

Chapter 26

Subliminal Messages

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Is it possible that the meaning or content of an event can affect people's behaviour without their being aware of the event? Can briefly-flashed messages in film and video commercials, embedded sexual imagery in print and video advertising, sub-audible messages in self-help audiotapes, or backward or barely audible messages in rock music lead people to make purchases they hadn't intended to, stop smoking, or commit suicide? Is it likely that such techniques are actually more effective than promotional messages of which people are aware? Subliminal persuasion refers to the use of hidden or otherwise imperceptible or masked stimuli to manipulate viewers or listeners to behave in ways they otherwise would not. Of the many folk psychology beliefs, the notion that such methods are an effective means of controlling people's behaviour is one of the most pervasive, and an inevitable topic of discussion in any course in introductory psychology.

Part of the wide-spread fascination with subliminal persuasion is undoubtedly its insidious nature and its ready confirmation of what many already believe to be the unscrupulous methods of advertisers, public relations experts and large corporations. A large part probably is also attributable to the phenomenal popularity of the books and college-circuit lectures of Wilson Bryan Key (1973, 1976, 1980, 1990), a former professor at the University of Western Ontario, and the leading proponent of the belief of a major conspiracy among advertisers and product manufacturers to manipulate the unsuspecting public through subliminal methods.

Another part is no doubt due to the rapidly expanding, \$50-million per year market in subliminal self-help tapes, which have produced numerous testimonials to their effectiveness in promoting, among many other things, weight loss, breast enlargement, improvement in sexual function, self-esteem, and improved bowling scores (Pratkanis, 1992; Moore, 1992). And part, too, is most likely

attributable to the influence in books and well-publicized public sermons and lectures of fundamentalists and other conservative religious and political zealots who have promulgated the belief of occult, satanic messages in rock music,¹ and who, in addition to promoting mass record-burning rallies to destroy the offending material, have lobbied, sometimes successfully, for the requirement that all such rock music be affixed with prominent warning stickers attesting to its subliminal content, as a “consumer protection act” (McIver, 1988; Vokey & Read, 1985).

We will touch briefly on each of these subliminal techniques, but first we will discuss the one study most often cited by proponents of these beliefs as “proof” of the effectiveness of subliminal persuasion.

26.1 The Vicary “Eat Popcorn/Drink Coke” Study

Popular discussion of subliminal persuasion inevitably appeals to James Vicary’s notorious “Eat Popcorn/Drink Coke” study of the mid-1950s. Indeed, only months after results of the study were made public in newspapers and magazines, a survey of the American public revealed that already 41% of respondents had heard of subliminal advertising; by the 1980s over 80% reported being aware of the term, with roughly 70% of those believing it to be effective in increasing sales (Pratkanis, 1992).

Unfortunately, except for a credulous summary prepared for an article in a magazine for high-school students, there has never been a primary publication of the Vicary study, despite repeated demands at the time from sceptical, professional advertisers and research psychologists that Vicary do so. Consequently, the study has never been subjected to any proper scientific review. However, what can be gleaned about the study from the published reports in newspapers and popular magazines of the day is as follows. In 1956, in a movie theatre in Fort Lee, New Jersey, James Vicary—a social psychologist and advertising expert—and his Subliminal Projection Company, conducted six weeks of studies, involving thousands of unsuspecting movie-goers, to test a device that secretly flashed the messages “Eat Popcorn” and “Drink Coke” for a third of a millisecond² every five seconds during the film. Vicary claimed an almost 58% increase in sales of popcorn, and an 18% increase in Coke sales (Pratkanis, 1992), although why the technique was so much more effective for sales of popcorn than for sales of coke was never explained.

Reports of the study provoked immediate outrage. In an influential article

¹The primary meaning of the term “occult” is simply “hidden”; thus, to say that there are “occult” messages in rock music recordings is to say nothing more than that the recordings contain “hidden” messages, as is common to other such creative productions as poetry, visual, and performance art. Unfortunately, many automatically read the secondary meaning into the term, that of “pre-” or “supernatural”, and from there it is but a simple, uncritical slide to “satanic messages”.

²That’s 0.00033 of a second!

that reflected the deep concerns of many Americans, Norman Cousins (1957) warned of the serious consequences of such a device, and argued that it should not be allowed. The U. S. Federal Communications Commission (FCC) undertook an immediate investigation, and ruled that the use of Vicary's techniques could result in the revocation of a license to broadcast³. Members of the U. S. National Association of Broadcasters were prohibited from using subliminal advertising, and it was banned outright in Britain and Australia.

Probably the most important fact about the 1956 Vicary study, however—and one never mentioned by proponents of subliminal persuasion—is that it apparently never happened: in a 1962 interview, Vicary admitted that he had made the whole thing up! His company did have the claimed device, but as Vicary stated in the interview “... we hadn't done any research, except what was needed for filing a patent. I had only a minor interest in the company and a small amount of data—too small to be meaningful.” So much for the thousands of subjects, and the large increases in sales (Pratkanis, 1992).

More than the fact that the study had never happened, is the fact that in subsequent attempted demonstrations of his machine as a way of responding to critics, Vicary frequently failed to get the machine to work at all, and when he did, no one in the audience felt the least bit compelled to comply with the flashed messages. Furthermore, when the machine was finally subjected to a controlled test by an independent research company, no increase in the sales of either popcorn or coke was observed (Pratkanis, 1992). In 1958, the Canadian Broadcasting Corporation (CBC) tested Vicary's claims by subliminally flashing the message “Call Now” 352 times during the popular Sunday-night program *Close-Up*. No increase in telephone calls was observed, and no one called the station, although when asked to guess the message, almost one-half of the roughly 500 viewers who sent letters claimed to have been made hungry or thirsty during the show. Not one letter writer, however, guessed the correct message (Pratkanis, 1992). Another company, Precon Process and Equipment, began in 1957 to use subliminal messages on billboards and in movies, and received a patent for the technique in 1962 (McIver, 1988). The patent was awarded because the device could do what was claimed for it—in this case, insert subliminal messages—not because the subliminal messages themselves were shown to be effective.

26.2 *Mad Max, ALF* and Garfield

Because of the credulous reports of the now-apocryphal Vicary study, many advertising, television, radio, and film companies began using subliminal messages, often in the belief that it would enhance the effect of some scene or message, and

³Despite an announced “deep concern” about the use of subliminals, the FCC subsequently did not pass any such regulation, preferring instead to “pass the buck”, arguing that the use of subliminals properly was under the jurisdiction of the U. S. Federal Trade Commission. Indeed, years later, the FCC allowed the use of a subliminal in an announcement about a murder. Apparently, the briefly-flashed phrase “Give yourself up” was unsuccessful in convincing the murderer to turn himself in (McIver, 1988).

many still do. In a recent investigation of alleged subliminals in video and film, for example, Poundstone (1993) freeze-framed his way through such films and television shows as *Mad Max* and the cartoon version of *ALF*, both of which clearly do evince the subliminals claimed for them. In *Mad Max*, the subliminal (a close-up of a face showing an impossible widening of the eyes of a biker so that even the conjunctiva were showing just before he crashes into an oncoming truck) was clearly intended to enhance the impact⁴ of the scene, but most of the subliminals Poundstone found, such as the many in the *ALF* cartoons, were clearly inserted as gags by the producers. In one fleeting image in *ALF*, for example, there is a picture of Garfield the cat with one of his normally bulging eyes missing to reveal a pink cavity, passed out in front of an open refrigerator full of wine bottles, one of which is spilling its contents. Taped to the refrigerator is a note reading “I ♥ ALF”.

Of course, the existence of such subliminals proves only that people use them and believe them to have the intended effects (for the non-gag subliminals, anyway; the others are probably intended more as inside jokes), not that they actually are effective. George Miller, for example, who produced the *Mad Max* subliminal, undoubtedly believed that it would enhance the effectiveness of the scene, but that doesn’t in any way prove that it does; the scene may have had exactly the same effect without the subliminal. As we will see, this fallacious confusion between the simple demonstration of the use of subliminals in some medium and the conclusion that they are therefore effective is common to the claims of many in this area. But first, we will attempt to define the term “subliminal”.

26.3 The Meaning of “Subliminal”

The term “subliminal” is derived from the construct of a “limen of consciousness”, a threshold or line separating conscious from unconscious. The concept dates back to the literal beginning of psychology as an empirical science separate from philosophy in the seminal writings of Johan Friedrich Herbart (1776-1841).⁵ Herbart argued that ideas (i.e., both perceptions and thoughts) differed from one another in strength, and inhibit or suppress one another in a dynamical fashion, competing with one another to achieve enough strength to rise above the “limen of consciousness” and, hence, be consciously experienced. Ideas below the line still exist, in this view, and through collateral inhibition can influence what other ideas, including themselves, are subsequently consciously experienced.⁶ In this way, perceptions obtained only subliminally (i.e., below

⁴I know; it’s a bad pun, but I couldn’t resist it.

⁵Herbart argued strongly that psychology should be an empirical science—that is, based on experience, divorced from philosophy. Hence, he is fairly considered to be the father of the science of psychology. However, Herbart also argued that psychology could not be an experimental science; that aspect of psychology did not occur until Wilhelm Wundt in Europe and William James in the U. S. set up the first psychological laboratories in 1875.

⁶Herbart’s notions of a dynamic unconscious clearly foreshadow the Freudian concepts of the dynamic subconscious, and related ideas such as repression, although Freud explicitly

the “limen of consciousness”) can still affect what we experience consciously (i.e., think about) and how we behave.

It is this idea or something very similar to it that informs most popular discussion of subliminal persuasion or perception. Yet, except for Freudian psychology (which is not a credible scientific theory of perception or cognition), few models of perception and cognition take such notions seriously. First, contrary to the common caricature of psychology in the popular media, no modern theory posits “an unconscious”, that is, a mind-entity separate from consciousness such that perceptions, ideas, beliefs and desires can slip or exert influence from one to the other. Rather, perceptual and cognitive processes can and often do occur without our awareness, and without our having to or, in many cases, even being able to consciously control them.

Think of riding a bicycle, catching a ball, or even reading this text. Not only do they happen “automatically” (after you have become competent at them) and without our awareness of how we are doing them, but any attempt to gain conscious control of them usually results in the process coming to a grinding halt (i.e., and you falling off the bicycle). The important point is that these processes may occur *unconsciously*—that is, without all the internal chatter that normally accompanies what we refer to as “conscious” processes, but there is no reason to suggest that they therefore occur in some special mind-place called “the unconscious”, any more than you would want to say that the internal workings of your toaster, car, or computer occurred in an “unconscious”; although, they certainly occur unconsciously, that is, without awareness—unless you are willing to believe that your computer, say, is sentient.

Second, few current perceptual or cognitive theories hold to the idea of an absolute sensory or information threshold dividing those events we are aware of from those we are not. Rather, it is viewed as a continuum along which the amount of information or sensation we require for a given event on a given trial before we are willing to say we are aware of it varies as a function of the context, the event itself, task demands, payoffs, and the like. This style of decision making about sensory and other kinds of events occurs because the event itself always occurs in the context of both internal and external “noise”—a background of half-formed, fleeting thoughts, impressions, sensations, desires, and beliefs of varying and unpredictable intensity against which we must detect the event in question. Sometimes, for example, this background “noise” is low enough that even relatively weak signals can be confidently detected; other times, it completely overwhelms even the most intense of signals so that a confident decision is impossible; unfortunately, we are rarely completely sure which state we are in, sometimes mistaking noise for signal and other times mistaking signal for noise, so we are constantly having to balance the costs of deciding that the event happened when in fact it didn’t against the costs of failing to detect the event when it did. Thus, to say that you are “aware” of a given event is to say that *in your opinion* for the demands of the particular task in question you have gathered sufficient sensory or other evidence to conclude that the event

denied the connection.

did happen.

From this perspective, experimental psychologists can define two different “thresholds” of awareness. The *subjective threshold* refers to that level of information or stimulus intensity at which the individual claims to be “just guessing” or responding at a chance level—at which it just “feels” as if you have no information to decide one way or another about some event. Note that this threshold corresponds to a testimonial; events subliminal in this sense of being below the subjective threshold are *events whose presence observers do not report* (Moore, 1992).

In contrast, the *objective threshold*, refers to that lower level of information or stimulus intensity at which the observer is no longer able even by guessing to discriminate between events, say, the presence or absence of a signal, at a level above chance. Events subliminal in this sense are *events whose presence the observers can't detect* (Moore, 1992). The results of research using events below the objective threshold are clear: there is no compelling evidence for unconscious or subliminal perception of them, no evidence that the meaning or content of such events can affect people's behaviour (Holender, 1986; Greenwald, 1992). Put simply, if an event is below an individual's objective threshold, it has no effect on him or her at all.

The subjective threshold is different; here we can demonstrate an effect on the observer. Consider the results of what was one of the first psychological experiments performed in America. In this experiment, Pierce and Jastrow (1884) investigated their own abilities to discriminate tiny differences in pressure with their fingertips, and found that the accuracy of their decisions was still well above chance—that is, above what we would now call the “objective threshold”—even when they were convinced they were just guessing. In a similar experiment reported a few years later, Sidis (1898) found that subjects shown cards containing a single character at a distance between the cards and the subject at which the subjects saw nothing more than a blur or a spot, and therefore were convinced they were just guessing, were still able to name the characters at a level above chance. Numerous experiments of this type continue up to the present day, virtually all with the same result: by adjusting the intensity or duration of the target stimulus, people brought to the point of being convinced that they can no longer detect differences between events, say a video clip or an auditory tape with and without an embedded message, still obtain enough information—in their view “unconsciously”—to perform better than chance when forced to guess.

This, then, is subliminal perception in the sense of an apparent dissociation between awareness and the acquisition of information, but two points need to be noted about it. First, it is a long-established, unsurprising phenomenon in psychology, and no special devices or sophisticated processes are needed to produce it. Indeed, many of the techniques at issue here, such as Vicary's messages flashed for one-third of a millisecond or the messages on self-help auditory tapes, are well-below people's objective thresholds, and hence are not capable of producing this or any effect. Second, there is no convincing evidence that the effect when it occurs at all extends much beyond improving the accuracy

of people's guesses in forced-choice tasks. That is, there is no good evidence that the meaning or content of such events can affect people's behaviour. And, given the extreme difficulty of ensuring that the stimuli used are simultaneously above the objective threshold but below the subjective threshold, many cognitive scientists seriously doubt whether there has been a convincing demonstration of the effect even on forced-choice guessing: just because individuals claim to be "just guessing" doesn't mean that they had no awareness of the event; maybe they were just being overly careful in attributing awareness, saying that they were guessing unless they were absolutely sure. In fact, doing so on only a few trials would be enough to establish the effect (Holender, 1986; Greenwald, 1992; Moore, 1992).

Thus, *if* it can be shown for some event that it is above observers' objective thresholds, *and if* it can be shown that it is simultaneously below their subjective thresholds (and we are willing to accept that being below the subjective threshold completely exhausts all possibilities for awareness), *and if* we can show some effect on the observers' behaviour consistent with the meaning of the event that doesn't also occur in the absence of the event, *then* we would have a demonstration of subliminal perception and subliminal influence.⁷ None of the popular claims for subliminal influence come even close to meeting this criterion. As noted, many fail because the events or messages are below the objective threshold, many to point of not existing at all! Others contain messages that are not obviously subliminal: observers are generally quite aware of them. And none of them present any scientific proof that the messages have the effects claimed for them. It is to those specific claims that we now turn.

26.4 Wilson Bryan Key and Subliminal Advertising

In four books and innumerable college and university lectures⁸ over the last two decades, Wilson Bryan Key⁹ has made a career out of the claim that advertisers have resorted to subliminal advertising to influence the buying public. He provides an extensive litany of such messages he claims to have found in print,

⁷Note that failing to be able to meet this criterion does not mean that unconscious perception doesn't happen, only that it doesn't happen without concomitant awareness. That is to say, it may be that there are unconscious effects, but that they are always associated with awareness; adjust conditions sufficient to eliminate the awareness, and you automatically eliminate unaware effects as well. If the unaware effects are never different from what would be expected from exercising the aware knowledge, it would be impossible ever to demonstrate them. But if this were the case, it is not clear what it would mean to say that there were such effects.

⁸Creed (1987) reports that his U. S. university paid Key \$2000 plus expenses for his public lecture. Ignoring expenses and assuming that this rate of pay is typical of the 40 or so lectures per year Key claims to give, then Key's income from lectures alone is over \$80,000 per year.

⁹A not uncommon mistake is to reverse Key's first and second names; in fact, despite the careful eye of a professional editor, this error crept into one of our own publications discussing Key's work (Vokey & Read, 1985, p. 1232). We suspect a subliminal influence of the Beach Boys...

film, and television as proof not only that advertisers use such techniques, but also that they must be effective, else why would so many different companies be using them? Key's primary claim is that advertisers use a variety of subliminal techniques to embed sexually-explicit words and symbols into the pictorial content of their advertisements and, indeed, the products themselves (such as Ritz crackers)¹⁰ to manipulate the public by subliminally capitalizing on the public's obsession with sex. In Key's view, subliminal sexual imagery is much more persuasive than the more explicit use of sexual symbols, such as scantily-clad women that until recently seemed to populate beer and automobile commercials.

A paradox of Key's books and lectures is that they consist almost entirely of exposés of the subliminal content. The reader is regaled with photograph after photograph of advertisements highlighting the "subliminal" imagery that Key sees in them: male and female genitalia, phallic symbols, and numerous occurrences of the word "sex". But of course if Key and his audience can see these images, then they are hardly subliminal, subjectively or otherwise. In fact, what Key appears to mean by "subliminal perception" is more akin to the processes of selective attention, not perception without awareness (Creed, 1987).

But that's not the worst of Key's odd beliefs. He claims that the brain comprehends the totality of a complex stimulus such as print advertisements "at the speed of light", which is certainly more than a little faster than the neurons of my brain operate (and, I'd wager, Key's as well). According to Creed (1987), Key claimed in one of his lectures—in direct contradiction to basic neurophysiology and brain function—that the "unconscious brain" could perceive, analyse, and fully comprehend an advertisement in "less than a millisecond". No evidence is offered for any of these claims.

Furthermore, no independent scientific evidence is offered either about the actual existence of the "subliminal" images that Key sees in the advertisements, nor their effectiveness. In fact, his examples appear to be little more than constructions and projections of his own fantasies. For example, one of Key's (1973) principal examples of subliminal manipulation is the phrase "u buy" printed backward in an advertisement depicting four types of rum. None of the dozens of my colleagues and students have been able to find this message when shown the ad, yet Key claims that 80% of the students in his studies must have unconsciously perceived the message, because that's the percentage that preferred the rum so labelled when asked to choose one of the four. In his view, the facts that the preferred rum comes in a larger bottle, is only one presented in a fancy brandy-snifter rather than a hi-ball glass, is of a darker colour than the other three, and is the only one that has the words "extra special" clearly written on the label—among other things—could not possibly account for the marked preference of his students. No, to Key, it is only the backward subliminal phrase "u-buy" that only he can see that can explain the preference.

In another example, Key (1973) asserts that the explanation for why 95%

¹⁰When asked recently in court if he really believed that the word "sex" was baked, as he had claimed, many times into the surface of Ritz crackers, Key replied, "Yes, and on both sides too"!

of college-age males in another of his studies were able one month later to remember a *Playboy* advertisement depicting a naked woman was that the ad also contained subliminal sexual imagery. That most young men would probably remember a picture of a beautiful, naked, young woman after a month even without subliminal sexual imagery seems to have escaped Key's notice, as has the use of control conditions, generally. In our own research on the issue (Vokey & Read, 1985), we could find no effect on memory of embedding the word "sex" in photographs compared, as controls, to the embedding of nonsense trigrams or no embedding in copies of the same photographs, despite the embedded words being perceptible (i.e., above the objective threshold) when pointed out to the subjects, none of whom was aware of the embedding (i.e., below the subjective threshold) until it was pointed out to them. There is in fact no scientific evidence to support Key's claims, and virtually the whole of cognitive science and neuroscience to contradict them.

John O'Toole, president of the American Association of Advertisers, asked in his review of Key's most recent book, "Why is there a market for yet another re-run of this troubled man's paranoid fantasies?" (Moore, 1992). There may not be. In a pretrial hearing of the Judas Priest case (discussed subsequently), after listening at length to Key failing to give a straight answer to questions put to him, and hearing him claim that "science is pretty much what you can get away [with] at any particular point in history and you can get away with a great deal" (Moore, 1992), the judge decided he had had enough and refused to allow Key into his court room during the actual trial to serve as a witness for the plaintiffs. Perhaps in a broader sense it's time the rest of the world did the same.

26.5 Subliminal Auditory Self-Help Tapes

The story with subliminal auditory self-help tapes is much the same as that with subliminal advertising, except that the techniques have shifted from the visual to the auditory domain, and instead of the crass motives of advertisers, we have the apparently more noble objective of psychotherapy (Moore, 1992). One further difference is that instead of one person (Key) making money on books and the lecture circuit, we now have many companies making quite substantial profits¹¹ on the selling of audiotapes that to the naive listener (me, at any rate) appear to contain from 15 minutes to over an hour of rather monotonous, new age "music" performed typically on pan pipes, harps, and flutes, although some use orchestrated classical pieces. You also get sometimes extensive fold-out notes with the tapes, containing more psychobabble than a week of Oprah Winfrey, Ann Landers, and Dr. Joyce Brothers rolled together. Sometimes the documentation also includes a long list of references to "scientific" proof that subliminal audiotapes work, most of which are either irrelevant (such as studies on priming in lexical decision), nonsense (such as Key's books), or simply wrong. Some of the tapes even go so far as to warn you about the many fraudulent tapes

¹¹Some of these tapes sell for as much as \$400 per set (Moore, 1992).

out there that use subliminal techniques that don't work, unlike, it is claimed, the "scientifically proven" process used on the current tape.

What you don't get, however, is anything that will result in dramatic improvements in mental and physical well-being, or even improved bowling-scores, beyond placebo effects. In fact, you may not even be getting the promised subliminal auditory messages. Merikle (1988), for example, subjected a collection of supposedly subliminal audiotapes to a sensitive spectrographic analysis, and found nothing on the tapes beyond the music. Now that's subliminal! Obviously, any auditory stimulus that is too subliminal to register on auditory equipment more sensitive than the human ear is too subliminal to have any effect at all.

The business of subliminal auditory tapes got its start with Hal Becker, an engineer who began experimenting with visual subliminal techniques in the 1950s. He produced a device in 1978 to insert subliminal messages in music audiotapes. According to *Time* magazine in 1979, 50 department stores had begun using the device to insert messages such as "I am honest; I will not steal" many times at a low ("subliminal") level in the background music of the stores in an attempt to discourage shoplifting. *Time* claims that the stores reported a significant reduction in theft, although no evidence is offered to substantiate the claim (McIver, 1988).

As Moore (1992) notes, there are two rather fundamental problems with the rationale for the effectiveness of subliminal audiotapes. The first has to do with the nature of physical signal or message itself. With visual subliminals, the subsequent masking with other visual material does not change the target message, it simply limits the length of exposure to the target—a procedure experimental psychologists call "backward masking". In contrast, with auditory subliminals, the target stimulus is first reduced substantially in volume, and then is overlaid with a masking stimulus (i.e., the music) of much greater physical energy. Given that it is physical energy that affects the basilar membrane of the ear, how is the listener supposed to separate the physically drowned-out subliminal signal from the masking stimulus? It is analogous to trying to detect by weight alone which of two kilogram bags of sugar at the supermarket used more glue in the packaging.

The second problem Moore (1992) notes is the complete lack of a theoretical rationale for why such messages should have the therapeutic effects attributed to them. Why should the repeated sub-audible presentation of the messages "I am a nice person" or "I will not eat" be effective in promoting either self-esteem or weight-loss, when the superliminal presentation of them would produce nothing but boredom? To the extent that an explanation is offered, it is usually to attribute to "the unconscious" with no evidence whatsoever precisely the processes necessary for the imputed effects to occur. As Greenwald (1992) argued recently, there is neither theoretical necessity nor empirical support for the psychoanalytic unconscious.

There is also no empirical support for the alleged therapeutic effects of these tapes. None of the nine reported studies on the efficacy of these tapes has shown an effect consistent with the manufacturers' claims (Moore, 1992; Pratkanis,

1992). One of the more interesting of these studies is that of Pratkanis, Eskenazi, and Greenwald (1990), because in addition to demonstrating no effect of the subliminal tapes, it suggests why so many users of them are willing to provide testimonials to their effectiveness.

In the experiment, volunteers interested in the potential of subliminal tapes (and therefore most like those who would actually buy them) were recruited to participate in a study of the effectiveness of the tapes to promote either self-esteem or improved memory. According to the manufacturer, the self-esteem tape contained messages such as “I have high self-worth and high self-esteem”, and the memory tape messages such as “My ability to remember and recall is increasing daily”. Volunteers first filled out measures of self-esteem and memory, and then proceeded to use either the esteem or the memory tape according to the manufacturer’s instructions every day for 5 weeks. Although one-half of the subjects received their tapes with the correct instructions, the other half received the tapes with the instructions for the other tape: memory instructions for the self-esteem tape, and vice versa. After the 5 weeks, subjects again filled out the esteem and memory measures, and also indicated whether they believed the tape they had received to have been effective.

The results were that the tapes produced no effect whatsoever on either self-esteem or memory, regardless whether the correct or incorrect instructions had been received. However, the subjects *believed* the tapes to have been effective, indicating that they thought their self-esteem had improved if they thought they had received a self-esteem tape (regardless of whether or not they had), and that their memory had improved, if that was the tape they thought they had received (again, regardless of whether or not they had). Pratkanis et al. (1990) called this effect on belief the “illusory placebo effect”, and it demonstrates one reason why testimonial or anecdotal evidence for the efficacy of some product or treatment (e.g., “it worked for me!”) is almost always worthless.

26.6 Subliminal Messages in Rock Music and Suicide Trials

In the Fall of 1982, a fundamentalist preacher from California, Gary Greenwald, arrived in Lethbridge to hold two days of public lectures on the evils of what he referred to as “backward masking” in rock music. These capacity-crowd lectures were followed by a mass rally and record-smashing spree. Similar performances by both Greenwald and many others have occurred throughout Canada and the United States, numerous books of the same theme have been published, various state governments have considered legislation to control “backward masking” in rock music, or at least require warning stickers on the recordings, and at least one Canadian member of parliament and the Consumers Association of Quebec have supported government investigation of the issue (McIver, 1988; Vokey & Read, 1985).

Greenwald’s use of the term “backward masking” is not what experimen-

tal psychologists mean by the term, mentioned earlier. Rather, it refers to the masking of the meaning of an auditory message by playing it backward. Unlike other claims of subliminal persuasion, the stimulus in auditory backward masking is usually quite audible, often as the forward or normal lyrics of the song. Greenwald's claim is that when these songs are played backward, intelligible messages can be heard that are not apparent when heard in the forward or normal direction. However, they are, he claims, perceived unconsciously by listeners as they hear the recordings in the forward direction. Greenwald and his colleagues further claim that these backward messages inevitably are evil in content and, because they are perceived unconsciously, cannot be resisted as they lead the unsuspecting youthful listener down a path of licentious sex and drugs and who knows what all.

As with Key and his many "examples" of subliminal advertising, to make their case, Greenwald and the others provide an ever-growing list of evil, "satanic", backward messages that they have found in rock music. You can order audiotapes from Greenwald in which he demonstrates many of the messages he has found in the recordings of such rock groups as Queen, Jefferson Starship, Led Zeppelin, The Beatles, and Pink Floyd, to name just a few. The initial question, of course, is whether these messages are really there; there is no question that Greenwald and his audiences believe they hear the messages that Greenwald plays for them, but are they actually there or are they, as with Key's examples, constructions and projected fantasies of the listener?

Reversed speech retains many of its speech-like qualities; in fact, in our own work on the issue (Vokey & Read, 1985), we opined that to us it sounds a lot like the Swedish Chef from the old *Muppets* television show.¹² Consequently, any speech played backward will occasionally produce something akin to a word or a phrase, particularly if the listener is told how to interpret the gibberish, as Greenwald does with his listeners. For example, playing the phrase "Jesus loves you" backward will sound something like "we smell sausage", particularly now that you've been told what to listen for, but it is strictly coincidence. As generations of cloud-watchers will attest, you can "detect" meaningful patterns in just about anything, particularly if you are told what to look for.

Poundstone (1983, 1986, 1993) has analysed many of these alleged backward messages and has found that most of them are merely coincidental reversals. Some, however, particularly in recordings made since the claims for such backward messages became a major media event in the early 1980s, clearly are engineered reversals—that is, reversals intentionally inserted in the recording—and clearly intended as jokes. Unlike the coincidental reversals, these engineered reversals are clear and unambiguous when played backward. One of my personal favourites is in the song "Goodbye Blue Sky" on Pink Floyd's, *The Wall*. Just as the song ends and before the next song begins (which, not so incidentally, is identified as "Empty Spaces" on the record label, but as "What shall we do now?" on the album cover), is a somewhat muted passage that sounds some-

¹²A claim, incidentally, that was misconstrued by one *Globe and Mail* reporter to be that we had found that all rock music was actually Swedish when played backward!

thing like speech, but you could play the album through many times without noticing it. However, played backward a voice very clearly says: "Congratulations, you have just discovered the secret message. Please send your answer to old Pink, care of the funny farm..." (Poundstone, 1983).

The more important question is whether the meaning of backward messages could affect listeners. The only evidence that Greenwald and other fundamentalists offer is first an equation of backward messages with studies of subliminal advertising such as Key's that, in their view, have demonstrated powerful effects. Second, they assert that it is the young people who preferentially listen to rock music who have the greater incidence of sexual promiscuity, drug abuse, and other criminal behaviour. Aside from the fact that both sets of behaviours are a function of youth, citing them as evidence of the effectiveness of backward messages in rock music is circular reasoning, because backward masking was advanced as the explanation for these behaviours in the first place. If that isn't clear, consider the following: "A and B are found together because A causes B." How do you know A causes B? "Easy, because A and B are found together." In fact, there is no evidence that the meaning of messages heard backward has any affect on people. In the only published research on this question, in a series of experiments, we could find no effect of the meaning of engineered, backward messages on listeners' behaviour, either consciously or unconsciously (Vokey & Read, 1985).

The seriousness with which people take these claims is apparent by the fact that they have been the basis of at least two wrongful death lawsuits filed against recording companies and artists by the parents of teens who committed suicide, allegedly as a consequence of listening to the rock music recordings.¹³ In the first of these, a father filed suit against heavy-metal rocker Ozzy Osbourne and his record company after the man's 19-year-old son committed suicide in 1984 after a night of heavy drinking and listening to Osbourne's *Blizzard of Ozz* album. The father contended that the content of the album song "Suicide Solution", particularly a 27-second, *forward* subliminal message, had driven his son to suicide. However, as the subsequent legal proceedings made clear, the song is actually intended to be anti-suicide. Furthermore, the alleged subliminal message is in fact quite perceptible (or at least as perceptible as any of the lyrics are in heavy metal music), not subliminal at all (Poundstone, 1993). The California District Court of Appeals dismissed the suit in 1988, citing the "free speech" amendment of the American constitution.

The second case involved two teenage boys who, two days before Christmas in 1985, spent the afternoon drinking beer, smoking marijuana and listening to Judas Priest's *Stained Class* album. They then took a shotgun into a playground of a nearby church and shot themselves, one of them dying instantly, and the other surviving with half his face blown off. The boys' families filed a multi-million dollar lawsuit not, as Poundstone (1993) notes, against the beer company, drug dealers, or the gun shop from which the weapon had come, but

¹³In addition to the two cases discussed here, similar suits have been filed in at least five other states in the U. S. (Poundstone, 1993).

against Judas Priest and CBS records. The survivor initially offered to the police the explanation for the suicide attempt that “life sucks”. Later, he cited the Judas Priest song “Beyond the Realms of Death”, claiming to have been “mesmerized” by the suicidal themes of the lyrics. Possibly because of the earlier court ruling in the Osbourne case, by the time the suit came to trial in Reno, Nevada in 1990, the plaintiffs argued instead that the cause of the boys’ behaviour was a series of backward subliminal messages on the album, and a forward subliminal “Do it” in the cut “Better by You, Better than Me”.

It was because of the alleged backward messages that Don Read and I were asked to serve as expert witnesses and to assist the defence in this case. Our evidence was presented to the court much as outlined here. However, it soon became clear that in the opinion of the plaintiffs and the judge, the crux of the case concerned the existence and likelihood of effect of the forward subliminal, “Do It”. Unlike the earlier Osbourne ruling (which concerned consciously perceptible messages), the judge in this case ruled that subliminal messages are not protected by the First Amendment of the U. S. constitution, principally because, being subliminal, it is not possible for persons to be aware and therefore prevent themselves from unconsciously “hearing” and thereby rejecting them, as they can with aware speech. Despite that, however, the judge found in favour of the defendants—not because in his view the whole idea of subliminal messages inducing people to suicide is nonsense, but because there was not sufficient evidence to prove that the subliminal message “Do It” had been intentionally placed there by Judas Priest (*Vance and Belknap v. Judas Priest and CBS Records*, 1990).

26.7 Conclusion

Despite apparent use of subliminal techniques in different media, there is as we have seen simply no evidence for effective subliminal persuasion in film or video, advertising, self-help audiotapes, or rock music, and there is certainly no theoretical basis to expect it. Perhaps the next time somebody tells you in whispered tones about the infamous “Popcorn and Coke” study as support for how some subliminal audiotape taught “this man” calculus while he was sleeping, you can set them straight.