Dream Engineering

Advertising in Dreams is Coming: Now What?

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Molson Coors recently announced a new kind of advertising campaign. Timed for the days before Super Bowl Sunday, it was designed to infiltrate our dreams [1]. They planned to use "targeted dream incubation" (TDI) [2] to alter the dreams of the nearly 100 million Super Bowl viewers the night before the game—specifically, to have them dream about Coors beer in a clean, refreshing, mountain environment—and presumably then drink their beer while watching the Super Bowl. Participants in what Coors called ‘the world’s largest dream study’ would get half off on a 12 pack of Coors; if they sent the link to a friend who also incubated their dreams, the 12 pack was free. With this campaign, Coors is proudly pioneering a new form of intrusive marketing. “Targeted Dream Incubation (TDI) is a never-before-seen form of advertising,” says Marcelo Pascoa, Vice President of Marketing at Molson Coors [3].

With brain imaging techniques beginning to capture the core contents of people’s dreams [4] and sleep studies establishing real-time communication between researchers and sleeping dreamers [5], the kind of dream incubation until recently assumed to be the pure science fiction of movies like *Inception* is now becoming reality. Coors is not the only company expressing interest in using these novel dream incubation technologies: Xbox's *Made From Dreams* uses TDI to give professional gamers dreams of their favorite video games, while Playstation advertises a new Tetris game based on a sleep study demonstrating that gameplay incubates Tetris dreams [5]. In 2018, Burger King created a "nightmare" burger for Halloween, claiming that a sleep laboratory study had ‘clinically proven’ it would induce nightmares [6]. And multiple marketing studies are openly testing new ways to alter and motivate purchasing behavior through dream and sleep hacking [7, 8]. The commercial, for-profit use of dream incubation is rapidly becoming a reality.

Traditions of dream incubation—techniques employed during wakefulness to help a person dream about a specific topic—go back thousands of years and span indigenous practices across the globe. Over the last few years, brain scientists have begun to develop scientific tools that facilitate this incubation of specific dream content [2], making dream incubation more targeted and measurable, and allowing scientific experimentation on the nature and function of dreaming. They use sensors to determine when an individual’s sleeping brain is receptive to external stimuli and, at these times, introduce smells, sounds, flashing lights or even speech to influence the content of our dreams [9].

Dreams have ties to people’s well-being [10, 11], and dream content can predict how well someone will adapt to waking challenges and concerns, including those related to trauma and depression [12, 13]. Altering dream content can augment our creativity, boost our mood, and help us learn [14, 15]. We believe that targeted intervention in sleep and dreams could help alleviate several psychiatric conditions including depression and PTSD [12]. We know that targeted delivery of odors during sleep can help combat addiction; participants exposed during their sleep to the smells of cigarettes along with those of rotten eggs smoked 30% fewer cigarettes over the following week [16]. Researchers have not yet tested whether TDI can instead worsen addiction, but the Coors study, which paired images of beer cans not with odious smells but with images of clean mountain streams, may shine a disturbing light on this question. Regardless, such interventions clearly influence the choices our sleeping and dreaming brain make in how to interpret the events from our day, and how to use memories of these events in planning our future, biasing the brain's decisions toward whatever information was presented during sleep [17, 18].

These questions and developments should be considered in the broader context of sleep and memory research. The last twenty years have been a watershed for sleep research during which we have come to understand the importance of sleep for our memories and emotional health. It is while we sleep that our brain decides which memories to keep and which to forget, and how to organize those it keeps [19, 20]. It also can choose to keep the gist or the emotional core of a memory while letting other details be forgotten [20, 21]. Through this nocturnal process, the brain shapes the memories that together create our autobiographical past, our sense of who we are now, and our understanding of how best to live our lives in the future.

More recent studies have shown that dreaming represents another aspect of this nightly memory evolution. Our dreams are not attempts to suppress undesirable wishes, nor are they simply the result of random brain activity during sleep. Dreaming represents an evolved mechanism for exploring the relevance and importance of older memories to newer ones, seeking to position the events of our day among the innumerable memories and concepts we have accumulated across a lifetime [18], helping to make us just a bit wiser in the process.

For now, TDI-based advertising requires our active participation, for example choosing to play an 8-hour Coors soundtrack while we sleep. But it is easy to envision a world in which smart speakers—40 million Americans currently have them in their bedrooms [22]— become instruments of passive, unconscious overnight advertising, with or

without our permission. These tailored soundtracks would become background scenery for our sleep, as the unending billboards that litter American highways have become for our waking life.

Our dreams cannot become just another playground for corporate advertisers. Regardless of Coors' intent, their actions set the stage for a corporate assault of our very sense of who we are. And it is not difficult to imagine Coors' ad campaign negatively impacting abstinent alcoholics. Indeed, research has shown that abstinent drug users who report dreaming about their drug-use show higher levels of craving [23]. In the cigarette cessation study mentioned above, not only was the intervention effective in sleep (yet ineffective when the smells were presented during wake), but participants reported no memory of being exposed to these smells in the morning. The potential for misuse of these technologies is as ominous as it is obvious.

TDI-advertising is not some fun gimmick, but a slippery slope with real consequences. Planting dreams in people's minds for the purpose of selling products, not to mention addictive substances, raises important ethical questions. The moral line dividing companies selling relaxing rain soundtracks to help people sleep from those embedding targeted dreams to influence consumer behavior is admittedly unclear at the moment. While the Federal Trade Commission has indicated that subliminal ads during wake violate its statute requiring truth in advertising, there is no similar indication regarding exposure to advertisements during sleep.

As sleep and dream researchers, we are deeply concerned about marketing plans aimed at generating profits at the cost of interfering with our natural nocturnal memory processing. Brain science helped design several addictive technologies, from cell phones to social media, that now shape much of our waking lives; we do not want to see the same happen to our sleep. We believe that proactive action and new protective policies are urgently needed to keep advertisers from manipulating one of the last refuges of our already beleaguered conscious and unconscious minds: Our dreams.

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Coors ad: (https://youtu.be/tU_0jU0mMLw)