



## The paradox of seduction by irrelevant details: How irrelevant information helps and hinders self-regulated learning



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### ABSTRACT

Instructors often rely on seductive details, such as jokes, stories, and video clips, to keep trainees entertained. However, this extraneous information may inadvertently detract from the course content, and the between-person nature of past research precludes understanding the dynamic process by which seductive details influence learning. Using a repeated measures field study, we found that seductive details indirectly improved learning performance by reducing negative affect and indirectly hindered learning performance by increasing the speed of reviewing and decreasing time on task. Seductive details also interfered with attentional focus for trainees with low pretraining knowledge but increased attentional focus for trainees with high pretraining knowledge. Finally, seductive details moderated the effect of learning performance on attrition from training. Learning performance had a less negative effect on attrition in modules with seductive details than in modules without seductive details.

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Trainers and educators are typically evaluated based on whether trainees enjoy their courses and feel the course is useful—if trainees react favorably toward the course and the instructor, the course is assumed to be an effective learning experience. Indeed, 92% of firms participating in the American Society of Training and Development benchmarking forum use satisfaction surveys to evaluate training (Patel, 2010). At universities, student reactions are often the only metric used to evaluate teaching effectiveness and student satisfaction carries substantial weight in retention, promotion, and merit pay decisions (Adams, 1997; McCallum, 1984). Therefore, instructors often resort to showing video clips and telling jokes and stories to keep learners entertained and maximize their satisfaction. Video clips, jokes, and stories are examples of seductive details, defined as interesting and entertaining information that is irrelevant or

only marginally related to the intended theme of the course (Harp & Mayer, 1998).<sup>2</sup>

Augmenting courses with seductive details fails to heed a century old admonition against relying upon extraneous material to spice up boring information (Dewey, 1913). Including jokes or interesting stories in lectures can “seduce” trainees’ focus away from important information, negatively impacting learning (Harp & Mayer, 1997). This phenomenon, called the seductive details effect, suggests that including irrelevant information in training makes learning more engaging, but impairs retention, problem solving, and training transfer (Bartsch & Cobern, 2003; Garner, Gillingham, & White, 1989; Harp & Maslich,

<sup>2</sup> By *irrelevant*, we mean that the course and seductive details cover different topics. For example, Peshkam, Mensink, Putnam, and Rapp (2011) taught about space travel and added fictional and irrelevant details to the course material such as (p. 222), “Michael Jackson was inspired by the effects of zero gravity on walking when he created his popular ‘moonwalk’.” By *marginally related*, we mean that there is a minor connection between the topics covered by the course and the seductive details. For example, Harp and Mayer (1998) had participants review information about the process of lightning formation. The seductive details consisted of illustrations and captions with interesting information about lightning—including a football player who had been struck by lightning—but the information did not contribute to understanding the process of lightning formation.

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2005; Harp & Mayer, 1997, 1998; Lehman, Schraw, McCrudden, & Hartley, 2007; Mayer, Heiser, & Lonn, 2001; Rowland-Bryant et al., 2009; Shen, McCaughtry, Martin, & Dillion, 2006).

Seductive details have garnered interest from researchers in education and psychology because of the counterintuitiveness of the effect. However, there are several knowledge gaps that limit the relevance of this effect to applied settings. First, there has not been consistent evidence that seductive details do, indeed, impair learning. Over a third of studies failed to demonstrate the seductive details effect and another third demonstrated partial support for this effect (Rey, 2012).

Second, research on seductive details has been conducted in laboratory settings where participants are given a limited amount of time to review succinct training material. The average learning session in seductive details research is 4 min (Thalheimer, 2004). It is unlikely that trainees' attention will waiver when course materials are extremely brief and they are being observed by the experimenter. Therefore, the true effects of seductive details may only occur in lengthy training that taxes regulatory resources.

Third, the focus has been on between-person comparisons for those who viewed course material with and without seductive details. A between-person design precludes an understanding of how individuals regulate their learning over time in the presence of seductive details. Indeed, self-regulated learning is inherently a within-person process that evolves as trainees monitor their progress and adjust their learning strategies (Sitzmann & Ely, 2010).

Fourth, researchers have manipulated aspects of the instructional material (e.g., whether key points are highlighted) as well as whether seductive details are included in the instructional material (Harp & Mayer, 1998; Mayer et al., 2001; Rowland-Bryant et al., 2009). Mediating mechanisms for the effects of seductive details were then inferred based on differences in learning performance across experimental conditions. However, research has not directly measured how trainees behave when learning from material that contains seductive details (see Lehman et al., 2007, for an exception), and the short training time in previous research likely restricted variation in trainee behavior. We propose that integrating a broader theoretical base for understanding seductive details, exploring the mediating and moderating mechanisms for this effect, and overcoming previous methodological limitations will permit a better understanding of this interesting but inconsistent effect.

To investigate the intricacies of the seductive details effect, we conducted a repeated-measures field investigation of adults participating in voluntary online self-development. In online courses, the material is often extensive and can take several hours or even days to review. Furthermore, employees are increasingly given control over when and where they view the material and how much time they devote to learning (Kraiger & Jerden, 2007; Sitzmann, Kraiger, Stewart, & Wisner, 2006). Investigating the seductive details effect in a lengthy, learner controlled course ensures the external validity to work-related training. Moreover, permitting variability in behavior by providing trainees with control over their learning experience and capturing how they self-regulate in modules with and without seductive details is essential for understanding the process by which this effect occurs. Thus, we objectively capture attrition, how much time trainees devote to learning, and the speed of reviewing to assess the level and quality of effort in modules with and without seductive details. We also measure trainee reactions, negative affect, pretraining knowledge, attentional focus, and learning performance to assess the direct and moderating effects of seductive details. Finally, we make a theoretical contribution to the seductive details literature by integrating affect (e.g., Beal, Weiss, Barros, & MacDermid, 2005; Van Dillen & Koole, 2007), cognitive load (e.g., Chandler & Sweller, 1991), and self-regulation (e.g., Carver & Scheier, 1990; Winne, 1995) theories to clarify the pros and cons of including seductive details in training. In the following section, we introduce a theoretical model of the effects of seductive details on self-regulated learning.

## 1. Model of the effects of seductive details on self-regulated learning

We propose that seductive details represent a double edged sword (Fig. 1)—they are advantageous for improving trainee reactions and reducing negative affect (thereby enhancing learning) but are detrimental for trainee behavior (thereby impairing learning). These competing mechanisms may explain why the seductive details effect has not been consistently observed across learning situations (Rey, 2012). Moreover, seductive details do not have a direct effect on attention (Harp & Mayer, 1998; Park, Moreno, Seufert, & Brünken, 2011; Sanchez & Wiley, 2006); rather, they interact with pretraining knowledge to shape attentional processes. Trainees who enter a course with high pretraining knowledge have the requisite cognitive capacity to deal with the demands of training so seductive details only have deleterious effects on attentional focus for trainees with low pretraining knowledge of the content domain (Sanchez & Wiley, 2006; Schnotz, Fries, & Horz, 2009). Finally, we propose that seductive details moderate the effect of learning performance on attrition from training. We elaborate on each of these predictions in the following sections.

## 2. Effects of seductive details on trainee affect

Trainee reactions are subjective evaluations that learners make about their training experience, including their satisfaction with and the perceived utility of the course material (Kirkpatrick, 1996; Sitzmann, Brown, Casper, Ely, & Zimmerman, 2008). The underlying logic of including seductive details in training is they keep trainees interested in learning, thereby improving satisfaction with training (Harp & Mayer, 1997; Kintsch, 1980). However, two studies investigated affective outcomes of seductive details and both failed to find a significant effect of seductive details on student reactions; yet, the brief nature of the course materials may have attenuated the effects (Garner et al., 1989; Harp & Mayer, 1997).

Theoretically, reactions capture affect experienced during training (Brown, 2005). Thus, reactions should be measured as a within- rather than between-person construct because affect varies meaningfully within individuals over time (Beal et al., 2005). Making the material interesting is valuable for energizing trainees and increasing their learning engagement (Izard & Ackerman, 2000), and engagement produces feelings of enjoyment, increasing satisfaction with training (Brown, 2005). Therefore, we expect that at the within-person level of analysis, seductive details will result in more favorable trainee reactions.

**H1.** Seductive details have a positive within-person effect on trainee reactions, such that trainees react more favorably toward modules that contain seductive details than modules without seductive details.

In addition to positively impacting reactions, the distracting nature of seductive details may alleviate negative affect by pulling trainees' attention away from unpleasant thoughts and feelings. Tasks that are intrinsically interesting have strong attentional pull (Beal et al., 2005), making them effective at reducing the rumination that is typical when experiencing negative affect (Koy & Yeo, 2008; Kozlowski & Bell, 2006). Van Dillen and Koole's (2007) working memory model suggests that distracting information can relieve negative affect, and this is particularly likely if the distracting information is cognitively demanding. As a demonstration of this effect, Strick, Holland, Van Baaren, and Van Knippenberg (2009) found that processing humorous information reduced negative affect. Thus, the cognitive demands imposed by adding seductive details to training may prove effective at alleviating negative affect.

**H2.** Seductive details have a negative within-person effect on negative affect, such that negative affect is lower in modules that contain seductive details than in modules without seductive details.

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