

with its feed growing up, a horse may very well eat meat. When people learn mindlessly, they take the information in as true without asking under what conditions it may not be true. This is the way people learn most things. This is why people are frequently in error but rarely in doubt.

When information is given by an authority, appears irrelevant, or is presented in absolute language, it typically does not occur to people to question it. They accept it and become trapped in the mind-set, oblivious to how it could be otherwise. Authorities are sometimes wrong or overstate their case, and what is irrelevant today may be relevant tomorrow. Virtually all the information people are given is given to them in absolute language. A child, for example, may be told, "A family consists of a mommy, a daddy, and a child." All is fine unless, for example, daddy leaves home. Now it won't feel right to the child when told, "We are still a family." Instead of absolute language, if told that one understanding of a family is a mother, father, and a child, the problem would not arise if the circumstances change. That is, mindful learning is more like learning probable "truths" rather than mindlessly accepting absolutes.

Language too often binds people to a single perspective, with mindlessness as a result. As students of general semantics tell us, the map is not the territory. In one 1987 study, Alison Piper and Ellen Langer introduced people to a novel object in either an absolute or conditional way. The subjects were told that the object "is" or "could be" a dog's chew toy. Piper and Langer then created a need for an eraser. The question Piper and Langer considered was who would think to use the object as an eraser? The answer was only those subjects who were told "it could be a dog's chew toy." The name of something is only one way an object can be understood. If people learn about it as if the "map" and the "territory" are the same thing, creative uses of the information will not occur to them.

Meditation and Mindfulness

One way to break out of these mind-sets is to meditate. Meditation, regardless of the particular form, is engaged to lead to post-meditative mindfulness. Meditation grew up in the East. Whether practicing Zen Buddhism or Transcendental Meditation, typically the individual is to sit still and meditate for 20 minutes twice a day. If done successfully over time, the categories the individual mindlessly accepted start

to break down. The path to mindfulness that Langer and her colleagues have studied may be more relevant to those in the West. The two paths to mindfulness are by no means mutually exclusive. In their work, Langer and colleagues provoke mindfulness by active distinction-drawing. Noticing new things about the target, no matter how small or trivial the distinctions may be, reveals that it looks different from different perspectives. When people learn facts in a conditional way, they are more likely to draw novel distinctions and thus stay attentive to context and perspective.

Most aspects of American culture currently lead people to try to reduce uncertainty: They learn so that they will know what things are. Nevertheless, things are always changing. Even the cells in the human body are constantly changing. When people experience stability, they are confusing the stability of their mind-sets with the underlying phenomenon. Instead, they should consider exploiting the power of uncertainty so that they can learn what things can become. Mindfulness that is characterized by novel distinction-drawing and meditation that results in post-meditative mindfulness will lead people in this direction. When people stay uncertain, they stay in the present and they notice; when they notice, they become mindful.

Ellen Langer

See also Automaticity; Conscious Processes; Learning Theory; Meaning Maintenance Model; Meta-Awareness; Metacognition; Need for Closure

Further Readings

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MIND-WANDERING

People's experience of their own thoughts is that thoughts rarely stay still; sometimes people's thinking is constrained by the task they are performing; at other moments, people's minds wander easily from topic to topic. The essential property of mind-wandering is that people's attention to the task fluctuates over time; instead of paying attention to the activity in which

they are engaged, they often focus privately on their thoughts and feelings. In this entry, what is known about the situations in which mind-wandering is experienced will be described, along with some of the consequences of these experiences when they occur. Finally, what the future may hold for the study of this remarkable yet ill-understood aspect of people's mental lives will be considered. First, the historical context within which to understand the study of mind-wandering will be considered.

Historical Context

People are often told that humans are social animals, so it is a surprise to consider that often what goes on in the *private* mental lives of people is most interesting to psychologists. Mind-wandering is an interesting psychological phenomenon for just this reason: It is a uniquely human act, it is an essential part of a person's internal world, and it is an experience that all readers of this encyclopedia will immediately recognize. Moreover, mind-wandering occurs in almost all circumstances, throughout the life span, and, in all cultures, suggesting that it is a universal part of the human condition. Despite the clear importance of mind-wandering to humans, psychologists are still relatively ignorant about mind-wandering relative to other aspects of social psychology covered in this encyclopedia.

One reason for the relative ignorance about mind-wandering is because the nature of the experience often falls outside the boundaries of phenomena considered important by mainstream psychology. The assumptions of the work of behaviorists in the 20th century provide a clear example. Behaviorists often assumed that, first, the data of psychology should be based on observable facts rather than on the introspective evidence that had formed the focus of research in the previous century, and, second, that applying principles of learning was essential to understanding psychological phenomena. Mind-wandering is a clear candidate for neither—it is *private* experience and so accessible only through introspection. Moreover, because of its privacy, mind-wandering is an experience that is specifically unrelated to the learning that occurs in the environment.

In the 1960s, it became clear that the models of psychological functions based on the behaviorist account were too simple. The cognitive revolution, which occurred in response to these simple models,

emphasized the importance of internal cognitive states in determining human behavior. Despite the pioneering work of Jerome Singer and John Antrobus, who developed reliable techniques for measuring private experience, the mainstream of cognitive psychology remained reluctant to embrace mind-wandering research. Many cognitive psychologists felt that these states were best measured by the use of objective measures such as response times, rather than through verbal reports as is the *modus operandi* for mind-wandering. In addition, many researchers were put off because of researchers' lack of ability to manipulate—switch on and off mind-wandering—preventing the ability to draw causal conclusions.

Thirty years have passed and psychologists have not fully grasped the study of mind-wandering, and yet, interest in these spontaneous aspects of humans' internal lives is growing. One reason for this increase in interest is technological advances in psychophysiological measurement of the brain. The development of tools that allow psychologists to make detailed measurements of the extent to which attention is focused externally, such as event-related potentials, or can pinpoint the network of brain regions that show activation during mind-wandering, such as functional magnetic resonance imaging, suggest that it may be possible to observe changes consequent on mind-wandering in the waking brain. Objective correlates for mind-wandering would reduce researchers' reliance on verbal reports and so improve the status of mind-wandering as an important psychological phenomenon.

The When and Where of Mind-Wandering

Most psychologists would probably agree that mind-wandering occurs most often in simple tasks with few interruptions. It is common, for example, to notice mind-wandering while reading or driving on an empty freeway. Similarly, people who engage in meditation will—all too clearly—recognize the rapidity with which attention can switch away from their breathing to their thoughts. These instincts are borne out by research. In the 1960s, research demonstrated that mind-wandering showed an inverse linear relationship with the time between events in a task. That is, the more targets in a block of a task, the less likely the participants were to report mind-wandering.

Mind-wandering is also frequent when people don't need to hold something in mind. This was demonstrated

in a study in which participants either held a number in mind for a short interval, before saying it out loud, or simply repeated the numbers out loud immediately upon hearing them. Mind-wandering was reported less often when people had to remember the numbers for these very short intervals than if they simply repeated them. The act of holding information in mind involves *working memory*, and so it has been suggested that mind-wandering is suppressed by tasks involving working memory load.

These simple information-processing influences, however, do not do justice to the other main influence on the experience of mind-wandering. A quick review of your last enjoyable visit to the cinema or consideration of the last good book you read clearly indicates that often one's mind wanders least when one is interested, intrigued, or absorbed. One study examined the relation between mind-wandering and interest. Participants read a number of texts, selected on the basis of either interest or difficulty. During reading, participants were less likely to be off task when reading interesting, but not difficult, text. When reading dry expository texts (like a social psychology textbook!), the lack of an absorbing narrative meant that participants had to resort to being vigilant regarding their own lapses to ensure they stayed on task.

Oh, No! Mind-Wandering and the Attentional Lapse

All people have at some time made a very simple mistake that occurred, not because the task they were performing was difficult, but instead because they were not giving sufficient attention to what they were doing. Common examples of these sorts of mistakes include pouring coffee, rather than milk, onto your cornflakes or throwing away the vegetables but keeping the peelings. In the literature, these mistakes are referred to as *action slips* and often occur as a consequence of mind-wandering.

Researchers can study an analog of these thoughts under laboratory conditions. In these studies, individuals perform an extremely simple signal detection task. Participants are presented with long sequences of stimuli (e.g., the numbers 0 through 9 in a random order) and are asked to press a key whenever these items appear on the screen. Participants are also told not to respond to a small selection of the items (e.g., the number 3). In these circumstances, because the

task is so straightforward, the failure to correctly inhibit a response is often the result of failure to pay enough attention to the task, and so often results from mind-wandering. After this mistake, normal individuals, but not head-injured participants, usually indicate that they were aware that they made a mistake. This awareness that attention had lapsed is referred to as the *Ooops phenomenon* and indicates that the attentional system is tuned to disrupt experiences like mind-wandering if they lead to failures in one's ability to react appropriately to salient external events.

Although the attentional system is very aware of some mistakes, certain sorts of errors seem to fly under people's radar when they are mind-wandering. It is common during reading, for example, to notice that even though the words have been sounding in your head, for some little time your attention was elsewhere. When people notice that their minds have wandered in this fashion, it is often apparent that this has been occurring for some time because they can often reconstruct the narrative of their thoughts or trace back in the book to the last place they were paying attention.

To demonstrate this phenomenon in the laboratory, researchers asked people to detect periods when the text turned to nonsense. People often missed these sentences and read for an average 17 words before they recognized that the text was not making sense. The researchers also demonstrated that periods when participants were missing gibberish were associated with greater frequencies of mind-wandering than would be gained by random sampling alone. These empirical studies provide evidence that when the mind wanders, a person often continues to read for some time without actually registering the meaning of what is being presented. The lengths of time for which these errors occur suggest that during mind-wandering, participants may become so wrapped up in their internal worlds that they lose awareness that they are doing so. This failure to be aware of one's awareness is a failure of *meta-awareness* (i.e., the awareness of one's own experiences).

What's Next?

The questions facing those who study mind-wandering are some of the most intriguing problems in social psychology today. Once research has successfully identified the neural substrates of the system that is

responsible for wandering, this will bring exciting questions. One possibility is that the determination of the neural substrates of mind-wandering will allow psychologists to understand the functional purpose of the system that produces these thoughts. Several authors have suggested that mind-wandering is associated with creativity and insight problem solving, and it is possible that functional magnetic resonance imaging could help elucidate this issue.

The most interesting question that arises from consideration of this topic is why the mind wanders. One possibility is that people mind-wander simply because their cognitive system is only able to maintain awareness of their own experiences intermittently. The common experience of catching one's mind wandering provides strong phenomenal support for the notion that people at times are unaware that they have ceased to pay attention to their task. As such, the frequency of mind-wandering could indicate the extent to which people are unaware of their own experiences. A second suggestion is that mind-wandering simply reflects people's inability to control their own cognitive processes. The simple fact that people often experience these thoughts even though they are attempting to concentrate on a task suggests that mind-wandering may occasionally occur without their tacit consent. In fact, a body of research, *ironic processes theory*, demonstrates that attempts at cognitive control often create conditions when the intentional control of experience is undermined. Finally, it is possible that mind-wandering occurs because pertinent personal goals can become automatically activated in people's awareness.

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See also Attention; Ironic Processes; Memory; Meta-Awareness

Further Readings

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MINIMAL GROUP PARADIGM

Definition

The minimal group paradigm is a procedure that researchers use to create new social groups in the laboratory. The goal is to categorize individuals into groups based on minimal criteria that are relatively trivial or arbitrary. For example, the classic procedure involves asking participants to rate paintings made by two artists with similar abstract styles. Participants are then told that they are members of a group that prefers one of the painters to the other. This is their new ingroup, and the people who prefer the other painter represent a new outgroup. In reality, participants are assigned randomly to one of the two groups. In addition, the members of each group remain anonymous and group members have no interaction or contact with one another. Thus, the minimal group paradigm creates a situation in which individuals are separated into novel ingroups and outgroups, and these individuals have no previous experience with these groups.

Purpose

The minimal group paradigm was first used in the 1960s to examine whether social prejudice and discriminatory behavior result from the mere categorization of people into ingroups and outgroups. Previously, researchers had studied prejudice and discrimination involving preexisting groups with long histories (for example, based on race, ethnicity, or nationality). It largely was believed that these groups perceive real conflict with one another (for example, over resources) and that this conflict leads to beliefs and behavior that favor the ingroup over the outgroup. A European psychologist, Henri Tajfel, wondered whether the experience of conflict was actually necessary to produce ingroup-favoring biases. Perhaps prejudice and discrimination are more fundamental and basic to the human condition. Tajfel and his colleagues demonstrated that participants assigned to