>

Garner, Ruth, Mark G. Gillingham, and C. Stephen White. Effects of 'Seductive Details' on Macroprocessing and Microprocessing in Adults and Children. *Cognition and Instruction* 6, no. 1: 41. 1989.

<sup>2)</sup> , <sup>3)</sup> , <sup>6)</sup>

Park, Babette, Roxana Moreno, Tina Seufert, and Roland Brünken. Does cognitive load moderate the seductive details effect? A multimedia study. *Computers in Human Behavior* 27, no. 1: 5-10. January 2011.

<sup>4)</sup>

For details see: [Park, Babette, Roxana Moreno, Tina Seufert, and Roland Brünken. Does cognitive load](#)

moderate the seductive details effect? A multimedia study. Computers in Human Behavior 27, no. 1: 5-10. January 2011. Mayer, Richard E, Emily Griffith, Ilana T N Jurkowitz, and Daniel Rothman. "Increased Interestingness of Extraneous Details in a Multimedia Science Presentation Leads to Decreased Learning." Journal of Experimental Psychology. Applied 14, no. 4: 328-339. December 2008.

5)

For details see: Park, Babette, Roxana Moreno, Tina Seufert, and Roland Brünken. Does cognitive load moderate the seductive details effect? A multimedia study. Computers in Human Behavior 27, no. 1: 5-10. January 2011.

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