object. For example, for an individual with a positive implicit attitude toward candy, passing the candy store on the drive home should elicit a positive response, even when the individual is busy driving and is trying to concentrate on the road. In contrast, explicit attitudes are only activated with effort and intention. Thus, implicit attitudes can be ascertained even if a target person is busy or does not wish to express an attitude; explicit attitudes can only be ascertained if the target has resources and motivation to express an attitude.

Equally as important and related to these distinctions is that implicit attitudes, in contrast to explicit attitudes, are extremely difficult to bring into conscious awareness. Thus, people are often unaware of their implicit attitudes but are typically quite aware of their explicit attitudes.

A final distinction is that implicit attitudes reflect long-term, habitual responses, whereas explicit attitudes reflect more recently learned responses. A spouse whom one loved for many years may become disliked after one learns of the spouse's infidelity. However, the new explicit attitude of dislike does not necessarily replace the old and habitual positive attitude. Instead, the latter continues to exist as an implicit attitude. Ultimately, explicit attitudes are easier to change than are implicit attitudes.

Applications

Dual attitudes have been applied to the study of prejudice with results that mirror those described earlier in this entry. First, several studies have shown that there is little correspondence between implicit and explicit attitudes toward people of a different ethnicity. Second, implicit and explicit attitudes are related to different types of behaviors. For example, White people with prejudicial implicit attitudes are more likely than other White people to blink and look away from Black people during a social interaction. White people with prejudicial explicit attitudes are more likely than other White people to verbally denigrate a Black person and to say that Black people are guilty of crimes. Thus, different types of prejudiced behavior are related to different types of prejudiced attitudes.

Dual attitudes have also been applied to the study of self-esteem with results that mirror those described earlier. First, several studies have shown that there is little correspondence between implicit and explicit attitudes about the self. Second, implicit and explicit self-attitudes are related to different types of behaviors. For example, people with low implicit self-esteem are more likely than their high self-esteem counterparts to appear anxious in social situations. In contrast, people with low explicit self-esteem are more likely than their high self-esteem counterparts to report anxiety felt during a social situation.

Implications

Contrary to popular opinion, gut reactions, slips of the tongue, and nonverbal behaviors may reveal only an implicit attitude, not a person's true nature. A person's explicit attitude may be revealed through more direct means. Indeed, many of the behaviors that make a difference in life, such as decisions about whom to call back, who to hire, or who to convict are more closely related to explicit attitudes.

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See also Ambivalence; Aversive Racism; Dual Process Theories; Implicit Attitudes

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Dual Process Theories

Definition

Dual process theories are a group of theories in social, personality, and cognitive psychology that describe how people think about information when they make judgments or solve problems. These theories are called dual process because they distinguish two basic ways of thinking about information: a relatively fast, superficial, spontaneous mode based on intuitive associations, and a more in-depth, effortful, step-by-step mode based on systematic reasoning. Dual process theories have been applied in many areas of psychology, including persuasion, stereotyping, person perception, memory, and negotiation. In general, these theories assume that people will think about information in a relatively superficial and spontaneous way unless they are both able and motivated to think more carefully.

Background and History

Dual process theories are built on several key ideas that have a long history in psychology. For instance, the two modes of thinking described by various dual process theories can often be mapped onto a top-down, idea-driven way of understanding the world versus a bottom-up, data-driven way of understanding. The notion that the way people understand the world is critically influenced by the knowledge that they bring to a situation (so that they begin at the top—their heads—in their understanding), as well as by the information provided within the situation itself (the bottom), dates back to Wolfgang Kohler's distinction in the 1930s between perception and sensation. For instance, when a person looks at a book on a table, he or she senses both a pattern of colors and lines with his or her eyes and actively labels the pattern "book" by using his or her knowledge about what a book is like.

Dual process theories also build on Gestalt principles explored by psychologists in the 1930s and 1940s, which suggest that people have a natural tendency to make experiences meaningful, structured, and coherent. By focusing on how one thing relates to the next and seeing patterns in the way that events unfold, a person can understand and predict the social world, which allows him or her to anticipate, plan, and act effectively.

These and other elements were integrated into dual process theories in a variety of fields, beginning in the 1980s, often as an attempt to understand and synthesize conflicting findings or theories in the area. In persuasion, for instance, the development of two dual process theories (the elaboration likelihood model and the heuristic-systematic model) allowed researchers to organize complex findings in the field of attitudes and attitude change and explain why certain variables sometimes lead to attitude change and sometimes do not. For instance, when people are relying on simple, intuitive shortcuts in their thinking, they will be more persuaded by an expert than by a nonexpert, even when the expert's arguments are not very good. However, when people are relying more on systematic, bottom-up processing of all available information, they will tend to be more persuaded by good arguments than by someone's title.

Similarly, in the field of person perception, the continuum model of impression formation was developed in an attempt to reconcile two competing viewpoints on how people perceive others: one proposing that individuals form impressions in a bottom-up fashion, adding up lots of specific evaluations about a target person to form an overall average impression, and another claiming that people form impressions based on stereotypes or other social categories (e.g., race, gender). The continuum model suggests that people can use both of these modes, and the model identifies when a perceiver will rely solely on an initial, general categorization and when he or she will go on to think more carefully about another person based on unique information about that individual.

Importance and Consequences

As dual process theories became increasingly popular, they were adopted by more and more areas of psychology to describe how people think about information and arrive at conclusions. Dual process theories differ in various ways. For instance, some assume that the two ways of thinking about information are mutually exclusive (either/or), whereas others suggest that they happen one after the other, or even at the same time. However, the theories are more similar than different. They typically distinguish between a quick, superficial mode and an effortful, systematic mode of thinking. They also identify factors that affect whether people are able to and want to think carefully about information. In addition, they predict how the use of each mode will influence outcomes such as judgments, attitudes, stereotyping, and memory. By focusing on how people think about social information, dual process theories allow psychologists to identify the way in which a given variable (e.g., time pressure) will influence these thought processes and how this change in thinking will in turn affect the conclusions and judgments that people make.

As an example, consider the heuristic-systematic model of attitude change in the field of persuasion. Like other dual process theories, the heuristic-systematic model proposes two distinct modes of thinking about information. Systematic processing involves attempts to thoroughly understand any information encountered through careful attention, deep thinking, and intensive reasoning (e.g., thinking carefully about the arguments presented, the person arguing, and the causes of the person's behavior). This information is combined and used to guide subsequent attitudes, judgments, and behaviors. For instance, a systematic approach to

thinking about the Israeli–Palestinian conflict might involve reading as many magazine and newspaper reports as possible to learn and develop an opinion about the best course of action for the Middle East. Not surprisingly, such systematic thinking entails a great deal of mental effort, and requires that a person (a) can devote a certain amount of attention to thinking about the issue and (b) wants to devote this attention. Thus, systematic processing is unlikely to occur unless a person is both able and motivated to do it.

Relative to systematic processing, heuristic processing is much less mentally demanding and much less dependent on having the ability (e.g., enough knowledge and enough time) to think carefully about information. In fact, heuristic processing has often been called relatively automatic because it can occur even when people are not motivated and able to deliberately think about a topic. Heuristic processing involves focusing on easily noticed and easily understood cues, such as a communicator's credentials (e.g., expert or not), the group membership of the communicator (e.g., Democrat or Republican), or the number of arguments presented (many or few). These cues are linked to well-learned, everyday decision rules known as *heuristics.* Examples include "experts know best," "my own group can be trusted," and "argument length equals argument strength." These simple, intuitive rules allow people to form judgments, attitudes, and intentions quickly and efficiently, simply on the basis of the easily noticed cues, and with little critical thinking. A heuristic approach to the Israeli–Palestinian conflict might involve simply adopting the opinion of a noted Middle East political expert. In other words, heuristic thinking is what a person does when he or she does not have much ability or time to think about something and wants to make a quick decision.

The heuristic-systematic model suggests that people's ability and motivation to think carefully about information influence whether they rely solely on quick decision rules or go on to think about information more carefully and deeply. Furthermore, this model identifies three broad categories of motives that influence whether thinking in either manner will be relatively open-minded versus relatively biased. Accuracy motivation is geared toward discovering what is correct. Accuracy motivation leads to relatively open-minded, evenhanded thinking. Defense motivation refers to the need to protect oneself against potential threats to one's valued opinions and beliefs. This self-focused motivation leads people to choose heuristics that help protect their beliefs and to systematically think about information in a biased way that supports these beliefs. Finally, impression motivation involves the desire to make a good impression on another person or to maintain a positive relationship with someone. This other-focused motivation also biases thinking in favor of reaching a desired conclusion—in this case, the one that will best serve the relationship. Research on these three motivations reveals that people can think about information in an open-minded way when they have a lot of time and energy and really want to, but they are also very good at thinking about information in a way that lets them believe what they want to believe or what they think others want them to believe.

Dual process theories have been applied to many other research areas in social psychology. For example, the MODE model (motivation and opportunity as determinants of the attitude–behavior relationship) suggests that attitudes may guide behaviors in one of two ways. Strong positive or negative attitudes can guide behavior directly, without the individual thinking very much. Or, individuals can construct their attitudes in a more bottom-up, systematic fashion and then use this new attitude to determine their behavior. As another example, dual process models of how we perceive other people suggest two sequential modes of thinking about information when forming impressions of others. First, individuals spontaneously categorize the person (e.g., "She is a woman"; "He is Chinese"), and then—if they are both motivated and able to do so—they continue on to think more systematically about individuating, unique features of the person. Similarly, a dual process model of stereotyping suggests that people have an automatic tendency to stereotype others but can correct this stereotype if they are motivated and able to deliberately modify their views.

Perhaps most recently, a dual process perspective has been applied to negotiation settings. Studies in this field suggest that when negotiators have little desire to think carefully (or are unable to think carefully), they often rely on stereotypes about an opponent's group membership or the belief that if one side wins the negotiation, the other has to lose. In contrast, when motivation and ability to think carefully are relatively high, reliance on these heuristics tends to

decrease, and systematic processing increases. This allows negotiators to discover win–win solutions that are better for both parties.

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See also Attitude Change; Elaboration Likelihood Model; Heuristic Processing; Motivated Cognition; Need for Closure

Further Readings

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Dynamical Systems Theory

Definition

Emotions go up and down over the course of days. But sometimes emotions are more constant. For instance, depression could be characterized with fairly constant negative emotions across days. When will hearing some negative information lead a person into a depressed pattern? When will the same negative information just lead to a bad day among the good days? Dynamical systems theory (also known as dynamic systems theory or just systems theory) is a series of principles and tools for studying change. It is based on concepts from mathematics and is a general approach applicable to almost any phenomenon.

There are two types of change that are central to this method. First, a systems approach focuses on how a phenomenon changes over time. For example, a systems approach to emotions concentrates on how emotions evolve in time rather than whether a person is happy or sad on a given day. It seeks to identify patterns of change that can be reoccurring, constant, or even ever-changing. For example, emotions might go back and forth between good and bad days (reoccurring), remain negative (constant, not unlike depression), or constantly change in complex ways. A systems approach often assesses the stability of those patterns. For example, will receiving some negative information knock a person out of a pattern of ups and downs? Will the same negative information disrupt a constant negative pattern such as depression? Dynamical systems theory can also identify when the pattern of emotional change will evolve into another pattern on its own or in relation to other parts of the system. For example, under what circumstances can only a constant negative pattern of emotions exist? In summary, dynamic systems can be used to identify what might alter the entire long-term pattern of emotions that follow.

The second type of change examined by systems theory is that which occurs from the many interactions among units (i.e., individuals, groups, aspects within the individual). For example, a systems perspective of emotions might simultaneously consider the interaction of the differing emotions between a husband and wife. These interactions are assumed to be multidirectional. That is, the husband and wife mutually influence one another so that each changes and limits the emotions of the other. Because of these mutual influences on emotions with other people, there is the potential for each person to generate a very complicated pattern of emotions in time. Surprisingly, these multicomponent systems tend to generate relatively simple patterns. For example, a pair of individuals who begin with different emotions might converge on the same emotional pattern and might even help each other maintain that pattern (stability). That is, a couple both in the same ups and downs of emotions might make each person in the pair more resistant to negative information. This order emerges because of the multidirectional and reciprocal influences and tends to promote a great deal of predictive power. For example, you might need to know only the emotional pattern of a single individual in a group to know automatically the emotional changes of every other individual in the group. Thus, part of a systems perspective is identifying the qualities that depict the entire multicomponent system.