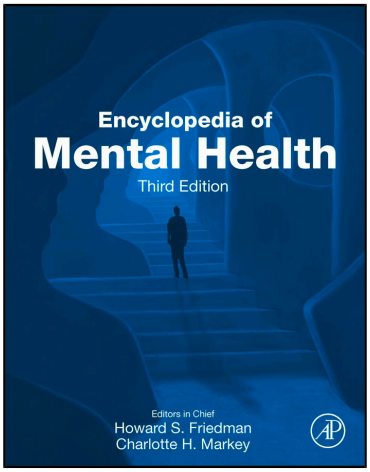

Kihlstrom, J.F., 2023. Unconscious mental life. In: Friedman, H.S., Markey, C.H. (Eds.), Encyclopedia of Mental Health, vol. 3. Elsevier, Academic Press, pp. 535–543.
https://dx.doi.org/10.1016/B978-0-323-91497- 0.00014-X.
ISBN: 9780323914970

Unconscious mental life

John F. Kihlstrom, University of California, Berkeley, CA, United States

This is an update of J.F. Kihlstrom, Unconscious Mental Life, Editor(s): Howard S. Friedman, Encyclopedia of Mental Health (Second Edition), Academic Press, 2016, Pages 345–349, ISBN 9780123977533, https://doi.org/10.1016/B978-0-12-397045-9.00269-X.

Key points

- Mental life includes unconscious as well as conscious processes and contents.
- Automatic processes operate outside phenomenal awareness and conscious control.
- The distinction between explicit (conscious) and implicit (unconscious) memory is widely accepted, based on studies of both neuropsychological patients and normal subjects.
- The explicit-implicit distinction has been extended to other domains of cognition, including perception (subsuming subliminal perception), learning, and thinking, and to non-cognitive domains of emotion and motivation.
- As a general rule, unconscious processing is analytically limited, so that "subliminal" advertising and other forms of unconscious influence usually do not have the power that is sometimes ascribed to them.
- The characteristic symptoms of the "dissociative" and "conversion" disorders, once known as "hysteria", involve dissociations between explicit and implicit memory and perception.
- Freud's psychoanalytic conception of the unconscious receives no support from modern scientific research.

Glossary

Attentional blindness Failure to perceive a visual stimulus despite presentation within the focus of attention. Includes the attentional blink, change blindness, and repetition blindness. Contrast to *inattentional blindness*, defined below.

Cognition Mental states and processes involving the acquisition, storage, generation, and transmission of knowledge and belief, such as perceiving, remembering, judgment and decision-making, and the use of language as a tool for both thought and communication.

Emotion Mental states and processes involving positive and negative (pleasant and unpleasant) feeling, affect, or mood, such as joy, sadness, fear, and anger.

Implicit memory Any change in experience, thought, or action that is attributable to a past event, in the absence of conscious recollection of that event. The definitions of implicit perception, implicit learning, etc., take a similar form.

Inattentional blindness Failure to consciously perceive a visual stimulus presented due to lack of attention. Contrast with *attentional* blindness, defined above.

Motivation Mental states and processing involving approach and avoidance goals, drives and desires, including physiological motives such as hunger and thirst, and psychosocial motives such as achievement and intimacy.

Encyclopedia of Mental Health, Third Edition, 2023, 535–543

Abstract

The term "unconscious mental life", or "the unconscious", refers to the idea that mental states and processes can influence ongoing experience, thought, and action outside of phenomenal awareness and voluntary control. The article reviews the evidence for automatic, unconscious processing, and for the dissociation between explicit (conscious) and implicit (unconscious) perception, learning, memory, and thinking. It also entertains the possibility of unconscious emotion (including attitudes) and motivation as well as cognition. Explicit-implicit dissociations, in various domains, lie at the heart of the dissociative and conversion disorders once known as "hysteria". Although Freud is often and incorrectly credited with "discovering" the unconscious, scientific research on unconscious mental life provides no evidence supporting psychoanalytic theory.

Introduction

We ordinarily identify mental life with our conscious thoughts, feelings, and desires, and the actions which result from them. Accordingly, psychological explanations of behavior typically refer to an individual's conscious mental states—that we do *A* because we believe *X*, feel *Y*, or desire *Z*. But consciousness is not all there is to the mind. The concept of unconscious mental life, sometimes referred to as "*the unconscious*" refers to the idea that mental states and processes—cognitions, emotions, and motives—can influence our ongoing experience, thought, and action outside of phenomenal awareness and voluntary control.

Many natural processes are "unconscious" in the broadest sense of the term: planetary motion, tectonic movement, hurricanes, photosynthesis, even depolarization and synaptic transmission ("no afference in the brain", the neurosurgeons assure us), to give just a few examples. In the 19th century, some Romantic philosophers classified these physical and biological processes as aspects of "The Unconscious". But the descriptor *unconscious* is only properly applied to things that could also be *conscious*—namely, mental states and processes. As such, the term *psychological unconscious* is something of a pleonasm; but it does clarify that "unconscious" is a descriptor that properly applies only to mental life.

The discovery of the unconscious

Although the "discovery" of the unconscious is commonly attributed to Sigmund Freud, interest in unconscious mental states and processes goes back at least to Immanuel Kant, who raised the question of whether we had ideas of which we were not conscious, and how we would know. Even earlier, Gottfried Wilhelm Leibnitz had argued for the psychological importance of *petites* (we would now call them subliminal) *perceptions* and *appetitions* (strivings). Johann Friedrich Herbart, drawing on Leibnitz, described the sensory threshold (*limen*) as a battleground in which unconscious percepts competed for representation in consciousness.

Later in the 19th century, but still before Freud appeared on the scene, Hermann von Helmholtz concluded that conscious perception results from unconscious inferences about environmental stimuli. Certain Romantic philosophers, such as Arthur Schopenhauer, asserted that thought and action were driven by unconscious sexual and life-preserving instincts, while Eduard von Hartmann believed that the entire universe was ruled by a highly intelligent, yet unconscious, dynamic force. This Romantic philosophy strongly influenced Freud, who while still a young neurologist got his ideas about unconscious influence by observing Jean-Martin Charcot's demonstrations of "hysteria" and hypnosis while on fellowship at the Salpetriere hospital in Paris.

Consciousness was the central topic for both the early 19th-century psychophysicists and late 19th-century structuralists, not to mention William James, who in *Psychology: Briefer Course* (1892) defined psychology as "the description and explanation of states of consciousness as such". Interest in consciousness disappeared with the Behaviorist Revolution of John B. Watson, but was revived in the Cognitive Revolution of the 1950s and 1960s with studies of attention, short-term memory, and visual imagery. Interest in *unconscious* mental life followed soon thereafter, with the distinction between automatic (unconscious) and controlled (conscious) processing and between explicit (conscious) and implicit (unconscious) memory (Kihlstrom, 1987, 2012). Within contemporary cognitive psychology and cognitive science, current interest in the psychological unconscious is almost entirely independent of Freud and psychoanalysis.

Preconscious processing and automaticity

In early cognitive psychology, the unconscious was conceived as part wastebasket and part file cabinet. On the one hand, it was the repository for unattended inputs, or for those contents of the sensory registers and short-term memory (STM) which had been rendered unavailable by virtue of decay or displacement. On the other hand, the unconscious was also identified with the latent contents of long-term memory (LTM), which are brought into awareness when they are transferred from LTM to STM. The upshot was the identification of consciousness with attention, and the unconscious with the unattended. If attention was devoted to an event, that event perforce became conscious. This, in turn, gave rise to a debate over the scope of *pre-attentive*, or *pre-conscious*, processing. "Early selection" theorists argued that preconscious processing was limited to the physical features of stimuli; "late-selection" theorists allowed that at least some degree of semantic processing was possible, even pre-attentively.

The debate between early and late selection was resolved to some extent by the introduction of another distinction, between automatic and controlled processing (Moors, 2016). In principle, at least, automatic processes are inevitably evoked by the presentation of a particular stimulus; once initiated, they are incorrigibly executed, in a ballistic fashion; they consume no attentional resources; and they do not interfere with other ongoing processes. These features constitute a prototype of automaticity, and each of them lies on a continuum. The more of them that are present, and to the extent that they are present, the more certain we can be that a process is performed automatically.

In some respects, the models for automatic processes are innate reflexes, taxes, and instincts, as well as learned stimulus-response connections acquired through classical and instrumental conditioning. However, even complex semantic analyses can be automatized, provided that they have been practiced enough. The classic example is reading, where the automatic analysis of a word's meaning gives rise to the "Stroop effect". In the present context, automaticity potentially expands the scope of preconscious or preattentive processing: even very deep semantic processing can be performed unconsciously, provided that the processes involved have been automatized through extensive practice.

Automatic processes are unconscious in the strict sense of the term: they are never directly available to conscious awareness, and are known only by inference from task performance. The distinction between automatic and controlled processing gave rise to a number of "dual-process" theories in cognitive, social, and clinical psychology. According to these theories, performance of any cognitive activity is mediated by some mix of automatic and controlled processes. Among the most prominent of these is Kahneman's (2011) distinction between heuristic, rapid, automatic "System 1" and algorithmic, slow, controlled "System 2" thinking. Most of these theories conclude that automatic, unconscious processes generally dominate controlled, conscious ones—not least because the former are faster than the latter. The precise mix of automatic and controlled processing is determined by situational or personal considerations. When people lack the time or motivation to engage in deliberate, controlled processing, they may slip into "automatic" mode. Experimental paradigms such as the "process dissociation procedure" have been developed to determine the relative contributions of automatic and controlled processing.

Some theorists have gone so far as to claim that, in the ordinary course of everyday living, our experience, thought, and action is overwhelmingly dominated by automatic processes (Bargh, 1997; Bargh and Chartrand, 1999). And some within this camp have gone so far as to argue that free will, in the sense of having conscious control over our thoughts, feelings, and behaviors, is illusory (Wegner, 2002). However, the empirical literature does not justify such radical claims. Many ostensible demonstrations of automaticity in social interaction, for example, do not employ a rigorous definition of automaticity, or confuse the truly automatic with the merely incidental. Most fail to actually compare the impacts of automatic and controlled processing, and the few that include such a comparison generally show that, under ordinary conditions, controlled processing has the greater influence on task performance. It should surprise no one that response in the first half-second or so after a stimulus is dominated by automatic processing. Still, the wide acceptance of the concept of automaticity was a milestone in the scientific acceptance of the concept of unconscious processing.

Implicit memory

Mental processes may be more or less automatic and unconscious, but we normally regard mental states themselves as conscious: we are aware of our experiences, thoughts, feelings, and desires. So the next question is whether these mental states can also operate unconsciously. For most of the 20th century, this was Freudian territory, and the possibility of unconscious thought was viewed as almost a contradiction in terms—that is, when psychologists thought about it at all. Beginning in the 1970s, however, a wealth of evidence began to converge, from studies involving brain-damaged patients, hypnosis, and even college students performing standard laboratory tasks, that our experience, thought, and action can be affected by percepts, memories, and the like of which we are not consciously aware.

For example, neurological patients with lesions to the hippocampus and associated structures in the medial temporal lobe display an anterograde amnesia, meaning that they cannot remember "postmorbid" events that occurred since the onset of their brain damage. There is little or no retrograde amnesia for premorbid events, which occurred before the brain damage—although those memories, too, may subsequently be degraded through repeated retrieval followed by impaired reconsolidation. Nevertheless, these same patients show priming effects, in which the unremembered events influence their performance on various laboratory tasks. Similar priming effects are observed in neurologically intact subjects who study wordlists under experimental conditions that lead to poor recall and recognition. Findings like these motivated a distinction between *explicit memory*, defined as the ability to consciously recall or recognize past events, and *implicit memory*, defined as any effect on task performance that is attributable to a past event (Schacter, 1987). Priming in the absence of recall or recognition shows that explicit and implicit memory can be dissociated, so that the patients or subjects are affected by events, recorded in memory, which they cannot consciously remember—that is, by unconscious memories (Kihlstrom et al., 2017).

There are two broad classes of priming effects. Consider a subject who has studied the word *water*. In *repetition* or *perceptual* priming, the prime and target are physically similar. For example, the subject might be asked to complete the stem *wat-* with an English word. Priming occurs when the subject generates the word water instead of an alternative, such as watch. In these cases, the priming is based on a perceptual representation of the physical structure of the prime. In *semantic* priming, the prime and target

are related in meaning. For example, the subject might be asked to free-associate to the word *ocean*, and generate *water* as opposed to *wave*. In this case, prime and target are not linked by physical resemblance but by meaning. Obviously, the most interesting cases of implicit memory reflect semantic priming.

Implicit perception

The explicit-implicit distinction can be extended to other aspects of cognition as well. The question of whether, and to what extent, there can be processing of stimuli presented below Herbert's *limen* has a long history in psychological research (Dixon, 1981). In fact, the very first report of psychological research published in the United States dealt with the question of "subliminal" perception (Peirce and Jastrow, 1884). Controversy has dogged demonstrations of subliminal perception for almost as long, mostly centered on the question of whether the thresholds for conscious perception were properly set in the first place. More recently, researchers have used priming paradigms adapted from the study of implicit memory to demonstrate subliminal perception more convincingly. There is now considerable evidence that stimuli which are presented subliminally, (at very low energy levels, or for very short durations, or masked by another stimulus) can generate semantic as well as repetition priming effects.

In cases of "blindsight", patients who have suffered damage to the striate cortex of the occipital lobe are able to respond appropriately to visual stimuli even though they are unable to see them (Weiskrantz, 1986). Something similar has been observed in patients with damage to the right parietal lobe, who tend to "neglect" objects in their left visual fields; and in prosopagnosia, where patients with damage in the fusiform area of the temporal lobe cannot consciously recognize faces that are, objectively, familiar. Preserved priming has been observed in each of these syndromes.

These experimental outcomes illustrate a distinction between explicit and *implicit perception*, analogous to the explicit-implicit distinction in memory (Kihlstrom et al., 1992). Explicit perception refers to conscious perception of current events, as exemplified by our ability to locate and identify objects. By contrast, implicit perception refers to any effect of a current event on ongoing experience, thought, or action, in the absence (or independent) of conscious perception. Subliminal perception is unconscious perception, in the sense that the subject is not consciously aware of the stimulus. The adjective "implicit" is preferable to "subliminal" because in many cases (e.g., blindsight), the stimulus is in no sense subliminal.

A number of experimental paradigms alter perceptual awareness by manipulating the subject's deployment of attention (Friedenberg, 2012). In *dichotic listening*, the subject shadows a passage presented to one ear, while ignoring a passage presented to the other. In *parafoveal perception*, subjects who focus on one portion of the visual field fail to notice stimuli presented elsewhere. In both cases, there is both repetition and semantic priming from the unattended stimuli, representing additional dissociations between explicit and implicit perception. These experimental paradigms produce what is called *inattentional blindness*—a failure to consciously perceive an otherwise visible object or event because the subject's attention or expectations are focused elsewhere.

It is not altogether surprising that people will not consciously perceive, or remember, something that they did not pay attention to. But still other paradigms appear to involve *attentional blindness*, because subjects fail to consciously perceive objects or events that are presented right in the focus of their attention. In the *attentional* blink, they do not notice a stimulus that appears immediately after one for which they have been searching. In *repetition blindness*, they fail to notice that a sentence they are reading contains a repeated word. In *change blindness*, subjects do not notice massive changes in their visual field—in one famous instance, a man in a gorilla suit walking through group playing a ballgame. In the present context, the more interesting question is whether these unattended events will give rise to priming effects and other evidence of implicit perception. Although the literature is sparse, the general answer is that even semantic priming is possible in some conditions of attentional and inattentional blindness.

Implicit learning

Learning can also occur unconsciously, in two different senses. Amnesic patients, for example, can acquire new motor skills, such as mirror-image drawing, even though they do not remember the practice trials. Similarly, they can acquire new factual knowledge, even though they have no conscious recollection of where they learned it—a phenomenon known as *source amnesia*, a variant on implicit memory. In a famous case, Edouard Claparede deliberately pricked the hand of an amnesic patient while greeting her. Minutes later, the patient had no recollection of having met Claparede earlier, but she refused to shake his hand because "Sometimes people hide pins in their hands". In these cases, the subjects are consciously aware of knowledge but unaware of the learning experience through which they acquired it.

The reverse also occurs. Neurologically intact subjects can acquire new skills, such as the rules that define a category or govern a process, and use this knowledge to make accurate judgments about new stimuli, even though they appear to be unaware of the rules which they are using to make the judgments. In this case, known as *implicit learning* (Reber, 1967), the subjects are not consciously aware of some knowledge which they obviously possess, in order to make the judgment or solve the problem. Similar findings have been obtained across a variety of paradigms, including sequence learning and the control of dynamic systems (Frensch and Runger, 2003).

Following the model of implicit memory, we can define implicit learning as a relatively permanent change in knowledge or behavior that occurs as a result of experience, in the absence of awareness of the newly acquired knowledge itself. Whereas implicit memory refers to episodic or autobiographical knowledge, implicit learning properly applies to the acquisition of procedural and semantic knowledge. The general idea of implicit learning is widely accepted; but it is not as well established as implicit memory or perception, owing to technical difficulties in documenting dissociations with explicit learning. And while implicit learning is sometimes confused with incidental learning, the learning in question is not simply unintended. Rather, it entails the acquisition of new knowledge where the subject has no conscious awareness of what has been learned. The distinction between implicit learning and implicit memory is the difference between awareness of *what* was learned and awareness of *where and when* it was learned.

Implicit thought

The explicit-implicit distinction may also apply to reasoning, judgment, decision-making, and problem solving—perhaps the cardinal examples of conscious thought. Intuitions about the solution to a problem, in the absence of conscious awareness of the solution itself, may be an example of *implicit thought*, where an idea or image influences experience, thought, or action in the absence of conscious awareness of the idea itself (Kihlstrom et al., 1996). For example, subjects can choose which of two problems has a correct solution, at above-chance levels, even though they do not know what the solution is. And the correct solution to an unsolved problem can give rise to priming effects similar to those observed in implicit memory and perception.

Implicit thought differs from implicit memory in that the influence does not stem from a representation of some past event; it differs from implicit perception in that the influence does not reflect an object or event in the current stimulus environment. Incubation effects in problem-solving may reflect increases in activation associated with an idea that has not yet reached the threshold of conscious awareness. Insight, then, occurs once an implicit thought crosses the threshold required for explicit conscious awareness. As with implicit learning, it is sometimes suggested that implicit or unconscious thinking is more powerful than its conscious counterpart, but this does not appear to be the case (Nieuwenstein et al., 2015).

Implicit emotion

The explicit-implicit distinction is relevant to emotion and motivation as well as cognition (Kihlstrom et al., 2000). In the first place, changes in conscious feelings may be reflections of implicit perception or memory—as in Thomas Brown's translation of a famous epigraph from the Roman poet Martial:

> I do not love thee Dr. Fell.
> Why I cannot tell.
> I only know
> I do not love thee, Dr. Fell".

In this example, the feeling is conscious, but the source of the feelings, whether a memory of some past event or a perception of a current one, is not.

In addition, certain emotional states can be generated unconsciously, in the sense that they occur as automatic responses to particular environmental stimuli. In the case of the "basic" emotions (joy, sadness, fear, anger, disgust, etc.), the connection between environmental stimulus and emotional response appears to be innate, a product of our evolutionary heritage. In other cases, the stimulus-response link is acquired through experience. In the "mere exposure effect", subjects increase their positive feelings toward stimuli to which they had previously been exposed, even if they did not consciously perceive the earlier presentation—another example of implicit perception.

The possibility of unconscious emotion is raised by the Implicit Attitudes Test (IAT; Greenwald et al., 2021; Greenwald et al., 1998), which purports to measure unconscious social attitudes—toward ethnic minorities or other outgroups, for example. The IAT records reaction times while subjects make judgments of category membership (e.g., Swedish or Finnish names) and affective valence (e.g., good-bad, pleasant-unpleasant, like-dislike). The pattern of reaction times is then used to infer the person's attitude toward members of the target categories. A large number of studies have found that the correlations between IAT scores and self-reported attitudes are relatively low. This constitutes prima facie evidence of a dissociation between explicit and implicit attitudes, and the developers of the IAT have specifically promoted it as a test of unconscious attitudes, stereotypes, and prejudices, and sought to develop remedial techniques for reducing "implicit bias". Millions of individuals have visited the Project Implicit Website for an assessment of their implicit attitudes.

Again, however, implicit attitudes present problems. In the first place, the correlations in question are not all that low: they are similar to those obtained between questionnaire measures and behavioral manifestations of personality traits. It is not at all clear that the IAT measures people's actual attitudes, as opposed to their knowledge about cultural stereotypes and prejudices that they themselves may not share. And even granting that the IAT measures attitudes, it does not discriminate between different degrees of positive attitudes (e.g., "I like both Swedes and Finns, but I like Swedes more") and actual differences in affective valence (e.g., "I like Swedes and dislike Finns"). And even if the measurement is accurate, the attitudes revealed by the IAT may simply be views that the person does not wish to divulge on a self-report scale, as opposed to attitudes of which the person is unaware. The proponents of the

IAT themselves have sometimes presented the IAT as an indirect measure of conscious attitudes, more accurate than the self-reports by which attitudes are usually measured because they are expressed involuntarily.

Some theorists argue that unconscious emotion is a contradiction in terms. Nevertheless, emotion theorists commonly distinguish among three components of an emotional response: subjective (or cognitive), referring to the person's conscious feeling state; behavioral, referring to overt motor activities associated with the emotion (such as approach or avoidance behavior, or facial expressions of emotion); and physiological, referring to associated covert somatic changes (such as heart rate or blood pressure). These three components are not always positively intercorrelated, a situation known as *desynchrony*. A particular form of desynchrony, in which the subjective component of emotion is absent while the behavioral and/or physiological components persist, would be evidence for a dissociation between explicit and implicit emotion. In this sense, despite the ambiguities attending to implicit attitudes and the IAT, it is possible that emotional states may influence experience, thought, and action outside of awareness.

Implicit motivation

In a similar manner, motives may drive, direct, and select behavior unconsciously (Kihlstrom, 2019). They can arise as expressions of implicit perception and memory (as in "I do not *want* thee, Dr. Fell …"), and they can be automatically evoked by some environmental stimulus (Bargh, 1990; Ferguson and Cone, 2014). In these cases, the motive or goal of behavior is conscious, but the processes underlying it operate automatically and unconsciously.

Usually, motivational states are assessed by means of questionnaires and other self-reports, techniques which assume that subjects know why they are engaged in certain behaviors. An alternative measurement is the "Picture-Story Exercise", a variant on the Thematic Apperception Test (TAT), in which subjects are asked to tell a story about an ambiguous picture. The resulting stories are coded for evidence of motives such as achievement, affiliation, and power (McClelland et al., 1989). A large body of research reveals low correlations between motives assessed by means of the TAT and the same motives assessed by self-report measures. This constitutes prima facie evidence of a dissociation between explicit and implicit motivation. However, other interpretations are possible. For example, it may be that the TAT and self-reports are actually measuring different motives, or different aspects of motivation—or that the TAT is not a measure of motivation at all.

Limits on unconscious mental life

Not so long ago, scientific psychology abjured any discussion of consciousness, much less the unconscious. However, the field has now thoroughly embraced the idea of the unconscious—so much so that some theorists tout the superiority of unconscious over conscious thought, and express doubts that consciousness plays much of a role, if any, in behavior. However, none of this research justifies claims about the possibility of surreptitious behavioral control by "subliminal" stimulation. The fact is that, for the most part, unconscious processing is analytically limited. Most demonstrations of implicit memory involve repetition priming, mediated by perception-based mental representations of stimuli that have not been analyzed for meaning. For example, surgical patients can show post-operative priming for words that were read to them during general anesthesia, but there is no evidence of semantic priming under these conditions. The most dramatic demonstrations of "subliminal" perception do involve semantic priming, but even that is analytically limited. The priming effects do not last more than a few seconds, and appear to be limited to the semantic analysis of single words—not even two-word phrases, much less whole sentences. A subliminal message like "*Eat less chocolate*" is unlikely to be processed for meaning, and even less likely to overcome the listener's conscious motivation.

At the same time, the limits on unconscious processing may depend on how the percept (memory, etc.) is rendered unconscious. The brain damage that results in the amnesic syndrome, blindsight, neglect, and prosopagnosia probably impairs encoding processes. Implicit memory in neurologically intact subjects is generally associated with single presentations of stimulus materials, impoverished encoding conditions, or extremely long retention intervals. Similarly, many implicit perception effects are produced by degrading the stimulus (as in subliminal or masked presentations) or distracting the subject from it (as in dichotic listening or parafoveal presentation). However, similar explicit-implicit dissociations have been obtained in hypnosis, under more optimal conditions of encoding and retrieval. In posthypnotic amnesia, for example, subjects may study a wordlist over several trials to a strict criterion of learning before receiving a suggestion to forget it. In posthypnotic suggestion, the subject's behavior is experienced as automatic and involuntary, even though it consumes attentional capacity. And in hypnotic blindness and deafness, the stimulus is highly salient and presented in the focus of the subject's attention. Under these conditions, we typically observe more robust, longer-lasting, semantic priming effects.

A return to Freud?

Freud had no interest in experimental tests of his ideas, preferring to rely on inferences from clinical case material. However, the psychoanalytic ego psychologists sought to integrate psychoanalysis with experimental psychology, around such issues as perceptual defense and "subception". This alliance culminated in the "New Look" in perception, which examined the influence of emotion and motivation on cognition.

Freud's disinterest in experimental research has not prevented partisans from construing modern psychological research as support for his ideas about unconscious mental life (Shevrin, 1992; Weinberger and Stoycheva, 2020; Westen, 1999). For example, there is a long history of experiments on memory for negatively toned stimuli, often interpreted as evidence for or against the Freudian concept of repression. But, as Rapaport (1942) pointed out in an early review of this literature, it is a mistake to invoke repression to explain the forgetting of material that is merely unpleasant, disagreeable, or socially unacceptable. In psychoanalytic theory, repression operates specifically to deny conscious representation to ideas, impulses, and conflicts involving primal sexual and aggressive instincts and their derivatives. In this light, almost the entire experimental literature on "repression" is simply irrelevant to psychoanalytic theory.

Interest in repression was revived in the 1980s and 1990s during the cultural panic over "repressed" and "recovered" memories of child abuse and other forms of trauma, and the consequent "memory wars". In this view, victims of sexual abuse and other traumas repress (or, in some accounts, dissociate) their memories from consciousness; but traces of the events can be observed in behavior (e.g., favoring loose-fitting clothing) and physiology (e.g., persistent pelvic pain), much in the manner of implicit memories. In some respects, this turn of events revived Freud's earlier, pre-psychoanalytic ideas about repression, which assumed that the traumas in question occurred in fact, not in fantasy.

This new (old) view of repression received some support from experimental research on the neurocognitive mechanisms of directed forgetting and other forms of thought suppression, showing that motivated, intentional forgetting is possible (Anderson and Hulbert, 2021; Brewin, 2021). But the basic argument remains controversial for several reasons, not the least of which are the general lack of independent corroboration for the traumatic memories, and the role of inference and suggestion played in their ostensible discovery and recovery (Kihlstrom, 2006; Otgaar et al., 2021). Moreover, repression should not be equated with conscious thought suppression: the whole point of the Freudian defense mechanisms, and the reason for their ostensible success, is that they operate unconsciously.

Some personality researchers have described a "repressive coping style" (Weinberger, 1990) combining low levels of distress with high levels of defensiveness. Repression, so defined, may be a risk factor for cardiovascular disease as well as psychosomatic illness. But "repression", so defined, refers to the avoidance of conflict more broadly, not the primal conflicts that are central to psychoanalytic theory.

An extensive line of research connecting psychoanalysis to modern psychology concerns *subliminal symbiotic stimulation*. In an extensive series of studies, Silverman (1976) reported that subliminal presentation of the phrase *Mommy and I are one* has a number of effects on both normal subjects and psychiatric patients. However, both the method and the theory underlying this research have been criticized, even within the psychoanalytic community. In addition, decoding so complicated a verbal stimulus appears to go beyond the limits of subliminal perception.

At present, then, research does not support the view that unconscious sexual and aggressive impulses are regulated by unconscious defense mechanisms like repression, which in turn result in the neurotic symptoms that are unconscious symbolic manifestations of unconscious conflict. And nothing about implicit emotion and motivation relates to the primal affects and drives—the "monsters from the Id" (to quote a line from *Forbidden Planet*, the classic 1956 science-fiction film) that lie at the heart of classical psychoanalysis.

The unconscious in mental illness

Hilgard's "neodissociation" theory of divided consciousness, initially proposed in the context of hypnosis, stimulated a revival of interest in various forms of dissociation observed clinically in syndromes that used to be gathered under the rubric of "hysteria" (Kihlstrom, 1994). "Hysteria" is no longer an accepted diagnostic category, but the classic syndromes of hysteria are still represented in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) as the dissociative and conversion disorders. However, DSM's organization is not right from a psychological point of view. The essence of the conversion disorders is not that they are "somatoform" in nature (as *DSM*-IV had it), or even that they are "functional neurological symptom disorders" (in *DSM*-5). The conversion disorders are essentially dissociative in nature because they are disorders of conscious perception and action, just as the dissociative disorders are disorders of conscious memory and identity.

The implication is that the conversion disorders should be reclassified with the dissociative disorders. Dissociative disorders affecting memory and identity include depersonalization and derealization, dissociative amnesia, dissociative fugue, and dissociative identity disorder (also known as multiple personality disorder). Those affecting sensation and perception include such "conversion" disorders as functional blindness, deafness, anesthesia, or analgesia. And those affecting voluntary motor function include functional paralysis or weakness, aphonia, and *globus hystericus*. Despite differences in superficial appearance, all of these disorders involve disruptions to conscious awareness or control, and the influence of unconscious mental processes.

Conclusion

The latter part of the 20th century witnessed renewed scientific interest in all aspects of unconscious mental life, resulting in an extensive and vigorous literature extending the distinction between automatic and controlled processes, and dissociations between explicit and implicit memory and their cognates, into a wide variety of cognitive, social, and clinical domains. Various aspects of unconscious mental life have stimulated research and theory as long as psychology has been a science. By providing a contrast with conscious mental life, they also provide a new perspective on consciousness and its neural substrates.

References

Anderson, M.C., Hulbert, J.C., 2021. Active forgetting: adaptation of memory by prefrontal control. Annu. Rev. Psychol. 72, 1–36. https://doi.org/10.1146/annurev-psych-072720-094140.

Bargh, J.A., Chartrand, T.L., 1999. The unbearable automaticity of being. Am. Psychol. 54 (7), 462–479. https://doi.org/10.1037/0003-066X.54.7.462.

Bargh, J.A., 1990. Auto-motives: preconscious determinants of social interaction. In: Higgins, E.T., Sorrentino, R.M. (Eds.), Handbook of Motivation and Cognition. Guilford, New York, pp. 93–130.

Bargh, J.A., 1997. The automaticity of everyday life. In: Wyer, R.S. (Ed.), Advances in Social Cognition, vol. 10. Erlbaum, Mahwah, N.J., pp. 1–61

Brewin, C.R., 2021. Tilting at windmills: why attacks on repression are misguided. Perspect. Psychol. Sci. 16 (2), 443–453. https://doi.org/10.1177/1745691620927674.

Dixon, N.F., 1981. Preconscious Processing. Wiley, Chichester, U.K.

Ferguson, M.J., Cone, J., 2014. The mind in motivation: a social cognitive perspective on the role of consciousness in goal pursuit. In: Carlston, D. (Ed.), Handbook of Social Cognition. Oxford University Press, Oxford, pp. 476–496.

Frensch, P.A., Runger, D., 2003. Implicit learning. Curr. Dir. Psychol. Sci. 12 (1), 13–17. http://dxdoi.org/10.1111/1467-8721.01213.

Friedenberg, J., 2012. Visual Attention and Consciousness. Taylor & Francis, New York.

Greenwald, A.G., McGhee, D.E., Schwartz, J.L.K., 1998. Measuring individual differences in implicit cognition: the Implicit Association Test. J. Pers. Soc. Psychol. 74, 1464–1480. https://doi.org/10.1037/0022-3514.74.6.1464.

Greenwald, A.G., Brendl, M., Cai, H., Cvencek, D., Dovidio, J.F., Friese, M., et al., 2021. Best practices for using the implicit association test. Behav. Res. Methods. https://doi.org/10.3758/s13428-021-01624-3.

Kahneman, D., 2011. Thinking Fast and Slow. Farrar, Straus & Giroux, New York.

Kihlstrom, J.F., Barnhardt, T.M., Tataryn, D.J., 1992. Implicit perception. In: Bornstein, R.F., Pittman, T.S. (Eds.), Perception Without Awareness: Cognitive, Clinical, and Social Perspectives. The Guilford Press, New York, NY, USA, pp. 17–54.

Kihlstrom, J.F., Shames, V.A., Dorfman, J., 1996. Intimations of memory and thought. In: Reder, L.M. (Ed.), Implicit Memory and Metacognition. Erlbaum, Mahwah, N.J., pp. 1–23

Kihlstrom, J.F., Mulvaney, S., Tobias, B.A., Tobis, I.P., 2000. The emotional unconscious. In: Eich, E., Kihlstrom, J.F., Bower, G.H., Forgas, J.P., Niedenthal, P.M. (Eds.), Cognition and Emotion. Oxford University Press, New York, pp. 30–86.

Kihlstrom, J.F., Dorfman, J., Park, L., 2017. Conscious and unconscious memory. In: Schneider, S., Velmans, M. (Eds.), Blackwell Companion to Consciousness, second ed. Wiley, Oxford, pp. 562–575.

Kihlstrom, J.F., 1987. The cognitive unconscious. Science 237 (4821), 1445–1452. https://doi.org/10.1126/science.3629249.

Kihlstrom, J.F., 1994. One hundred years of hysteria. In: Lynn, S.J., Rhue, J.W. (Eds.), Dissociation: Clinical and Theoretical Perspectives. The Guilford Press, New York, NY, USA, pp. 365–394.

Kihlstrom, J.F., 2006. Trauma and memory revisited. In: Uttl, B., Ohta, N., Siegenthaler, A.L. (Eds.), Memory and Emotions: Interdisciplinary Perspectives. Blackwell, New York, pp. 259–291.

Kihlstrom, J.F., 2012. Unconscious processes. In: Reisberg, D. (Ed.), Oxford Handbook of Cognitive Psychology. Oxford University Press, Oxford, pp. 176–186.

Kihlstrom, J.F., 2019. The motivational unconscious. Personal. Soc. Psychol. Compass 13 (5), e12466. https://doi.org/10.1111/spc3.12466.

McClelland, D.C., Koestner, R., Weinberger, J., 1989. How do self-attributed and implicit motives differ? Psychol. Rev. 96 (4), 690–702. https://doi.org/10.1037/0033-295X.96.4.690.

Moors, A., 2016. Automaticity: componential, causal, and mechanistic explanations. Annu. Rev. Psychol. 67, 263–287. https://doi.org/10.1146/annurev-psych-122414-033550.

Nieuwenstein, M.R., Wierenga, T., Morey, R.D., Wicherts, J.M., Blom, T.N., Wagenmakers, E.-J., van Rijn, H., 2015. On making the right choice: a meta-analysis and large-scale replication attempt of the unconscious thought advantage. Judgm. Decis. Mak. 10 (1), 1–17.

Otgaar, H., Howe, M.L., Patihis, L., Merckelbach, H., Lynn, S.J., Lilienfeld, S.O., Loftus, E.F., 2021. Belief in unconscious repressed memory persists. Perspect. Biol. 16 (2), 454–460. https://doi.org/10.1177/1745691621990628.

Peirce, C.S., Jastrow, J., 1884. On small differences of sensation. Memoir. Natl. Acad. Sci. 3 (1), 75–83.

Rapaport, D., 1942. Emotions and Memory. Williams & Wilkins, Baltimore, MD.

Reber, A.S., 1967. Implicit learning of artificial grammars. J. Verb. Learn. Verb. Behav. 6 (6), 855–863. https://doi.org/10.1016/S0022-5371(67)80149-X.

Schacter, D.L., 1987. Implicit memory: history and current status. J. Exp. Psychol. Learn. Mem. Cognit. 13 (3), 501–518. https://doi.org/10.1037/0278-7393.13.3.501.

Shevrin, H., 1992. The Freudian unconscious and the cognitive unconscious: identical or fraternal twins? In: Barron, J.W., Eagle, M.N., Wolitzky, D.L. (Eds.), Interface of Psychoanalysis and Psychology. American Psychological Association, Washington, D.C., pp. 313–316

Silverman, L.H., 1976. Psychoanalytic theory: "The reports of my death are greatly exaggerated". Am. Psychol. 31 (9), 621–637. https://doi.org/10.1037/0003-066X.31.9.621.

Wegner, D.M., 2002. The Illusion of Conscious Will. MIT Press, Cambridge, MA.

Weinberger, J., Stoycheva, V., 2020. The Unconscious: Theory, Research, and Clinical Implications. Guilford, New York.

Weinberger, D.A., 1990. The construct validity of the repressive coping style. In: Singer, J.L. (Ed.), Repression and Dissociation: Defense Mechanisms and Personality Styles. University of Chicago Press, Chicago, pp. 337–386.

Weiskrantz, L., 1986. Blindsight: A Case Study and Implications. Oxford University Press, Oxford, U.K.

Westen, D., 1999. The scientific status of unconscious processes: is Freud really dead? J. Am. Psychoanal. Assoc. 47 (4), 1061–1106. https://doi.org/10.1177/000306519904700404.

Further reading

Banaji, M.R., Greenwald, A.G., 2013. Blindspot: Hidden Biases of Good People. Delacorte, New York.

Bornstein, R.F., Masling, J.M. (Eds.), 1998. Empirical Perspectives on the Psychoanalytic Unconscious. American Psychological Association, Washington, D.C.

Chaiken, S., Trope, Y. (Eds.), 1999. Dual-Process Theories in Social Psychology. Guilford, New York.

Crews, F. (Ed.), 1995. The Memory Wars: Freud's Legacy in Dispute. New York Review of Books, New York.

Ellenberger, H.F., 1970. The Discovery of the Unconscious: The History and Evolution of Dynamic Psychiatry.

Hassin, R.R., Uleman, J.S., Bargh, J.A. (Eds.), 2005. The New Unconscious. Oxford University Press, New York.

Hilgard, E.R., 1977. Divided Consciousness: Multiple Controls in Human Thought and Action. Wiley-Interscience, New York.

Lynn, S.J., Rhue, J.W., 1994. Dissociation Clinical and Theoretical Perspectives. Guilford, New York.

Reder, L.M., 1996. Implicit Memory and Metacognition. Lawrence Erlbaum, Mahwah, N.J.

Schultheiss, O.C., Brunstein, J.C. (Eds.), 2010. Implicit Motives. Oxford University Press, Oxford.

Sherman, J.W., Gawronski, B., Trope, Y. (Eds.), 2014. Dual-Process Theories of the Social Mind. Guilford, New York.
Shevrin, H., Bond, J., Brakel, L., Hertel, R., Williams, W., 1996. Conscious and Unconscious Processes: Psychodynamic, Cognitive, and Neuro-physiologic Convergences. Guilford Press, New York.
Singer, J.L. (Ed.), 1990. Repression and Dissociation: Implications for Personality Theory, Psychopathology, and Health. University of Chicago Press, Chicago.
Weinberger, J., Stoycheva, V., 2020. The Unconscious: Theory, Research, and Clinical Implications. Guilford, New York.
Weiskrantz, L., 1986. Blindsight: A Case Study and Implications. Oxford University Press, Oxford, U.K.

Relevant websites

Association for the Scientific Study of Consciousness, https://theassc.org/.
Project Implicit, https://implicit.harvard.edu/implicit/.