
Is the Unconscious Smart or Dumb?

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How sophisticated is unconscious cognition? This is one of the most fundamental questions about the unconscious that has been posed by research psychologists over the past century. Anthony Greenwald takes a contemporary look at this classical problem and concludes that unconscious cognition is severely limited in its analytic capability. In response, other leading scholars agree that the reality of unconscious processes is no longer questionable. Although there is some disagreement about just how sophisticated these processes are, the consensus is that exciting times are ahead for both research and theory concerning the mental processes involved in unconscious cognition.

The “unconscious” is currently being subjected to new scientific scrutiny. Certainly psychological interest in the subject is not new, but new experimental methods have prompted a contemporary, new look at an otherwise classical problem. Greenwald (1992, this issue) calls this renewed interest *New Look 3*. Do unconscious ideas, impulses, and emotions determine and drive our conscious thoughts, perceptions, and behavior? Or, as Greenwald puts the question, “How smart is unconscious cognition?” Freud, for one, believed in the “smart” view of the unconscious. Freud likened the mind to an iceberg, in that only a small portion of the mind lay above the surface, conscious, while the vast majority of mental processes take place below the surface, unconscious. For Freud, the unconscious did not always do what was best, but it certainly did affect much of mental life and worked in very complex ways.

Before answering Greenwald’s question of how smart the unconscious is, the meaning of *smart* or *dumb* as they relate to the unconscious must be made clear. There is not a great deal of consensus over a single definition of what constitutes intelligence, but several factors are widely agreed upon for what makes a smart mental process. Greenwald suggests that one thing that might be meant by smart is that the processes are complex. Smart processes are used to classify patterns (such as black lines on a white page) into abstract, sophisticated, meaningful information. Analysis of letters may be thought of as more sophisticated than the analysis of lines and angles. Se-

mantic analysis of words would be more complex and sophisticated than the analysis of letters. Propositional analysis, the analysis of multiple word strings into object-action relations would be still more sophisticated. Some advocates of a smart unconscious (e.g., Silverman & Weinberger, 1985) suggest that the meaning of sentences can be unconsciously processed.

A second thing that might be meant by smart is the ability to deal flexibly with a novel situation. This is contrasted with dumb processes that might be termed *routine*—mental processes that are used in the same way time after time after time. Certainly many psychoanalytic advocates would support the belief that the unconscious knows how best to protect the conscious mind, using repression, projection, and displacement flexibly, each where and when it might be most useful. As will be seen, however, many cognitive psychologists suggest that the unconscious specializes in performing only routine activities.

A third thing that might be meant by smart is that the mental processes do what is best for us. However, even believers in a smart unconscious agree that the unconscious does not always do what is best. In fact, believers in a smart unconscious fully embrace the idea that these processes that lie below the surface of awareness often lead people to react inappropriately.

A belief in a smart unconscious crops up in the most unexpected places. When two young men, 18-year-old Ray and 20-year-old James, died of self-inflicted shotgun blasts, their families sued the British rock band Judas Priest (“Rock Group Not Liable,” 1990). The families claimed that there were subliminal messages touting satanism and promoting suicide on the band’s 1978 *Stained Class* album, and these messages caused the young men to form a suicide pact. The families sought more than \$6 million in damages. Could subliminal messages drive men to kill themselves? Judge Jerry Carr Whitehead ruled that

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the subliminal messages did indeed exist, but he clearly stated that the plaintiffs did not produce any "credible scientific evidence" (*Vance et al. v. Judas Priest et al.*, 1990) that the messages were a cause in the shootings. As for the supposed subliminal words telling listeners to "do it" in the song "Better by You, Better Than Me" (Wright, 1978), he ruled that it probably would not have been perceived without the "power of suggestion." Many laypersons persist in the belief that the unconscious is smart enough to interpret subliminal messages and to control suicide behavior. However, Judge Whitehead's interpretation of the scientific evidence suggests the unconscious is not all that smart.

The scare over the possibility of subliminal messages driving people to suicide bears a family resemblance to another (somewhat tamer) subliminal scare dating back to the mid-1950s. The earlier scare came a few years after George Orwell (1949) described in *Nineteen Eighty-Four* a kind of "brainwashing" system of mind splitting called "doublethink." Attainment of doublethink made it possible for people "to forget whatever it is necessary to forget, then to draw it back into the memory again at the moment it was needed, and then promptly to forget it again, and above all to apply the same process itself . . . consciously to induce unconscious" (p. 36). A smart unconscious, indeed.

Less than a decade after the public began reading Orwell, a marketing executive purportedly conducted an intriguing bit of research in an unimposing movie theater in New Jersey ("Persuaders get deeply 'hidden' tool," 1957). He reported that he had superimposed on regular film some verbal messages that appeared so briefly that they could not be consciously detected. The messages told unsuspecting moviegoers to "Eat popcorn" or "Drink Coke." According to the researcher, popcorn sales rose dramatically—up 58%—and Coke sales rose respectfully—up 18% (Morse & Stoller, 1982).

Although unreplicated and unconfirmed, the study led to public outrage. Such covert manipulation was seen as entailing an "unconscionable invasion of privacy" (Moore, 1988, p. 297). Was this the beginning of a technology that would "break into the deepest and most private parts of the human mind and leave all sorts of scratchmarks" (Cousins, 1957, p. 20)? The notion that we could be subliminally manipulated led others to try the technology. One radio station launched a subliminal campaign against television by broadcasting slurs such as "TV's a bore." Several department stores played subliminal antishopping messages ("If you steal, you'll get caught") over public address systems (Wortman & Loftus, 1992). Whether these subconscious machinations really work has generated controversy for decades. A recent empirical look at subliminal self-help audiotapes designed to raise self-esteem or to improve memory revealed no improvements after a month of use (Greenwald, Spangenberg, Pratkanis, & Eskenazi, 1991), making it seem rather unlikely that a subliminal exposure to "TV's a bore" would succeed in creating radio aficionados out of former television lovers.

The original "Eat popcorn/Drink Coke" studies, coincidentally, were being conducted in Fort Lee, New Jersey—just across the Hudson River from New York City—at almost precisely the time Jerome Bruner was talking about a "New Look" in perception (Bruner, 1957), and researchers were beginning to explore the problem of subliminal (unconscious) perception. Bruner and his contemporaries proposed that what we see depends not only on what is out there, but also on endogenous factors such as expectations, motivations, and affect. Bruner would maintain that position for the next three decades: "Perception is . . . an instrument of the world as we have structured it by our expectancies" (Bruner, 1986, p. 47).

One study considered pioneering at the time demonstrated that taboo words are more difficult to perceive than neutral words. In other words, taboo words have a higher *recognition threshold*. The basic explanation was that the anxiety evoked by the taboo word caused a defense mechanism to be set in motion that interfered with the perceiving of the taboo word (Kitayama, 1991). However, a smart unconscious process that saved the individual from anxiety by preventing perception is not the only interpretation of these results. Rather, by assuming a response bias (such as reluctance to report a taboo word) that operated after the taboo word had been perceived, the result could easily be explained without appealing to sophisticated unconscious processes. By the late 1950s a consensus had emerged that there were no methodologically sound demonstrations of unconscious perception, specifically, or smart unconscious processes, more generally. The New Look was widely rejected.

Then, in the 1970s, came a new look at the New Look (Erdelyi, 1974); Greenwald (1992) calls it "New Look 2." At that point in psychological history, a cognitive revolution in the form of the information-processing approach to thinking about the mind had taken firm hold. The computer was now the favored model of the human mind, and with the computer metaphor came a bevy of theoretical constructs that "came close to constituting rediscoveries of basic Freudian notions." (Erdelyi, 1985, p. 59). The goal of New Look 2 was to draw connections between Freud and the cognitive psychology that had emerged in the late 1950s and the 1960s (Erdelyi, 1974). The new cognition was described in terms of *filtering* and *selectivity*, rather than censorship. Proponents of the new cognition talked of *executive processes*; Freud had talked of the *ego*. There were now *decision nodes* (rather than conflicts); there was *working memory* (rather than the conscious); there were *routines*, *programs*, and *software* (rather than psychic structure). Suddenly the very idea of unconscious processes was not only noncontroversial but was an "obvious and fundamental feature of human information-processing" (Erdelyi, 1985, p. 59). This introduction of new terms to talk about old ideas, the New Look 2 camp argued, was not due to misgivings about the concept of the unconscious but to a disinclination to be associated with the excess baggage that accompanies the very idea of a psychoanalytic unconscious. All of these ideas were undoubtedly driving the choice of titles that

Erdelyi would consider, and would ultimately select, for his 1985 book on this subject: *Psychoanalysis: Freud's Cognitive Psychology*.

In spite of the accomplishments of New Look 2, the unconscious continued to be regarded skeptically by many cognitive psychologists. However, Greenwald (1992) argues that current research findings now leave little doubt that people sometimes perceive things without conscious awareness. An impressive case can be found in recent literature to support the notion that unconscious cognitive processes do indeed influence how people respond to their environment. Greenwald provides many examples. One common modern-day procedure that demonstrates this influence involves priming. In a typical priming study, subjects go through two stages (Tulving & Schacter, 1990). First, they see a list of items, called targets, for example a series of pictures. Then, minutes or months later, the subjects are tested. The test might require subjects to look at degraded pictures and name the object seen. Priming is demonstrated if the test performance is higher for targets that were previously encountered than for control items that were not previously encountered. Priming can be observed even in cases in which the target stimuli are so faint as to be consciously not detected—evidence, some might say, that people are influenced by stimuli that are not consciously processed. But, Greenwald argues, these involved unconscious processes that are not particularly sophisticated; rather, they involve relatively simple cognitive functions. Greenwald puts it succinctly when he summarizes by proclaiming that the unconscious is analytically unsophisticated and its achievements are “severely limited.” Limited achievements would certainly imply to Greenwald that the unconscious has not been shown to be able to get people to buy popcorn, drink Coke, shoot themselves, or in general do things they would not ordinarily do. Just because people can respond to a subliminal message does not mean they will automatically follow its directives. In short, his is a view that the unconscious is not particularly smart. However, it should be mentioned that Greenwald supports the not-so-smart unconscious most strongly when he talks about one particular meaning of unconscious cognition, namely the cognition that one can have in the absence of attention.

Any *American Psychologist* reader worth his or her weight in curiosity would probably now be wondering what the proponents of New Look 2, or even New Look 1 for that matter, would be thinking. To satisfy this curiosity, a number of leading researchers and theoreticians, including New Look 1 representative Jerome Bruner and New Look 2 representative Matthew Erdelyi, were invited to comment on Greenwald's arguments. They took a variety of approaches: Some wrote pieces that were largely conceptual or historical in nature, whereas others wrote pieces with an empirical focus.

Bruner (1992, this issue) takes us back to the 1940s and 1950s to remind us what the original New Lookers were thinking about. As he recalls now, the first experiments of the day had little if anything to do with the unconscious, either a dumb version or a smart (dynamic)

version. The earliest experiments were more about perceptual salience or selectivity. Only later in the period did the unconscious peek through in the discussions of perceptual defense studies and related work that held great appeal for the psychoanalytically inclined. Bruner is brief in describing the busy and littered battleground on which (New Look 1) war was fought. The skirmishes were nasty at times and did little to answer the questions about the intelligence of unconscious processes. When forced to confront this question head on, Bruner clearly sides with the camp that says the unconscious is not very smart.

Matthew Erdelyi (1992, this issue) also reminds us that the New Look was more than just the study of the unconscious and that the New Look in perception needs no reclaiming. He notes that beyond a doubt schema and input, defense and memory interact with each other. It is clear that one of the original propositions of the New Look, that expectations affect perception, is beyond all dispute. Erdelyi, however, suggests that the unconscious needs to be reclaimed “gingerly” (p. 785). The lack of consensus on where the division between conscious and unconscious processes lies is the major stumbling block. To accept the most strict criterion of what is unconscious apparently relegates the unconscious to unreliability and insignificance. To accept a more liberal criterion admits a host of dubious effects into the unconscious. Erdelyi rightly points out the paralyzing effect of this lack of a clear conception of the unconscious has had on empirical progress. Although the solution to this problem may not be immediately apparent, Erdelyi does conclude that when our conception of the unconscious is clarified and research into the nature of (not just the existence of) the unconscious takes place, we will find that the unconscious is more sophisticated, smarter, than has been generally believed.

John Kihlstrom, most would agree, is one of the leading contemporary observers of “the cognitive unconscious” (the title of an article he published in *Science*, 1987). In that article, and in his current article with Terrance Barnhardt and Douglas Tatar (1992, this issue), he reminds us that the idea of unconscious mental life has a long and distinguished history that goes back long before Freud. Helmholtz, for one, stressed the idea that the perceptual experience is in large part determined by unconscious inferences based on knowledge of the world and memory of past experiences (Kihlstrom, 1987). This is not to diminish the important things that Freud had to say about the unconscious, an unconscious that Kihlstrom et al. characterize as “hot and wet” (p. 789). But Freud does not deserve all the credit. Moreover, since Freud's hot and wet proposals, a great deal of sophisticated work has been completed that paints a somewhat different picture of unconscious processes—a colder and drier picture. As for whether Kihlstrom et al. think the unconscious is smart or dumb, they do not seem to like the question. In any event, they hedge by saying “it depends.” Depending on how the contents in question are rendered unconscious and on just what the subject is required to do, we may end up concluding the unconscious is smart

sometimes and dumb other times. But all this is not very important, Kihlstrom et al. feel, compared with the sheer fact that the study of unconscious mental life has truly come of age.

A reaction with more of an empirical focus is provided by Phil Merikle (1992, this issue), a major contemporary contributor to our understanding of unconscious processes. He too cannot resist reminding us that there were scholars before Freud who cared about the unconscious, pointing out that 300 years ago it was Leibniz. Merikle takes us through several critical issues concerning perception without awareness. These are the issues that must be resolved, Merikle holds, before we can know whether the unconscious is smart or dumb. Merikle feels hopeful that as we move away from a dogged preoccupation with trying to prove the existence of unconscious processes, we will begin to gain empirical insights into just how sophisticated unconscious perceptual processes might be. Merikle has good company in his plea for new insights. Lazarus (1991) recently ended his Distinguished Scientific Award address by urging fellow psychologists to "explore the conscious . . . as well as find effective ways of exploring what lies below the surface." (p. 365).

Pawel Lewicki, Thomas Hill, and Maria Czymewska (1992, this issue) present us with an empirical look at a substantial body of research concerning the processes by which learning takes place above and below the surface of awareness. They suggest that the process of acquiring knowledge can take place both consciously and unconsciously, but that the bulk of the mental work in learning takes place at the unconscious (or, they prefer, *nonconscious*) level. Lewicki et al. suggest that most of what we learn about the world is very complex—so complex, in fact, that it is difficult for our conscious minds to discern. Nevertheless, our nonconscious minds pick up this information relatively quickly (compared with conscious acquisition). They claim this makes the unconscious more sophisticated at learning than the conscious mind. Certainly by the criterion of sophistication, their data suggest a smart unconscious. However, these unconscious processes are relatively inflexible in that they are applied in much the same way time after time, whereas procedures used for conscious learning appear to be more mutable and adaptable to different situations.

Finally, Jacoby, Lindsay, and Toth (1992, this issue) give us a window into their fast-developing approach to distinguishing the contributions of conscious and unconscious processes to mental life. Automatic processes do play a role in influencing behavior, they clearly say, but so do intentional processes. Their new procedure is designed to estimate separately the contributions of automatic and nonautomatic processes. In a nutshell, the procedure involves the logic of opposition: The innovative idea underlying this logic is that unconscious processes can only be seen when one successfully arranges the world so that the unconscious process opposes the aims of conscious intention. One problem with the old New Looks is that the measures of unconscious processing were contaminated by conscious processing. Virtually all of the

latest work reviewed by Greenwald (1992) has the same interpretive problem of contamination, Jacoby et al. argue. When decontamination is successful, can we tell whether the unconscious is smart or dumb? Jacoby et al. would rather talk about the efficiency of unconscious processes. Still they leave us wondering what they think about an unconscious that could make us eat popcorn or be driven to kill.

The present Science Watch attempts to address concern over the complexity of the mental processes involved in unconscious. Is the unconscious sophisticated or simple? Can the unconscious flexibly deal with novel psychological threats or can it only perform routine processes? A large body of research, much of it reviewed in the following articles, now suggests that the reality of unconscious processes is no longer questionable. Although there is not uniform agreement about how sophisticated these processes are, there seems to be a general consensus that the unconscious may not be as smart as previously believed. More important, there is absolute agreement that exciting times, both in research and theory, are ahead for the unconscious.

REFERENCES

- Bruner, J. (1957). On perceptual readiness. *Psychological Review*, 64, 123-152.
- Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.
- Bruner, J. (1992). Another look at New Look 1. *American Psychologist*, 47, 780-783.
- Cousins, N. (1957, October 5). Smudging the subconscious. *Saturday Review*.
- Erdelyi, M. H. (1974). A new look at the New Look: Perceptual defense and vigilance. *Psychological Review*, 81, 1-25.
- Erdelyi, M. H. (1985). *Psychoanalysis: Freud's cognitive psychology*. New York: Freeman.
- Erdelyi, M. H. (1992). Psychodynamics and the unconscious. *American Psychologist*, 47, 784-787.
- Greenwald, A. G. (1992). New Look 3: Unconscious cognition reclaimed. *American Psychologist*, 47, 766-779.
- Greenwald, A. G., Spangenberg, E. R., Pratkanis, A. R., & Eskenazi, J. (1991). Double-blind tests of subliminal self-help audiotapes. *Psychological Science*, 2, 119-122.
- Jacoby, L. L., Lindsay, D. S., & Toth, J. P. (1992). Unconscious influences revealed: Attention, awareness, and control. *American Psychologist*, 47, 802-809.
- Kihlstrom, J. F. (1987). The cognitive unconscious. *Science*, 237, 1445-1452.
- Kihlstrom, J. F., Barnhardt, T. M., & Tataryn, D. J. (1992). The psychological unconscious: Found, lost, and regained. *American Psychologist*, 47, 788-791.
- Kitayama, S. (1991). *Enhancement and impairment of perception by affect*. Unpublished manuscript, University of Oregon.
- Lazarus, R. S. (1991). Cognition and motivation in emotion. *American Psychologist*, 46, 352-367.
- Lewicki, P., Hill, T., & Czymewska, M. (1992). Nonconscious acquisition of information. *American Psychologist*, 47, 796-801.
- Merikle, P. M. (1992). Perception without awareness: Critical issues. *American Psychologist*, 47, 792-795.
- Moore, T. E. (1988). The case against subliminal manipulation. *Psychology & Marketing*, 5, 297-316.
- Morse, R. C., & Stoller, D. (1982, September). The hidden message that breaks habits. *Science Digest*, p. 28.
- Orwell, G. (1949). *Nineteen eighty-four*. New York: Harcourt, Brace.
- Rock group not liable for deaths. (1990, September 10). *National Law Journal*, p. 33.

- Persuaders get deeply "hidden" tool: Subliminal projection. (1957, September 16). *Advertising Age*, p. 127.
- Silverman, L. H., & Weinberger, J. (1985). Mommy and I are one: Implications for psychotherapy. *American Psychologist*, *40*, 1296-1308.
- Tulving, E., & Shachter, D. L. (1990). Priming and human memory systems. *Science*, *247*, 301-306.
- Vance, J., et al. v. Judas Priest et al., No. 86-5844, 2nd Dist. Ct. Nev. (August 24, 1990).
- Wortman, C., & Loftus, E. L. (1992). *Psychology* (4th ed). New York: McGraw-Hill.
- Wright, G. (1978). Better by you, better than me. In Judas Priest (performers) *Stained class* [album]. New York: Columbia Records.