Slipping Under the Radar: Advertising and the Mind

David Walsh, Ph.D.
President, National Institute on Media and the Family
Minneapolis, MN, USA

Douglas A. Gentile, Ph.D.
Director of Research, National Institute on Media and the Family
Minneapolis, MN, USA

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Synopsis: The technology of electronic media and the art of advertising have combined over the past 60 years to create very powerful tools of influence. These tools have proven to be capable of shaping the attitudes, values and behaviors of large numbers of people. This paper explains the power to influence in the context of recent discoveries in brain science. In addition, comments are made about adopting these techniques to promote a public health agenda.

I. The Power of Media.

In the early 1970s, government and business leaders in Mexico were confronted with a serious problem. The world economy was shifting to an information economy, making the ability to read and write more important than ever. At the same time, rates of adult literacy remained stubbornly low in many Mexican workplaces. After several failed initiatives, Miguel Sabido, the producer of a very popular television program tried an experiment. For a number of months in 1973 Sabido wove pro-adult literacy messages into the plot of his top-rated program. Most of the messages came out of the mouth of the favorite male lead character. In the twelve months following that experiment, registrations in adult literacy classes across Mexico increased by an astounding 800% (Ryerson, 1994)[1].

This paper will attempt to explain how and why media messages are as influential as they are. Indeed a multi-billion dollar worldwide advertising industry is predicated on media's ability to shape attitudes and values and to change behavior. The explanation begins with a description of how the human brain works.

II. The Amazing Brain.

A baby arrives in the world with about 100 billion neurons and over 100 trillion possible dendritic connections. Estimates reveal that only about 17% of the "wiring" has been completed at birth (Eliot, 1999)[2]. In the weeks, months,

and years that follow, billions of neurons connect with one another forming the neural framework of the brain. Like wires through which electricity flows, neural networks support a child's mental and emotional capabilities for a lifetime.

There are two forces driving the wiring of the growing human brain: genetics and experience. Genetically determined information encoded in the DNA will establish the arrangement of certain neurons. Think of this as the "hard wiring." In addition there is the "soft wiring," the networks shaped by experience. For example, one of the countless brain functions developed early in life is language. Consider the brains of two children, each learning language in a different part of the world. Each will use the brain's same physical hardware to acquire language skills. But each will develop different neural language networks based on the unique experience of learning French or Swahili or any other language.

The debate over whether nature or nurture is responsible for the wiring is fading. It is becoming more and more clear that nature *or* nurture is a false dichotomy (Eliot, 1999)[2]. The wiring of a child's brain is shaped by the constant interplay between nature *and* nurture. Although some of the wiring is genetically determined, experience clearly plays a major role in building the brain that will eventually drive the vast array of mental capabilities. Truly, the neurons that fire together wire together.

Although new neural networks are formed every day until the end of life, they are never formed at the same rate as in the brain of a young child. A two-year-old, for example, burns more than twice as many calories in the brain as an adult does (Diamond & Hopson, 1999)[3]. The reason is that the major construction of the neural circuitry is taking place during the early years of life.

While the many components of the brain operate together in a coordinated manner, it is often helpful to examine the major brain systems separately. Goleman (1995)[4] notes three main brain systems: the brainstem, the limbic system, and the cortex. The brainstem governs physiological functions like temperature regulation and heart rate—functions necessary for survival. The limbic brain is the seat of emotion. The third brain system, the cortex, governs the "higher order" brain functions, like language, pattern recognition, and reasoning.

All functions of the brain are important. However, it is useful to consider the role of the limbic brain, or emotion, in the workings of the mind. For reasons that will be clear later, advertisers aim for the emotional centers of the brain. If that is the case, then one needs to keep in mind the critical roles that emotions play to understand the effectiveness of media in influencing people.

Neuroscientists like Damasio and LeDoux have shed a great deal of light on the critical roles that emotion plays in the brain (Damasio, 1994; LeDoux,

1996).[5] [6] In his book, *Descartes' Error*, Damasio declares that the French philosopher may have erred when he came up with his famous dictum, "I think, therefore I am." Had Descartes understood the central role that emotions play in the workings of the mind, he may well have written, "I feel, therefore I am."

1. Emotion focuses attention. Emotion serves as the "early warning detection system" for the rest of the brain (Carter, 1998)[7]. This role is rooted in the evolutionary development of the brain and is linked to survival. Emotion sends a message to the brain saying in essence, "Pay attention. This is important." Therefore the best way to get someone's attention is to stimulate a strong emotional response.

2. Emotion is a major determinant of what we remember. Although facts and other information are stored in memories, the experiences that generate the strongest emotions are the ones that are stored most easily and most clearly for many years (Schachter, 1996)[8]. Millions of people around the world, for example, will recall for the rest of their lives where they were and what they were doing on September 11, 2001. The reason, of course, is that the events of that day stirred powerful emotions.

3. Emotions are an essential ingredient in the development of attitudes. Attitudes are facts linked with emotion. Attitudes in turn influence one's choices, decisions, and behavior on an ongoing basis.

4. Emotions are the basis of motivation. Goleman (1995)[4] points out that it is not a coincidence that the words emotion and motivation both come from the same Latin root verb meaning "to move." In order to motivate someone one must move them emotionally. And motivation most often produces action, or movement.

5. The link between emotion and behavior is a tighter link than that between thought and behavior. Darwin described how a person observing a poisonous snake from a safe position behind a thick plate of glass will jump back if the snake suddenly lunges toward the glass. The puzzling question this raises is, "Why would someone jump for safety if he *knew* he was already safe." LeDoux has discovered the explanation for this universal behavior. It turns out that our brains are wired to take a short cut. The short cut connects directly to the motor neurons initiating behavior. Importantly, the shortcut is stimulated by emotion. In the presence of strong emotion, a physical reaction occurs before understanding and comprehension (LeDoux, 1996)[6.]

Therefore, emotion focuses attention, determines what is remembered, shapes attitudes, motivates, and moves one to act. It should not come as a surprise that the emotional centers of the brain have become the primary target for marketers and advertisers. This list of roles for emotions could easily be mistaken for an advertiser's wish list. What advertiser would not want to capture

a customer's attention, implant a message in memory, shape attitudes, motivate, and change behavior?

In summary, three major points about brain development and function have been examined. The first is that experience plays a key role in how a child's brain gets wired. Inputs from all childhood experiences, therefore, are sculpting the finer elements of the neural networks. The second is that the lion's share of the wiring happens in the early years of a child's life. These first two points explain why children's minds are so impressionable. They also demonstrate why young people are so susceptible to outside influence, such as expertly crafted advertisements. The third point is that emotion plays a leading role in how the mind works. These three points are critical factors in understanding the effects of marketing and advertising on children and youth.

III. Advertising and the Limbic Brain

Advertising messages, ranging from comforting to fearful, are aimed at the limbic brain and can stimulate emotional reactions. These feelings are then linked to the perception of the product. This is how emotional reactions begin to influence attitudes and values. An emotional response affects the attitude *about* the product being sold before the cortical brain even knows *what* is being sold.

Understanding this process can help explain a consistent finding in the literature - that people assume other people are more influenced by the media then they are themselves. This tendency has been called the "third person effect" (Perloff, 2002)[9], and can be easily demonstrated if one is in a large group of people. Simply ask people to raise their hands if they think that advertisements affect people a lot and most of the hands will go up. Then ask them to raise their hands if they think that advertisements affect *themselves* a lot, and most of the hands will go back down. This belief that "ads don't affect *me*" can make one wonder whether advertising matters. However, advertisements are constructed to have exactly this effect -- to influence people without their conscious awareness of having been influenced.

Because emotional responses don't engage reason, they can easily slip in undetected under the radar of critical judgment. Then they subtly but powerfully begin to shape the way the product is viewed without a conscious awareness of the process.

Researchers have devised some clever studies to show this in action. For example, Zajonc conducted an experiment wherein a series of simple line drawings were shown to viewers in rapid succession. From time to time an image of either a smiling or a frowning face was inserted into the succession of images. The faces came and went so rapidly that the viewers did not have time to register them in their conscious minds. Since they were not aware of the

flashing faces they had no recollection of having seen them. Despite this, those who participated in the experiment said that they preferred the geometric line drawings that had been paired with the smiling faces over those that followed the frowning faces. In spite of the fact that the viewers' conscious minds were never even aware that the faces were present in the experiment, their preferences had been shaped by emotion (Zajonc, 1980)[10].

It is not suggested that advertisers engage in a subversively planned thought control program to dominate minds. Rather, they have learned that there are highly effective techniques they can use with great skill to motivate consumers to change the way they feel about products and messages. And when they are successful, consumers will, without being aware that they've been influenced, change the way they behave. Does this mean that a decision to change a toothpaste from brand X to brand Y is based on a harmful process? No. It means that it is based on a powerful process. However, for purposes of this discussion, it is important to realize that the same process can attract children and youth to either healthy or harmful products and can influence them to engage in either healthy or unhealthy behavior. The process is blind. The manipulators of the process are not.

The art of advertising is difficult to master and it takes a great deal of skill and creativity to achieve proficiency. However, the underlying psychological principles are quite simple. The most effective advertisements create an emotional state. Once the desired state is achieved the product or message is then linked to the state. Sometimes the examples of this are quite clear. Viewers seeing a television ad for the first time may not know what the product is until the very last seconds of the ad. The reason is that the first 28 seconds of the 30-second ad are used to create the mood. Once the mood is set, then the product is introduced and the emotional association is made. A synaptic bridge in the brain has been constructed.

The most effective ads are not informational, but emotional. In some cases, the feelings evoked by the ad may have no logical connection to the product whatsoever. It does not matter. As long as the desired emotion is linked with the product, the mission has been accomplished. It has been accomplished because of the critical roles, discussed earlier, that emotion plays in the workings of the brain: attention, memory, attitudes, motivation, and behavior.

IV. Conscious and Unconscious Processing

One of the most confounding problems facing neuroscientists, psychologists, and philosophers alike is the mystery of consciousness. The term "mystery" is used because consciousness proves to be quite elusive when attempting to locate it in the brain or even define exactly what it is. Entire books written on the subject raise more questions than they provide answers.

Competing theorists are usually more successful at critiquing their adversaries than they are in solving the mystery themselves.

However, one aspect of consciousness, attention, can be discussed. If consciousness is the dwelling of the mind, attention is the window into and out of consciousness. Just as in a stage production there is a great deal of activity behind the curtain, but the audience pays attention to what is illuminated by a spotlight. In the human mind, attention is the spotlight of consciousness.

The brain is always actively scanning the environment and monitoring a wide array of physiological, sensory and mental functions. Most of this activity occurs outside conscious awareness (Johnson-Laird, 1988)[11]. Of all the brain's operations, the spotlight of attention only focuses on a small segment of activity. When the brain has to deal with something novel, that usually becomes the focus of attention. So, for example, when having a conversation, there is usually no way to know what will be said next. Almost all conversations, therefore, are unique. Because each is novel, the brain focuses attention on the processing necessary to carry out the task of conversing. This is experienced as "paying attention." Other examples abound. When learning to drive a car, one needs to "pay attention" to every aspect of driving because the task is novel and complex. Solving a mathematical problem implies finding a solution to a novel set of variables. If there is no novelty, then it would not constitute a problem.

While the ability to focus attention is a remarkable feat, what is even more amazing is all that the brain is able to process *outside* the spotlight of attention. The brain is so powerful that it enables one to perform astoundingly complex tasks without having to "pay attention." While the new automobile driver has to "pay attention" to every move, that same driver, with years of experience, will be able to drive from one end of the city to the other in heavy traffic without even thinking about it. Further, the driver will be able to carry on an interesting conversation with a friend while simultaneously accelerating, decelerating, braking, turning, shifting gears, and solving complex physics problems involving velocity and trajectory. It is not unusual to experience driving long distances lost in thought and unaware of all the complex tasks carried out on "automatic pilot."

Unconscious processing is the brain's ability to take "mental shortcuts." The ability of the brain to do this creates great efficiency because it enables a person to perform multiple tasks at the same time. If the brain were not capable of unconscious processing, then actions would be limited to only what one was paying attention to at the moment.

Brains take two types of mental shortcuts. The first type is "hardwired" right into the brain. These shortcuts do not have to be learned through observation, as the brain is genetically equipped. For example, infants will automatically tune into their mothers' faces to pick up cues about a confusing or

alarming situation. The cues will help them appraise the situation and will shape their responses. Infants do not need to be taught to do this (Lewis et al., 2000)[12].

The other type is the learned shortcut. One isn't born knowing how to turn on lights. One learns to illuminate a room by manipulating a switch on the wall with first attempts demanding full attention. Eventually, after many repetitions, the mental processing needed to switch on the lights became automatic. In other words, the brain resource called attention was no longer needed.

The brain's ability to perform these mental shortcuts is what supports the great Swiss psychologist Piaget's famous aphorism, "Intelligence is what we use when we don't know what to do." Most of the time one knows what to do, going through the day performing thousands of complex brain tasks without ever paying any attention to them. It is only when something novel is encountered that the spotlight of attention is shined on the task at hand. Thus, one usually turns lights on and off without paying any attention. It is only when the lights don't go on that attention is focused, bring one's intelligence to bear on the problem. Is it a broken switch, a blown fuse, a power failure, or any one of a number of other possible explanations? Most of the time, however, turning on lights takes advantage of the brain's power to take mental shortcuts.

These mental shortcuts highlight some interesting human behavior. In the 1950s, social psychologists in the United States conducted a telling experiment. A young male colleague was instructed to cross the street against the traffic signal under two different conditions: half the time he dressed shabbily while in the other half he dressed as a professional in a suit and tie. The scientists recorded the results from a hidden viewing station. The difference was striking. Pedestrians followed the lawbreaker in a suit across the street at a rate 350% higher than the rate at which they followed the slovenly dressed scofflaw (Lefkowitz et al., 1955)[13]. Interpreting this finding in the terms of this discussion, it appears that minds are wired to take a shortcut. In this case, the shortcut is, "when someone looks like they know what they are doing, follow them."

It is doubtful that any of the unsuspecting pedestrian-subjects consciously considered what they were doing. It is highly unlikely they thought, "This person is knowledgeable and competent because of the way he is dressed, therefore I will follow him as he breaks the law." It is much more plausible they did all this processing underneath the radar of attention and critical judgment.

In short, this reveals an important fact about influence. *The most effective influence occurs when the person being influenced doesn't realize it is happening* (Cialdini, 1993)[14]. Thus, knowledge of common mental shortcuts enables the exertion of a tremendous amount of influence. In fact, there is an entire industry dedicated to the art of science of taking advantage of the shortcuts: advertising.

V. Advertising and Unconscious Processing

Advertising is the art and science of influence. The last thing in the world an advertiser wants the potential customer to do is to think. In fact, skillful advertisers will do everything possible to have the consumer avoid critical thinking. They want the message to slip in underneath the "radar" of critical judgment to achieve the greatest results. One way advertisers do this is to make liberal use of emotional messages and images. A second important way is to take advantage of the brain's unconscious processing. While most advertising professionals may not know the brain science behind their craft, they do have an instinctive sense of the strategies that take advantage of mental shortcuts. Here are some examples.

Authority. There is a tendency to accept the advice or direction of someone considered an expert in a particular field. One unconsciously assumes that the authority knows more and that therefore their suggestions should be heeded (Cialdini, 1993)[14]. More attention is paid to the investment advice of a well-known successful businessperson than to someone who doesn't look and sound prosperous. To sell sporting goods, it would be wise to have a sports hero endorsing rather than the person down the street.

Not everyone has the same notion of what constitutes an expert. Therefore, savvy marketers and advertisers do research on their target audience, to identify who the consumers invest with credibility. Advertisers don't presume to know the people their target market regards as trustworthy.

Identification. When one likes and admires someone a great deal, it is not unusual to begin to identify with, or want to be like, him or her (Cialdini, 1993)[14]. Children and youth are particularly prone to identification because they are in the process of forming their own identity. Children will wear the same clothing their sports heroes wear. Youth will pierce their bodies or begin to imitate the language patterns of their music or entertainment idols. In extreme cases some young people have even copied suicide behavior after seeing suicides in the media (Phillips, 1979)[15].

Marketers and advertisers take advantage of this mental shortcut all the time. When Gatorade wanted to sell its sports drink to youth, whom did they show gulping it down? Michael Jordan of course. They didn't even attempt to camouflage what they were doing. They said right in the advertisements that every kid in the world "wants to be like Mike." Commercials that use famous athletes to promote alcoholic beverages have been shown to be very effective with young viewers (Comstock & Paik, 1991)[16].

Contrast. When making a judgment about something, it is often measured against an unconscious standard (Underwood, 1966)[17]. People in equatorial countries have different cultural norms for what constitutes hot and cold than people who live in higher latitudes have. Mass media are especially powerful in influencing what those cultural norms are.

Becker's research in Fiji provides a clear example of this power. For centuries the standard for feminine beauty in Fiji was big. "Going thin" was a sign that the person was not getting enough to eat and that was a problem women (and men) in Fiji wanted to avoid. That is until television arrived in 1995. Within 38 months 74% of teen girls said they considered themselves fat, 62% were dieting, and purging for weight control had increased 500% (Bosch, 2000)[18]. What happened? Almost overnight television had redefined the standard, and the girls and women of Fiji were subject to the contrast effect. Compared to the standard, which had been redefined by TV, they considered themselves unattractive.

Humor. Humor relaxes our critical thinking (Sinclair & Mark, 1995)[19]. Being in a bad mood when talking to a salesperson more likely results in critical questioning and reading the fine print. If, on the other hand, there is laughter and a jovial mood, one is less likely to be suspicious or on guard. Every good salesperson instinctively knows this, and the best salespeople are very adept at putting people at ease and in a good mood. It is not surprising, therefore, that advertisers use humor a great deal in plying their craft. A funny message is more likely to slip in underneath the radar.

Exposure. Repeated exposure to an image or message creates familiarity, which translates into comfort and eventually to preference. Politicians know the power of name recognition and go to great lengths to expose voters to their name and picture as many times as possible. In a convincing experiment, subjects were exposed to pictures of people so quickly that they had no conscious awareness of having seen them. Nevertheless, when they were later introduced to a number of people, they reported a clear liking for those whose pictures they had already seen (Bornstein et al., 1987)[20].

This probably explains the effectiveness of billboards along highways. Why else would businesses be willing to pay handsomely to have their images and messages plastered on a billboard that viewers speed by too quickly to consciously digest the content? Many advertisers are aware of the brain science underlying implicit memory, priming, and judgments of products, and carefully plan advertising campaigns accordingly (e.g., Sanyal, 1992)[21].

Similarity. Resembling the identification shortcut, one is more likely to copy the behavior and choices of people similar to oneself (Cialdini, 1993)[14]. Whereas the approach discussed earlier makes use of heroes and idols, the similarity shortcut is the basis for the "ordinary people" approach. While this

shortcut works on everyone, it too is particularly powerful with children and youth. Young people are much more likely to follow the lead of another young person.

This list is illustrative, not exhaustive. Minds take more shortcuts than these, but the examples listed above begin to explain how marketing and advertising takes advantage of unconscious processing in order to influence the target audience. In addition, there are many other technical factors that sway without registering on the radar of conscious awareness. Color, camera angles, lighting, pacing, and many other factors all have an effect. Music provides clear evidence. Different types of music not only affect the mood of the listener but their preferences as well (Gfeller et al., 1991)[22].

VI. Summary of Major Points The major points enumerated so far in this paper are as follows:

- The experiences children have early in life exert a profound ability to literally shape the wiring of the neural networks in a child's brain.
- This fact is usually considered when discussing "obvious" brain functions like vision or language. The same process is at work in the development of attitudes and values. Just as there are neural networks forming in the brains of young children that will eventually be the basis of vision and language, so also there are networks forming that are going to be the basis of attitudes. Those attitudes, in turn, will be the driving force behind behavior.
- Although new neural networks are forming throughout the lifespan, never are they formed at the same high rate as in childhood, as the lion's share of the wiring happens in the early years of life. For that reason children and youth are most susceptible to influence. Their brains are more malleable and their attitudes are more fluid.
- Emotions play critical roles in how the mind works. Emotion focuses attention, influences memory, shapes attitudes, motivates and drives behavior.
- Most of the brain's processing happens outside of awareness. As a result, one can be influenced by factors that are outside conscious attention.
- The most effective influence occurs when the person being influenced is unaware he is being influenced. The resources of critical judgment are not activated because no alarm system is alerted.
- Marketing and advertising industries target emotion and mental shortcuts because these techniques are most effective in influencing behavior.

VII. Two Case Studies

Two case studies will be described to demonstrate the effectiveness of advertising techniques. In addition, both examples are particularly relevant to the health of children and youth.

Joe Camel.

In 1988, R. J. Reynolds Tobacco Company executives were concerned that their cigarette brand, Camel, was losing market share to rival Marlboro. Determined to reverse the trend, an extensive marketing and advertising campaign was started. Consider for a moment the challenges that these advertisers faced.

- They had to sell an unattractive product that stained teeth, caused bad breath and killed people.
- They could not use radio or television advertising since it had been made illegal in the U.S. in 1971.
- They had to replace the 400,000 customers their product killed every year in the U.S. just to maintain their current level of sales.
- They had to sell to children since they knew from their research that if people don't begin to smoke by age eighteen, there is only a one in five chance of ever beginning.
- It was illegal to sell to young people, their target market.

In the face of these overwhelming obstacles, they launched their new campaign. It was centered around a cartoon character named Joe Camel. Joe showed up on billboards, shirts, posters, and the sides of buses and trains. It was hard to miss him in magazines and all sorts of other displays. When Joe Camel arrived on the scene the sale of Camel cigarettes to youth eighteen and under generated $6 million in revenue per year. Within 24 months, that figure stood at $476 million (DiFranza et al., 1991)[23]. Six-year-old children were as likely to be able to identify Joe Camel as the ubiquitous Disney character Mickey Mouse (Fisher et al., 1991)[24].

Frogs Sell Beer

Children in the U.S. watching the average amount of television view almost 2,000 beer ads each year (American Academy of Pediatrics, 1995)[25]. In 2001, American youth aged 12 to 20 saw more television ads for beer than for fruit juices, gum, skin care products, cookies and crackers, chips, nuts, sneakers, or jeans (Center on Alcohol Marketing and Youth, 2002)[26]. In fact, almost one out of four beer advertisements on television were more likely to be seen by youth than by adults (Center on Alcohol Marketing and Youth, 2002)[26]. Youth pay attention to these advertisements, partly because of the effective strategies described in this paper. Proof of this is shown by the fact that when teenagers are asked to choose their favorite television commercials, more teens name Budweiser Beer commercials than any other brand, including the popular teen brands Pepsi, Nike, and Levi's Jeans (Teenage Research Unlimited, 2002)[27].

In one study of 1,588 American 7th through 12th grade students, the effect of exposure to beer advertisements was shown clearly (Gentile et al., 2001)[28]. Advertisers often describe advertising as having four goals: (1) Building brand awareness/recognition, (2) building brand preference, (3) obtaining product purchase/use, and (4) building brand loyalty. Correlation analyses were conducted to determine whether the amount of money spent by beer companies to advertise selected beer brands predicts students' responses regarding brand awareness, preference, use, and loyalty. Results show that the amount of money spent advertising beer brands in 1998 and 1999 strongly predicts adolescents' brand awareness, preference, use, and loyalty behaviors in 1999-2000. For example, the beer companies that spent the most money on advertising had the highest brand awareness, highest brand preference, highest brand use, and highest brand loyalty among adolescents. Correlations for each of these range from 0.63 to 0.79, with the highest correlation between beer advertising budgets and adolescent drinking (see Table 1). As shown in Table 2, Budweiser spent the most money advertising its brands, and had the highest percentage of teenagers who knew about, preferred, and *drank* that brand; Miller spent the second most money, and had the second highest percentage of teen brand awareness, preference, and usage.

Regression analyses were conducted to determine the predictors of students' intention to drink beer after they turn 21. Results show that many types of variables contribute to intention to drink, including peer variables, parent variables, media-related variables, and attitudinal variables. While each of these types of variables is an important predictor of intention to drink, media-related variables account for the greatest amount of variance in intention to drink (25%).

Regression analyses were also conducted to determine the predictors of students' actual drinking behaviors. While many types of variables contribute to whether students currently drink alcohol as well as their frequency of drinking alcohol, media-related variables (21%) and peer variables (30%) account for the greatest amount of variance predicting actual adolescent drinking behavior.

This pattern of results shows that media and advertisements are a significant predictor, and perhaps the most significant predictor, of adolescents' (1) knowledge about beer brands, (2) preference for beer brands, (3) current drinking behaviors, (4) beer brand loyalty, and (5) intentions to drink. Junior high and high school students know about, prefer, and drink the most heavily advertised brands of beer.

VIII. Implications for Public Health

Medical and public health professionals are as committed to the prevention of disease and injury as they are to the treatment. As a result, a great

deal of effort, resources and money have been and continue to be expended in an effort to increase knowledge about health and to promote healthy behaviors and lifestyles. To achieve that goal, the traditional approach has been to provide valid and reliable information through teaching, publishing, and consulting. The assumption underlying that approach is that accurate knowledge will lead to healthy choices; that is to say, knowledge will motivate behavior change.

This paper challenges that assumption, without denigrating traditional educational efforts. Rather, the goal is to enlarge the understanding of how behavioral change occurs. Commercial marketers and advertisers largely eschew cognitive approaches in their efforts to influence and change behavior. They have honed strategies and methods that favor emotion over reason. They use techniques that work their magic outside the spotlight of consciousness. What is most important to realize is that their techniques are remarkably effective. It is doubtful that many advertising professionals understand why their methods work. By trial and error and research they have gravitated to the techniques that produce the results they want. Most are content to leave the explanation for why they work to the academics.

Advances in neuroscience and psychology over recent generations are beginning to better understand the underlying dynamics of influence. Those insights can now be used to develop strategies to influence positive change and promote better health habits.

Children all over the world are exposed to an ever-growing number of commercial messages coming to them through electronic media, especially electronic visual media. Children in North America, for example, spend more time watching television than any other activity of their lives except sleeping, including attending school (Gentile & Walsh, 2002)[29]. Both the programs and the commercial messages exert a great deal of influence. If the images and messages on the screens, billboards, and in print were not effective at influencing, then the enormous worldwide advertising industry would be a giant hoax. It isn't. The images and messages do influence.

The sales pitches of advertisers are everywhere. From morning until night, one is bombarded with thousands of their messages. Advertisements jump off the wrappers of food items. They scream over the radio waves. Advertising is seen on massive billboards from town to town. Every single one of these advertisements is the product of a great deal of thought, planning, execution, and money. Every single one is intended to shape attitudes and change behavior.

Advertisers and marketers are increasingly targeting children and youth with the technology of persuasion. The reasons are threefold. First is the size of the youth market. The second is its growing economic influence. The third is the race to establish brand loyalty before a competitor does.

With some exceptions, the primary goals of marketing and advertising do not include child welfare. The overriding goal of most marketing and advertising is to maximize profits. Indeed the tobacco industry has employed the techniques of persuasion to influence children to adopt a habit that will kill millions of them.

In the United States, groups have begun using traditional commercial advertising techniques to communicate messages promoting healthy behavior for young people. For example, groups who educate teens on the dangers of tobacco, use television advertisements that are funny, frightening, and edgy. One such ad involves kids bringing bulging body bags to the beach to demonstrate the large number of people who die each year because of lung cancer. Another follows two teens documentary-style as they sneak into a convention for tobacco company executives and proclaim, loudly, that cigarettes contain a chemical that is found in urine. Rather than explaining the health risks associated with tobacco use rationally, these advertisements cause the teens who see them to associate strong emotions with a particular behavior. In this case the behavior is *not* using tobacco.

There is a small but growing body of research showing the effectiveness of appropriating the emotionally charged techniques of commercial advertising (e.g., Pechman & Shih, 1999[30]; Sly et al, 2001[31]; Minnesota Department of Health, 2002[32]). This new style of public service announcement can be much more effective than the old style that employed logic and facts. The most important aspect of these ads is how they look and feel. They are virtually indistinguishable from the other edgily communicated messages on commercial media. And so in the midst of other advertisements, they aren't particularly noticeable—which is of course the point. The slip right under kids' radar, and into their brains, whether these young viewers are conscious of it or not.

Those in the public health field who have the health of children and youth as a priority can learn some valuable lessons from commercial marketers and advertisers. They would do well to study how they can adopt the effective advertising strategies and techniques as a way to promote better health and welfare for the children of the world.

Table 1

Correlations between Beer Brand Advertising Budgets and Adolescent Brand Awareness, Brand Preference, Brand Usage, and Brand Loyalty.

	Pearson r
Brand Awareness	
Unaided Brand Awareness	.73
Aided Brand Awareness	.71
Brand Preference	
Personal Favorite Brand of Beer	.66
Brand Status/Prestige	.72
Brand Usage	
Brands Drunk by Adolescents	.79
Brand Loyalty	
Brands of Alcohol-Related Products Owned	.63

Note: All correlations are significant at $p < .001$. Table reproduced from Gentile, D.A., Walsh, D.A., Bloomgren, B.W., Atti, J.A., & Norman, J.A.. (2001, April). *Frogs sell beer: The effects of beer advertisements on adolescent drinking knowledge, attitudes and behavior*. Paper presented at: Biennial Conference of the Society for Research in Child Development, Minneapolis, MN.

Table 2

Brand Awareness, Brand Preference, Brand Usage, and Brand Loyalty among 7th – 12th Grade Students for Top Five Advertised Brands

Top Five Advertised Brands*	1998-1999 Advertising Budget	Percentage of Students Who Have Heard of This Brand (Brand Awareness)	Percentage of Students Who Prefer This Brand (Brand Preference)	Percentage of Students Who Have Consumed This Brand (Brand Usage)	Percentage of Students Who Own Brand-Related Products (Brand Loyalty)
Budweiser/Bud Light	$492,232,000	99%	28%	44%	54%
Miller Genuine Draft/Miller Lite	$262,362,400	97%	8%	39%	6%
Coors/Coors Light	$224,239,800	90%	1%	22%	9%
Corona/Corona Extra	$53,503,100	65%	4%	20%	10%
Heineken	$49,594,400	79%	3%	20%	1%

*Note: Brands with similar names have been combined for this table. Table reproduced from Gentile, D.A., Walsh, D.A., Bloomgren, B.W., Atti, J.A., & Norman, J.A.. (2001, April). *Frogs sell beer: The effects of beer advertisements on adolescent drinking knowledge, attitudes and behavior.* Paper presented at: Biennial Conference of the Society for Research in Child Development, Minneapolis, MN.

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