

In a sense, the notion of multi-tasking is as anomalous to what we know about the human information processing system as the ideas of Creationism or intelligent design are to classical bio-evolutionary models. But like these alternative models to evolution, the idea that efficient multi-tasking is possible among young people is persistent, pervasive and has found its way into the production techniques of most television networks. For instance, both MTV and CNN have been leaders in employing television production techniques that presumably encourage young viewers to multi-task (Bergen, Grimes, & Potter, 2005).

It is not clear how the idea of multi-tasking started. It has been hard to document and there are competing scenarios (e.g., Ryan, 2002). But our best determination is that it was likely led by a generation of teens who reduced all long-hand creations to software that did a lot of the work for them, thus creating the opportunity to pack many different tasks into fewer efforts. Because of this behavior, widely adopted by teens faster than their elders, teens were mistakenly viewed as having a special ability to multi-task; that is, to efficiently split their attentional resources, with no decrement in comprehension.

One of the originators of MTV, Robert W. Pittman, speculated in a *New York Times* Op-Ed piece in 1990 that “TV babies” process information differently than adults. They actually can “process information from different sources almost simultaneously” he wrote. His advice to message producers was to play to the ability of TV babies to take it in all at once. And thus the proliferation of semantically conflicting visually and auditorially conveyed messages on most television news and entertainment programs. We have previously identified this Pittman Op-Ed piece as likely contributing to, and giving permission for, other television producers to use the techniques Pittman described that he believes appeals to this young cohort of viewers (Bergen, et al. 2005).

Nonetheless, one would think that the case should be closed on multi-tasking, that attentional capacity is limited (e.g., Kahneman, 1973) and thus the phenomenon should be relegated to urban legend. However, attentional degradation is gradual. As attentional load is increased, attentional capacity gradually diminishes (Grimes, 1991). Thus, there are stages of attentional degradation, with each stage representing different levels of attentional efficacy. So it is reasonable to ask, how much attentional load during multi-tasking reaches a threshold in which processing efficiency is essentially destroyed? Are there multi-attentional tasks that are more – or less – efficiently pursued depending on the task and on one’s intentions with regard to the task? When attention degrades, are there types of learning that are more susceptible to harm than others? Bergen, Grimes, & Potter (2005) detected an effect that may address this last question.

Bergen and her colleagues created a stimulus that resembled CNN’s *Headline News*. Participants were presented with an on-camera news anchor reading a news story. They were simultaneously presented with visually conveyed weather icons, sports scores, and lexical news crawls. Bergen and colleagues found that, the more non-abstract the words that were spoken by the news anchor, the less the on-screen visuals appeared to inhibit memory for those spoken words. But, if those words had visual attributes, such as use of the prepositions “under,” “across,” “over” in the news anchor’s narration, the more the on-screen visuals appeared to interfere with recall and recognition memory for those auditorially presented words.

Bergen, Grimes, & Potter speculated that the phenomenon, if it is real and not some as-yet undetected artifact, may be explained by a characteristic of people afflicted with the genetic disorder known as Williams syndrome. These are people who have been born with little to no visual working memory. Thus, visually evocative words, which are processed visually as well as verbally, are less well remembered, or not remembered at all, by people afflicted with Williams syndrome (Jarrold, Baddeley, & Hewes, 1999). Based on this phenomenon, Bergen and her colleagues inferred that their participants' processing of visually evocative words was obstructed, not in this instance by a genetic disorder, but by semantically competing visuals that *also* demanded the use of visual working memory.

The observation by Bergen and her colleagues further illustrates the many variations of attentional obstruction, and those variations' unique peculiarities, which further warrant an investigation of multi-tasking. Multi-tasking may, indeed, be possible. But to what degree?

References:

- Bergen, L., Grimes, T. & Potter, D. (2005). How attention partitions itself during simultaneous message presentations. *Human Communication Research*, **31**(3), 311-336.
- Grimes, T. (1991). Mild auditory-visual dissonance in television news may exceed viewer attentional capacity. *Human Communication Research*, **18**(2), 268-298.
- Jarrold, C., Baddeley, A.D., & Hewes, A.K. (1999). Genetically dissociated components of working memory: Evidence from Down's and Williams syndrome. *Neuropsychologia*, **37**(6), 637-651.
- Kahneman, D. (1973). *Attention and effort*. New York: Holt, Rinehart & Winston.
- Ryan, M.L. (2002, April). The shrinking screen: Content or clutter? In C. Mahaney (Chair). *Welcome to the age of the squeeze, with lower-line crawls, multiple infographics and boxes within boxes. Are they a passing fad or a permanent addition to the TV news landscape? Which stations might benefit from using them, and how can you use them to grow your audience without driving your viewers crazy?* Symposium conducted at the Radio Television News Directors' Association, Las Vega