The Second Wind Phenomenon: Recovery From Cognitive Fatigue With Sensory Arousal

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Historically, researchers studying cognitive overload have examined the effects on decision making such as suboptimal choice and choice deferral. However, consumer recovery from overload has not been examined. In an effort to address this issue, the current study examines self-reports of overload and the methods by which consumers attempt to recover. In addition, we will investigate post-recovery cognitive performance. In an initial pretest, participants reported that overload-relief strategies involving Social Interaction and Task Distraction were most effective. Follow up experiments are planned to address objective post-recovery performance and validate self-report findings.

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Immediacy Bias in Consumer Attitudes and Choices over Time
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Extended Abstract
Many consumer decisions involve comparing the emotional intensity of alternatives that occur at different points in time. Is a currently sampled movie preview more or less enjoyable than the last movie previewed? Is the present culinary sample more or less delicious that the last sample? Is the song just sampled in iTunes more or less enjoyable than the last song sampled? Such judgments of emotions over time have the potential to influence consumer attitudes, involvement, and choices.

Our past research finds that people tend to exhibit an “immediacy bias,” judging immediate emotions as more intense, all else equal, than temporally or socially distant emotions (Van Boven, White, and Huber 2006; Van Boven, White, Johnson-Graham, and Kruger 2006). For example, people perceive a recently viewed (i.e., more immediate) movie clip as creating more intense emotions than a movie clip that was viewed in the past (regardless of the order in which the two clips are shown). This immediacy bias appears to be quite robust and can emerge across various emotions such as fear, amusement, and sadness. In the current research, we suggest that the immediacy bias should have important implications for consumer attitudes, involvement, and choices when consumers sequentially sample different alternatives. In particular, we propose that a positive consumption experience that is immediately experienced is more likely to lead to positive attitudes, greater consumer involvement, and product choice than a consumption experience that is not immediately experienced.

In study 1 we provide a preliminary test of the predictions that consumers will experience more positive emotions, have more positive attitudes, and report greater involvement towards an immediately experienced alternative rather than an alternative that was experienced in the past. Fifty-nine participants were asked to watch and evaluate a short film by BMW (Ticker, 2002). One half of participants evaluated the film immediately after viewing it (immediate condition) and one half of participants evaluated the movie after a half hour delay (past condition). Participants were asked to report the intensity of their emotions, their attitudes towards the film, their involvement with the film, and whether they would be inclined to repeat the consumption experience. As predicted, participants rated their feelings while watching the film as more intense (t(56)=2.05, p<.05), indicated their attitudes were more positive (t(56)=2.10, p<.05), and reported a greater degree of involvement (t(56)=3.48, p<.01) when the consumption experience was immediate rather than in the past. Finally, those in the immediate condition reported being somewhat more interested in repeating the consumption experience again than did those in the past condition (t(56)=1.93, p<.06).

In study 2 we tested the same predictions as in study 1, but also wanted more explicitly to test our prediction regarding consumer choice—that consumers would be more likely to choose an immediate option as opposed to a past option. Sixty-nine participants viewed two video clips of stand up comedians (i.e., Tim Allen and Robin Williams), each approximately four minutes long. The order in which the two film clips were shown was counterbalanced and the viewing of the film clips was separated by a 50 minute time delay. Thus, half of the time the Tim Allen clip was the immediate option (and Robin Williams the past option), whereas half of the time Robin Williams was the immediate option (and Tim Allen the past option). After participants viewed the first film they were asked to report their attitudes towards the first film. Immediately after viewing the second film, participants were asked to report the intensity of emotions in response to each film, their attitudes towards each film, their involvement with each film, and which comedy routine they would like to view in its entirety (i.e., our measure of consumer choice). Repeated measures ANOVAs, including film 1 and film 2 ratings as the repeated measure and order as a factor, revealed that participants reported more intense emotional reactions (F(1, 67)=4.85, p<.03), more positive attitudes (F(1, 67)=4.10, p<.05), higher involvement (F(1, 67)=4.08, p<.05), and a greater inclination to actually watch the entire comedy routine (F(1, 67)=7.73, p<.01), when the film was immediate rather than distant. Participants also misremembered their emotional reactions to the first film as less intensely positive after viewing the second film. Finally, the immediacy bias meant that participants were more likely to “mischoose”—that is, choosing to view the film they actually enjoyed less—when they chose the second rather than the first film.

The results of the current studies demonstrate that the immediacy bias does indeed have implications for consumer attitudes and choices. That is, compared to the distant option, the more immediate option led to greater perceptions of emotional intensity, more positive attitudes, higher involvement, and consumer choice. The results of our research have implications for both consumers and marketers. For consumers, it is valuable to be aware of this bias and to be cautious regarding choosing immediate options (i.e., Do I really want a cheeseburger more than chicken teriyaki, or is just because I can currently smell the cheeseburger?). In addition, because consumers show a preference for more immediate alternatives, marketers should invite consumers to make choices while they are currently experiencing or sampling the key product option.

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Extended Abstract
Historically, researchers studying cognitive overload have examined the effects of decision making such as suboptimal choice and choice deferral. However, research is just beginning to focus on how consumers recover from overload in order to try to maintain optimal decision making ability (Brice & Smith, 2001 and van Duinen, Lorist, & Zijdewind, 2005). Brice and Smith (2001) administered caffeine to participants in a one-hour simulated driving task and found that steering accuracy was improved. Van Duinen et al. (2005) explored
the effectiveness of caffeine in improving cognitive performance when faced with motor fatigue. Researchers found that caffeine improved cognitive performance resulting in fewer errors during a motor task. However, these studies did not examine decision making in cognitively demanding scenarios that consumers often face over prolonged cognitive effort resulting in cognitive overload. There may also be more effective means for improvement than chemical arousal (which may have decreased effectiveness over longer periods of time).

Here, we explore the effectiveness of other strategies: decreasing arousal (relaxation or sleep), increasing mental arousal (listening to music, playing an involved video game), increasing arousal through physical activity, distracting oneself from the task, interacting with people (talking on the phone or to someone), or as a control merely continuing the task until completion or failure. The perceived and actual effectiveness of cognitive overload cures has important implications for how and when consumers will use different strategies to cope with difficulty in decision-making situations.

One hundred and twenty participants participated in a preliminary study focused on gaining initial insight into the ways that consumers experience and attempt to remedy cognitive overload. Participants were first asked to describe a situation in which they felt “mentally tired,” and subsequently, provided a description of the measures they took to relieve their tiredness. After describing their remedy strategies, consumers reported the degree to which they felt their strategy was effective, and how cognitively tired they remember feeling after undertaking this measure.

Overload cures were coded as either:

1. Decreasing Arousal
2. Increasing Arousal—mental
3. Increasing Arousal—physical
4. Distraction from the task
5. Social Interaction
6. No cure used, attempted to keep working.

The most common cognitive relief strategy reported by participants involved the use of artificially induced physical arousal—caffeine—in order to recover from their cognitive overload. Interestingly, although such strategy was most widely used, it was not reported to be the most effective: A significant effect for cure type ($F=3.478$, $p<.006$) revealed that instead, “Social Interaction” ($M=7.286$, $SD=.745$) and “Distraction” ($M=6.769$, $SD=0.547$) were perceived as significantly more efficacious as compared to the control of “No change” ($M=4.091$, $SD=.594$), ( $M =3.195$, $p<.001$ and $M =2.678$, $p<.001$ respectively). The most common reported strategy, physical arousal through the use of caffeine or other chemical stimulants, did not differ significantly from the reported effectiveness of doing nothing to alleviate cognitive fatigue.

These preliminary results indicate that consumers may be misguided in their choice of recovery strategies. Although they routinely choose increased physical arousal (especially through using chemical stimulants such as caffeine and nicotine) as a means to get a cognitive “boost”, this strategy seems to be less effective than mere social interaction. As a result, consumers may make poor judgments and actually decrease their cognitive ability in the long run, even if they experience a short enhancement (van Duinen, 2005).

Based on these results, Study 1 will be conducted in order to further explore the efficacy of strategies cited by consumers as means of recovery from cognitive overload. We will increase cognitive load by asking participants to conduct a series of ordinary cognitive tasks, such as price-related calculations. These tasks will include objective timing and performance measures, so that pre-remedy performance can be measured. Participants will then either increase cognitive arousal by listening to fast-paced music, decrease cognitive arousal by listening to slow music, send an email on an unrelated subject (social interaction), eat a piece of chocolate candy (to increase physiological arousal), or simply continue working on calculations. After their remedy activity, participants will resume another objectively measured cognitive task. Finally, they will rate their own feelings of cognitive tiredness and subjective sense of the efficacy of their remedy activity. Analysis will focus on performance patterns subsequent to the remedy activity, particularly as compared to participants’ subjective sense of cognitive repair. Results from this study will be available for discussion at ACR 2006.

References

The French Paradox Redux: Internal and External Cues of Meal Cessation
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Extended Abstract
A person who uses internal cues (such as hunger, satiation, or taste) to determine when to stop eating may be more effective in ultimately eating less than one who relies on external cues (such as portion sizes, social norms, or when an accompanying beverage or activity is over).