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F. Happé

Automaticity of Action, Psychology of

Automatic thoughts and behaviors are ones that occur efficiently, without the need for conscious guidance or monitoring. Most of our thoughts and behaviors tend to be automatic or have automatic components, and for good reason. These processes are fast, allowing us to do things like drive to work without having to think about how to turn the steering wheel each time we get into a car. There are two main categories of automaticity defined by how the thought or behavior is initiated: Some automatic processes are triggered quite unconsciously, often by stimuli in the environment, whereas others require a conscious act of will to get started.

1. Unconscious Automaticity

Some automatic processes do not require any willful initiation and operate quite independently of conscious control. These processes can be instigated by stimuli of which we are not yet conscious, or by stimuli of which we were recently conscious but are no longer (Bargh 1994). Research has often used *priming* as a technique to trigger these automatic processes. A prime is a stimulus that biases further processing of the same or related material. An everyday example might be buying Tide laundry detergent after having recently seen a nature program about the ocean. Thoughts of the ocean may have primed you to choose Tide, perhaps without any conscious knowledge of the connection.

In a study by Bargh et al. (1996), some participants solved scrambled sentences containing words related to the concept of elderly (e.g., Florida, gray, wrinkles), while other participants solved sentences with neutral words. Each participant was then surreptitiously timed walking down a hallway on the way out of the experiment. The researchers wanted to test whether priming participants with the concept of elderly would automatically and unconsciously change their behavior to become more like that of the elderly. They found that participants who were primed with the elderly concept walked out of the experiment more slowly than the other participants. Careful questioning immediately afterwards revealed that the participants were not conscious of the concept of the elderly or of their reaction to it. In a related study, Dijksterhuis and Van Knippenberg (1998) found that priming the concept 'professor' made participants more successful at answering trivia questions compared to participants who were primed with 'soccer hooligan.' And as in the previous study, participants were unaware that the prime had affected their behavior.

Much of our behavior in social life is unconsciously automatic. There is evidence that people can respond automatically and unthinkingly to facial expressions, body gestures, hints about a person's sex, ethnicity, or sexual orientation, information about someone's hostility or cooperativeness, and a variety of other social stimuli (Wegner and Bargh 1998). People also have unconscious automatic responses to things they like and dislike, from foods or books to ideas and social groups. Although people may have conscious responses to all these items as well, this rich and detailed array of unconscious automatic responses provides a background of reaction to the social world. When we do not have time, inclination, or the ability to study or consciously correct these reactions, we may still find that we are behaving quite satisfactorily on 'autopilot' nonetheless.

2. Conscious Automaticity

Many of the automatic behaviors we do every day are things of which we are perfectly aware—at the outset. We know we are getting in the car and heading off to work, for instance, or we know we are beginning to take a shower. Yet because we have done the act so often—driving to work every day, showering every darn year, whether we need it or not—we no longer need to think about the act after we have consciously launched it. These behaviors are often acquired skills, actions that become automatic only after significant repetition.

When we begin to learn an action, such as driving, we think of the action at a very detailed level (Vallacher and Wegner 1987). We think 'engage clutch, move gear shift down into second, lift left foot off the clutch and right foot onto gas.' Skill acquisition starts off as labored, conscious learning and after consistent, frequent practice becomes more automatic and unconscious. Once the action is well learned, the behavior becomes automatic in the sense that it does not require constant conscious monitoring. This automaticity allows us no longer to think about the details, and instead to think about the act at a higher level ('I am driving to work. Gosh.'). It is as though practice leads to a mental repackaging of our behavior, a chunking together of formerly stray details into a fluid sequence

that can then be set off with only a brief conscious thought rather than a continuing commentary of them. Once the conscious decision is made to drive to work, the drive itself can be quite unconscious and automatic—as we chat on the cell phone along the way—and we may remember very little of the experience once we arrive at our destination.

When we have conscious thoughts prior to our behaviors, we typically experience these behaviors as willed. So, even though 'driving to work' is largely automatic throughout its course, the fact that we thought of doing it just before it started makes us interpret the entire sequence as consciously caused. However, the more frequently we notice our intentions occurring as we act, the more we experience behavior as consciously willed and nonautomatic. If we do something that requires a lot of thinking (such as a difficult math problem, or driving when we don't know how), for example, we are more likely to feel that we have consciously willed what we have done. Behaviors that happen without any conscious thoughts at all, in turn, are not likely to be experienced as willed. Although it is common to assume that automatic behavior is the opposite of consciously controlled behavior, this analysis suggests that automaticity can characterize both behaviors we experience as consciously caused and those we experience as involuntary (Wegner and Wheatley 1999).

3. Benefits and Costs of Automaticity

Automatic processes do not need constant conscious guidance or monitoring, and therefore use minimal attention capacity. For this reason, they are very fast and efficient. Sometimes we might wish our automatic actions or reactions were different, such as when we mindlessly say 'fine' after a waiter asks about our inedible meal. Metaphorically speaking, it is as if the waiter had come out with a little rubber hammer and struck just below our knee. Such automatic behaviors are so often mindless that they can pop out in inappropriate contexts. For the most part, however, the fact that many of our behaviors become automatic is extremely beneficial. If all our actions required conscious thought, we would spend time planning every step instead of just 'walking.' Everything would take as much time and be as difficult to do as the first time we did it.

Automaticity allows a familiar and comfortable interaction with our environments. With experience, we learn what is likely to happen in different situations. When we walk into a grocery store, we know automatically how things are supposed to go. We go in, grab a cart, pick food off the shelf, line up for a cashier who will take our money for the food, and we can go home. It is not as if we walk into the store and think 'OK, what happened the last time I was here' or 'Why are people looting food off the shelves?' We auto-matically know the proper assumptions of the situation based on our experience. This automatic activation of norms makes the world a much more predictable place. We are thus free to think about Bob's annoying table manners and Jane's infectious laugh as we wander down the aisles, selecting all the necessary ingredients for the dinner party the next night.

It is the very ease and fluency of automatic thought and behavior, however, that brings with it important costs. One such pitfall comes from thinking about things the same way over and over again such that a particular way of thinking becomes the default. For example, if you learn that black men are not only male and black, but may be hostile and lazy, your responses to a particular black man could be determined by automatic processes quite beyond your conscious control. You could hate him or avoid him or treat him poorly without any knowledge of his actual characteristics. Automatic responses to people and groups may be based on stereotypes—characterizations of persons based on their membership of a particular group (e.g., Asian, Jewish, basketball player, etc.). Stereotypic ideas may be so well learned that they pop into mind automatically.

If there is plenty of time to think, as well as no distraction, a stereotype that pops into mind does not always have to be acted upon and can be corrected. Gilbert's two-factor theory of attribution suggests that automatic attributions of why someone behaved a certain way tend to be dispositional in nature (e.g., thinking someone is lazy because they are watching TV). However, with enough mental resources, we can correct those attributions for situational causes (e.g., realizing that the person had a hard day and is trying to unwind; see Gilbert and Malone 1995, for a review). In the same way, stereotypes may be automatically activated but can be countered by consciously thinking about why that stereotype is false, about other characteristics of the person that do not fit the stereotype, or about explanations that take into account the person's situation.

The attempt not to think about a stereotype can, however, ironically make that stereotype come more readily to mind. This is because weak yet measurable automatic processes regularly arise to monitor the failure of conscious intentions. When a person tries not to think about a white bear, for example, thoughts of the white bear are likely to come back repeatedly despite the attempted control. The theory of ironic processes of mental control (Wegner 1994) suggests that such ironic processes are produced whenever people try to control their thoughts—and particularly when they do so under conditions of stress or mental load. These processes are required to search for the failure of mental control and reinstate the control process when this is necessary—but they also introduce an unfortunate sensitivity to the very thoughts the person desires to suppress.

This ironic effect on stereotyping has been observed in experiments by Macrae et al. (1994). These researchers asked participants to suppress stereotype thoughts in imagining the life of a person belonging to a stereotyped group (a 'skinhead'), and then later gave these participants the opportunity to write their impressions of another person of this group. As compared to the impressions of participants who did not first suppress stereotyping, these participants formed more stereotypical impressions of the second target. Another study examined the effects of this manipulation on participants' choices of how close to sit to a target just after having controlled their stereotypes of the target in an earlier impression-formation session. Participants instructed to suppress stereotyping succeeded in creating less stereotypical imaginings about the target, but they subsequently chose to sit at a greater distance from the target than did other participants who had not been instructed to suppress the stereotype.

4. Summary

The automaticity of social thought and behavior is both a blessing and a curse. On the blessing side, our ability to respond unconsciously and effortlessly to a range of social settings, people, and events allows us the luxury of speedy responses that are largely appropriate. And because the conscious initiation and practice of responses can shape them yet further, we can, over the course of interaction, become skilled social agents who can interpret and react to social settings with remarkable aplomb. The curse of automaticity inheres in the lack of flexibility and control that results when we learn things too well and are not conscious of doing them. We may make maladaptive or immoral unconscious responses that we then regret or simply fail to notice. And we may find under conditions of mental load or stress that the automatic processes that occur to monitor the failure of our conscious intentions ironically create that failure. When this happens, we find ourselves thinking or acting in social situations in precisely the ways we wish we would not.

5. Future Directions

Automaticity researchers have just begun to examine the underlying brain mechanisms associated with automatic and controlled processes. By studying these mechanisms, we may better understand *how* thoughts and behaviors become automatic, and what brain systems underlie automatic versus consciously controlled thoughts and behaviors.

Wegner's ironic-process model is one model of how unwanted automatic thoughts may be generated and influenced by controlled processes. Brain-imaging techniques offer direct testing of such models with the goal of understanding how automatic and controlled processes influence each other. For example, conscious deliberation may be most effective at determining what becomes an automatic process but less effective at influencing deeply ingrained automatic processes. Brain imaging may be a useful tool to shed light on which processes are likely to be automatic from their inception, when processes cross the threshold between control and automaticity, and how that crossover can occur.

See also: Action Planning, Psychology of; Attention and Action; Heuristics in Social Cognition; Motivation and Actions, Psychology of; Schemas, Social Psychology of; Stereotypes, Social Psychology of

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T. Wheatley and D. M. Wegner

Automation: Organizational Studies

1. The Concept of Automation

The word automation, as a contraction of automatic production, was first used in both by John Diebold—author of the book *Automation: The Advent of Automatic Factory* (1952)—and by D. S. Harder, vice-president of manufacturing at Ford Motor Company.