

# Free Will in Scientific Psychology

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**ABSTRACT**—*Some actions are freer than others, and the difference is palpably important in terms of inner process, subjective perception, and social consequences. Psychology can study the difference between freer and less free actions without making dubious metaphysical commitments. Human evolution seems to have created a relatively new, more complex form of action control that corresponds to popular notions of free will. It is marked by self-control and rational choice, both of which are highly adaptive, especially for functioning within culture. The processes that create these forms of free will may be biologically costly and therefore are only used occasionally, so that people are likely to remain only incompletely self-disciplined, virtuous, and rational.*

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What shall I do? Why did you do that? Are people captains of their fate, or are they mere products of their times and victims of circumstances? Should they be held responsible for their actions? These and similar questions pertain to the psychological problem of free will, also known as freedom of action.

At the core of the question of free will is a debate about the psychological causes of action. That is, is the person an autonomous entity who genuinely chooses how to act from among multiple possible options? Or is the person essentially just one link in a causal chain, so that the person's actions are merely the inevitable product of lawful causes stemming from prior events, and no one ever could have acted differently than how he or she actually did?

My thesis is that free will can be understood in terms of the different processes that control human action and that, indeed, these differences correspond to what laypersons generally mean when they distinguish free from unfree action. To discuss free will in the terms of scientific psychology is therefore to invoke notions of self-regulation, controlled processes, behavioral plasticity, and conscious decision-making.

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## BACKGROUND

The extreme positions on free will have been staked out through centuries of philosophical debate. On the negative side, the deterministic position can be traced from Democritus through Spinoza, Comte, and Freud. It leaves no room for free human choice. Everything that happens is the unavoidable product of prior causes. The universe resembles a giant machine, grinding along exactly as it must. There is no difference between the categories of possible and actual in this view: Everything that happened was inevitable, and nothing else was ever possible. The subjective impression that when you make a choice you really can choose any of several options is an illusion, because forces outside your consciousness are in motion to determine what you will choose, even if you do not know until the last minute what that choice will be.

On the other side, Jean-Paul Sartre (1943/1974) argued passionately in favor of human freedom. He contended that people are always, inevitably free—"condemned to freedom," in his famous phrase. Life is a series of choice points, and at each choice point, you could have chosen differently than you did. (Thus, the category of the possible is far, far more vast than the category of the actual, in this view.) When people say they could not help acting as they did, they are engaging in self-deception (bad faith, in Sartre's term), because they could actually have acted otherwise—could have held their tongue, walked another step, resisted the temptation, and so forth. Other outcomes really were possible.

In between those extremes, many thinkers have proposed limited or partial freedom. Kant (1797/1967) proposed that people have a capacity for free action but only use it sometimes. For him, freedom meant acting in a morally virtuous manner based on enlightened reasoning. His argument thus aptly sets up the emphasis on self-control and rational choice as two widely adaptive forms of free will.

If free will is only occasional, whereas behavior is constantly occurring, then it is necessary to posit two systems for guiding behavior: a default one that mostly runs the show and an occasional one that sometimes intervenes to make changes. Free will should be understood not as the starter or motor of action but rather as a passenger who occasionally grabs the steering wheel or even as just a navigator who says to turn left up ahead.

## OBJECTIONS TO THE VERY IDEA

Many psychologists disdain the idea of free will, for several reasons. First, some think that in order to be a scientist it is necessary to believe in determinism, because a scientist studies causality and cannot tolerate or accept exceptions. Second, and related to the first, free choice (especially the full, extreme case of total freedom) cannot seem to be explained in scientific terms. Causality is how the human mind generally (and the scientific mind particularly) understands events, and there is no way to explain a free action causally. In other words, even if free will exists, there is no use in scientists talking about it, because there would be no replicable patterns of behavior. (On this I disagree most emphatically—see below.) Third, and perhaps more formidably, plenty of research has by now shown that people are sometimes mistaken when they believe their actions to be free, insofar as factors outside their awareness do exert a causal influence on them (e.g., Bargh, 1994; Wegner, 2002; Wilson, 2002).

The fact that automatic, nonconscious processes are the direct causes of action (e.g., Libet, 1985, 1999) seems now well established and has dealt a severe blow to some theories of conscious free will. But new theories of action have separated the deciding from the initiating (Gollwitzer, 1999), and free conscious choosing may have its main role in the deciding (deliberative) stage. To illustrate, free will would have more to do with deciding (now) to walk to the store when the rain stops (later) than with directing each footstep during the actual trip. Modern research methods and technology have emphasized slicing behavior into milliseconds, but these advances may paradoxically conceal the important role of conscious choice, which is mainly seen at the macro level (Donald, 2002).

Meanwhile, there are several objections to the determinists too. To require scientists to believe in determinism seems unwarranted. After all, the deterministic hypothesis—that every event is fully and inevitably caused by prior events and nothing else than what happened was ever possible—is itself unproven and even unprovable, so it requires a big leap of faith. Determinism is also contrary to everyday experience (in which people do make choices, and they believe subjectively that more than one outcome is possible). Moreover, to say that scientific data and especially psychological data point to determinism is itself severely overstated. Most psychological experiments demonstrate probabilistic rather than deterministic causation: A given cause changes the odds of a particular response but almost never operates with the complete inevitability that deterministic causality would entail. These objections do not disprove determinism, but they certainly raise questions. It seems unreasonable to require that every scientist must believe something that is unproven, unprovable, contrary to daily experience, and incongruent with our data.

A further objection to determinism is the observation that freedom and choice are woven deeply into the fabric of human relations and activities. If freedom and choice are completely

illusions—if the outcome of every choice was inevitable all along—why must people agonize so over decisions? Why do they argue and strive so much for the right to decide (that is, for power and liberty)? Why has so much political, economic, and social struggle been aimed at increasing freedom if freedom is just an illusion? The presence versus absence of choice, control, autonomy, and freedom has been shown to be a significant causal factor in many aspects of human life, including dissonance and consistency (Linder, Cooper, & Jones, 1967), reactance (Brehm, 1966), stress and coping (Glass, Singer, & Friedman, 1969), and motivated performance (Ryan & Deci, 2000). Moreover, with few circumscribed exceptions, people almost always prefer freedom and are better off with it—and seemingly not just because the lack of freedom prevents them from securing tangible rewards. It is not as if people would be fine with slavery or prison if only the food were better. Countless people have risked and sacrificed their lives in fighting to achieve and defend freedom, and it is very difficult to find historical instances of uprisings or wars based on a demand for less freedom. Laypersons may not understand the concept of free will in the same way as philosophers and scientists, but they use “freedom” to denote some psychological phenomena that are powerful and important.

## PSYCHOLOGY’S TASK

In my opinion, it would be a mistake for psychologists to argue about whether free will exists and to debate the conceptual details. Philosophers and others have already spent centuries refining the concepts through such argument, and repeating their work would not be a good use of time and effort. In comparison with philosophers, psychologists are amateurs at conceptual refinement and debate but are specialists at conducting experimental tests of causal hypotheses. Our expertise is thus not well suited for ascertaining the existence or nonexistence of free will, which is probably impossible to prove. Researchers such as Wegner (2002) and Bargh and Morsella (2008, this issue) may show that people are sometimes unaware of the causes of particular behaviors, but such findings are incapable of establishing that all behaviors are the result of firm causal processes of which people are unaware. Conversely, it seems equally impossible to prove that a given person could have acted differently than he or she did under exactly the same circumstances.

Psychology’s contribution lies elsewhere. Psychologists should focus on what we do best: collecting evidence about measurable variance in behaviors and inner processes and identifying consistent patterns in them. With free will, it seems most productive for psychologists to start with the well-documented observation that some acts are freer than others. As already noted, dissonance, reactance, coping with stress, and other behaviors have been shown in the laboratory to depend on variations in freedom and choice. Hence, it is only necessary to assume that there are genuine phenomena behind those subjective and objective

differences in freedom. In a nutshell, we should explain what happens differently between free and unfree actions.

Thus, the optimal agenda for psychology would be to find out what people mean when they use concepts of freedom, choice, and responsibility in their daily lives and then to illuminate the inner processes that produce those phenomena.

### WHAT MAKES ACTION FREE?

A starting point for psychology is to identify what aspects of an action make people regard it as free versus unfree. To be sure, some factors can contribute to a mistaken sense of freedom in one's own action. Wegner (2002) showed that when the thought of an event immediately precedes its actual occurrence, people believe they have caused it, even if in reality they have not. For example, when participants who were moving a cursor around a computer screen along with someone else (akin to having four hands on the pointer on a Ouija board) heard the name of some image mentioned and then the cursor stopped there 2 s later, they believed that they had intentionally caused the cursor to stop, even though the stopping was actually programmed by the apparatus (Wegner & Wheatley, 1999).

There are several ways to interpret these findings. One is to suggest that all conscious will and volition are illusions: From the observation that people are sometimes mistaken about conscious will, one could extrapolate that they are always mistaken. Another is to suggest that people do not have a direct, introspective way of knowing when they initiate action, and so they rely on salient cues to give them the feel and subjective impression of having acted or chosen, and this system of cues can be fooled.

Shifts in the social distribution of causality and agency are important to people, and these correspond to social phenomena that people have encountered for millennia. Power, for example, confers on one person the right to make decisions that may affect others (e.g., Keltner, Gruenfeld, & Anderson, 2003), and the long history of power struggles can be viewed as being about who gets to choose. Studies by Brehm (1966) and his colleagues have also shown that people are very sensitive to having their freedom of choice restricted by others. When an option is taken away from them, they respond by desiring that option more, by trying actively to reassert that freedom and take that option, and even by aggressing against whomever restricted their freedom. Such patterns seem hard to reconcile with the view that all free will and choice (in every sense) are illusions: Why would people care so much about something that is entirely inconsequential?

Another approach to understanding what people mean by free will is to have participants rate how free a stimulus person's actions are. Stillman, Sparks, Baumeister, and Tice (2006) had participants rate scenarios that varied systematically along several dimensions. Participants rated people's actions as freest when their choices were made after conscious deliberation, when their actions went against external pressure rather than

going along with it, and when people acted against their short-term self-interest. Thus conscious, rational choice and self-control seem to be integral parts of what people perceive as free. When people wrote autobiographical accounts of their own acts that felt free or unfree, pursuing long-term personal goals was central to the feeling of freedom. The difference suggests that people see free will in others as useful for restraining their socially undesirable impulses, but in themselves they see free will in the sustained pursuit of (enlightened) self-interest. As Dennett (1984, 2003) has argued, free will is hardly worth having unless it helps you get something you want.

### THE EVOLUTION OF FREEDOM

Several recent authors have argued that human freedom of action is a product of evolutionary processes (e.g., Dennett, 2003). I proposed that the defining thrust of human psychological evolution was selection in favor of cultural capability (Baumeister, 2005). That process might well have included a new, different way of controlling behavior, whose purpose was enabling the beast to function in a complex, information-based society. The hallmarks of this new form of behavioral control include personal responsibility, conscious deliberation, invoking abstract rules and principles to guide actions, autonomous initiative, and a capacity to resist urges that have earlier evolutionary roots but that may be incompatible with civilized life (e.g., eating any food you find when hungry, including what is on the plates of other restaurant patrons). Whether this pattern will satisfy the various theological and philosophical definitions of free will is hard to say, but it could well correspond to what ordinary people mean when they speak of free action.

The previous section noted that free will has to be useful for benefiting the person. Evolution has favored animals with psychological processes insofar as those processes help them pursue their goals. A more intelligent animal, for example, may be better able to find food and reproduce than a less intelligent one. In human cultural life, however, there is sometimes a tradeoff between short-term and long-term goals, and much of the success of the human species is based on our ability to sacrifice short-term goals for the long-term ones, as in delay of gratification (Mischel & Ayduk, 2004). For example, taking someone else's food may bring short-term benefits, but if it leads the other group members to imprison or expel the person, it could be self-defeating in the long run. Hence free will may be most useful in fostering the pursuit of enlightened self-interest. Were evolution working instead to enable the human animal to pursue what it wants right now to maximum effect, it might have promoted physical strength, speed, and ferocity rather than brainpower and social skills. But to succeed and live harmoniously in a cultural group, the animal is best served by being able to inhibit its impulses and desires. Perhaps ironically, free will is necessary to enable people to follow rules.

Let me focus briefly on two of the most important phenomena that are associated with the concept of free will: self-control and rational intelligent choice. The cultural-animal argument has the following assumptions. First, self-control and smart choice are much more highly developed in humans than in other animals and thus are among the most distinctively human traits. Second, these traits are highly conducive for living in a cultural society. Third, these traits are probably interrelated in the sense of sharing some inner processes and mechanisms, which suggests that one evolved first and the other piggy-backed on the first one's system.

My speculative evolutionary scenario is that self-control evolved first, because it is useful already in merely social (as opposed to cultural) groups. For example, it would be natural for hungry animals to eat food that they see and want, but in many social groups the alpha male would beat up any other who tries to take his food or usurp his other prerogatives. Therefore, in order to live in social groups, animals must develop the capacity to restrain their impulses and bring their behavior into line with externally imposed constraints. Moving from social to cultural groups substantially increases the importance of following rules, including moral principles, laws, commands, religious prescriptions, norms, and customs.

Rational intelligent choice, then, evolved later than self-control and was even more distinctively associated with culture. Culture is based on information, and the large amount of information in a culture creates great opportunities for reasoning powers to sort through it and draw action-relevant conclusions. Human decision making is far more complex and varied than that in other species. As Searle (2001) pointed out, rationality is widely regarded as a central human trait, but not all have noticed that rationality entails at least some limited concept of free will—at least to the extent that one can alter one's behavior on the basis of that reasoning. Put another way, self-control gives the capacity to alter your behavior to conform to the group's rules, and rationality enables you to work out your own rules and then behave accordingly.

This line of thought fits the view of free will as a sometime thing. People are incompletely rational and self-controlled. They have the capacity for acting for acting rationally and exerting self-control, but they only use it sometimes. This suggests the capacity is limited.

### WHY FREE WILL IS LIMITED

Our research on ego depletion provides one way to understand why free will is at best an occasional phenomenon. In testing several competing theories about self-regulation, we consistently found that people performed relatively poorly at almost any self-control task if they had recently performed a different self-control task (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Muraven & Baumeister, 2000). The implication is that

some resource is used up by the first act of self-control, leaving less available for the second.

Choice may also deplete the same resource. Vohs et al. (2006) found that making a series of choices led to poorer self-control on subsequent, unrelated tasks, as compared with just thinking about items or answering questions about them without making choices among them. The fact that effortful choice uses the same resource as self-control links the two main forms of free will and supports the idea that they share a common underlying mechanism.

Thus, the traditional concept of “willpower” does appear to be a useful metaphor, insofar as both self-control and rational choice rely on some kind of power. To move beyond metaphor, Gailliot et al. (2007) began studying blood-glucose dynamics. Glucose is a chemical in the bloodstream that is the fuel for brain (and other) activities. Although all brain processes use glucose, some use much more than others, and self-control is a likely candidate to be one of these more expensive processes. Gailliot et al. (2007) found that acts of self-control caused reductions in the levels of glucose in the bloodstream, and that low levels of blood glucose after initial acts of self-control were strongly correlated with poor self-control on subsequent tasks. Moreover, experimental administrations of glucose counteracted some of the ego-depletion effects. That is, drinking a glass of lemonade with sugar enabled people to perform well at self-control even if they had recently gone through a depleting exercise of self-control. Lemonade made with a sugar substitute (thus not furnishing glucose) had no effect.

These findings suggest that human evolution developed a second, new, and expensive way of controlling action. It involved using relatively large quantities of the body's caloric energy to fuel complex psychological processes. If the cultural-animal argument is correct, then these processes should have improved biological success by enabling people to behave in more advantageous ways.

Ample evidence confirms that this second executive mode of action control has adaptive benefits and that when its resources are depleted or inadequate, behavior is less successful. Nondepleted persons outperform ego-depleted ones at making effective and unbiased decisions (Amir, Dhar, Pocheptsaya, & Baumeister, 2007), at logical reasoning and intelligent thought (Schmeichel, Vohs, & Baumeister, 2003), and at active coping with unexpected setbacks (Vohs & Baumeister, 2006). Self-control has multiple benefits, and people who are high on the trait end up more successful in work and school, are more popular and better liked, have healthier and more stable relationships, commit fewer crimes, and have less psychopathology (Duckworth & Seligman, 2005; Gottfredson & Hirschi, 1990; Mischel, Shoda, & Peake, 1988; Tangney, Baumeister, & Boone, 2004). And as for following rules generally, there is some cross-cultural evidence that countries with higher rule of law report significantly higher subjective well-being (Veenhoven, 2004).

## BELIEVING IN FREEDOM

This brief article has argued that psychology's task is to find out what people perceive as free will and what genuine psychological phenomena underlie those perceptions. Such investigations will not establish whether free will exists according to some philosophical or theological definitions, and it remains possible that many laypersons' beliefs about free will are partly or wholly mistaken. If free will is entirely an illusion, however, then it becomes especially perplexing that people devote so much time and effort to sustaining those illusions. Belief in free will is highly relevant to many social, legal, and moral judgments. For example, if all actions are fully caused and therefore inevitable, why does the legal system spend so much time trying to establish whether a perpetrator was acting freely? "Heat of passion" crimes are just as fully caused as any other crimes, in that view, so it makes little sense for judges to award lighter sentences. Yet they do.

One possible explanation for the widespread social belief in free will is that it helps produce socially desirable and harmonious actions. To return to the cultural-animal framework, I am assuming that people evolved so as to be able to live and work in culture (Baumeister, 2005). Anything that makes people better able to do that, including improvements in cooperation and prosocial actions or reductions in antisocial actions, would therefore be beneficial. To speculate, cultures that believed in free will might have outreproduced and supplanted cultures that did not.

Belief in free will does support socially desirable actions, according to Vohs and Schooler (2008). They found that participants who had been induced to disbelieve in free will were subsequently more likely than a control group to cheat on a test. Further studies by Baumeister, Masicampo, and DeWall (2006) using the Vohs-Schooler methods found that inducing participants to disbelieve in free will made them more aggressive and less helpful toward others. If we combine the cheating, aggression, and helping findings, it seems reasonable to suggest that belief in free will is conducive to better, more harmonious social behavior.

## CONCLUSION

The distinction between free choice and unfree action has enormous and widespread significance individually, socially, historically, and politically. That distinction also seems so thoroughly woven into the fabric of human social life that it seems quixotic to try to imagine a society that had abandoned the concept so as to operate "beyond freedom and dignity," in Skinner's (1971) titular phrase. Psychology can explore and elucidate that difference between free and unfree action without having to resolve metaphysical questions. Conscious, controlled, and self-regulating processes seem likely to be important aspects of what people understand as free will.

A scientific approach to free will should perhaps start with the view that freedom of action evolved as a new, more sophisticated form of controlling behavior. Its two components, self-control and rational intelligent choice, conferred important advantages by enabling the human animal to function within a cultural society. Recent evidence about ego depletion and glucose dynamics suggests that this new, freer form of action control is biologically expensive, which may help explain why free will is only used occasionally. Nonetheless, even its occasional use may contribute greatly to increasing the flexibility and adaptive diversity of human behavior.

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