

suggests that research participants are motivated to make sense out of information they receive during a study. Because participants receive information about individuals from two different groups, the participants may assume that some difference must exist between the groups. The participants' attempts to distinguish between the two groups produce different evaluations. Another theory proposes that illusory correlations are due to information loss. Participants are not able to remember all of the information presented about the groups; however, because they learn more information about the larger group, they remember more information about this group when asked to make an evaluation about it later. Because they remember more information about the larger group and the majority of the information they remember is positive, participants evaluate the larger groups more favorably. Similarly, another explanation suggests that illusory correlations occur not because pairings of infrequent occurrences are more distinctive but rather because information about the most common pairings (i.e., larger group with the more frequent behaviors) is so easy to recall.

The findings from both distinctiveness-based and expectancy-based illusory correlation studies are important because they demonstrate how a perceptual bias can result from normally functioning cognitive mechanisms. When this research was first reported, it challenged the then-conventional beliefs that stereotypes were the result of individual personality syndromes or that they were derived from an underlying reality. Distinctiveness-based illusory correlation research demonstrates how stereotypes are constructed by the everyday cognitive mechanisms that are constantly operating within the human mind. Similarly, research on expectancy-based illusory correlations demonstrates how stereotypic beliefs are perpetuated through the biased processing of information when it is guided by a perceiver's prior beliefs.

David L. Hamilton

Joel A. Thurston

See also Availability Heuristic; Self-Fulfilling Prophecy; Stereotypes and Stereotyping

Further Readings

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IMPLEMENTATION INTENTIONS

A goal intention specifies a desired future state in the form of "I intend to perform/achieve Z!" (e.g., to exercise frequently/to be thin). However, merely setting a goal, or wanting very much to achieve it, is not sufficient to actually attain it. The correlation between goal intentions and actual behavior is quite low; the strength of one's goal intention typically explains only 20% to 30% of the variance in goal achievement. One strategy designed to improve goal attainment is to additionally form an implementation intention. An implementation intention is a simple plan in the form of "If X, then I will Y!" that specifies an anticipated goal-relevant situation, X, and a goal-directed response, Y, that will help achieve the goal. For example, an implementation intention formed to support the goal intention "to exercise frequently" would follow the form of "If it is sunny outside when I get up in the morning, then I will walk to work rather than take the bus." In other words, saying "I want to exercise more" doesn't accomplish very much. But planning, "If it's a sunny morning, then I'll walk to work," can increase one's chances of actually reaching that goal of exercising more.

How Do Implementation Intentions Work?

An implementation intention is formed by a conscious act of will. Its effects, however, come about by automatic, effortless action control that is based on the following psychological mechanisms. First, specifying an anticipated critical situation in the if-component of the implementation intention (i.e., the sunny morning) serves to heighten the activation of its mental representation (i.e., sunny mornings are more noticeable to you). As a consequence, the critical situation is more easily recognized, more readily attended to, and more effectively recalled. Second, implementation intentions

facilitate goal pursuit by making the planned response (specified in the then-component) automatic in response to that critical situation. Once a link is formed between the anticipated critical situation and the goal-directed response in the form of an if-then statement, the individual encountering the situation is able to enact the response immediately, efficiently, and without a second act of conscious will. In other words, when our aspiring athlete sees the sun when she wakes up, she'll think "I'll walk to work"—right away, without effort, and without having to decide again what she should do on sunny mornings to achieve her goal of exercising more. This automaticity has been supported in several studies demonstrating immediacy (i.e., quicker responding), efficiency (i.e., requiring fewer cognitive resources), and the redundancy of consciousness (i.e., initiation occurred even without conscious awareness of the presence of the critical situation). By creating strong mental links between an anticipated situation and a planned response, implementation intentions allow people to work toward their goals automatically, like a habit formed through the pairing of situations and responses repeatedly in daily life. Implementation intentions, for this reason, have been said to create instant habits or strategic automaticity.

What Kinds of Problems Can Implementation Intentions Solve?

Implementation intentions have been used to combat four potential problems for goal pursuit: failing to get started, getting derailed, becoming rigid, and overextending oneself.

First, once a goal has been set, people often fail to initiate goal-directed responses when given the opportunity. There are a number of reasons for this: Individuals may fail to notice that an opportunity to get started on their goal pursuit has arrived, may be unsure of how they should act when the moment presents itself, or may simply forget about their goal when busy with other things. As described earlier, implementation intentions make the critical situation easier to notice and the response easier to perform. It is not surprising then that implementation intentions reduce this problem of getting started on one's goals even when busy with other things. In one study, implementation intentions helped individuals perform the necessary behavior when their goal intention (i.e., writing about their Christmas Eve) had to be performed at a busy time (i.e., during Christmas Day). Or, in another study, individuals who formed implementation intentions about when

and where to exercise were more likely to exercise at the place and time specified and therefore more likely to achieve their overall goal to exercise more. Implementation intentions have helped people achieve other health goals, such as regular breast self-examination, cervical cancer screenings, mammography, medication compliance, and healthy eating. Moreover, implementation intentions were found to facilitate the attainment of goals that are easy to forget (e.g., regular intake of vitamin pills).

Second, individuals may fail to achieve their goals because they get derailed from a goal-directed course of action. Because many goal pursuits entail continuous striving and repeated behavioral performances, one must shield goal pursuit from distractions. These distractions can come in the form of temptations, moods that can unknowingly affect one's ability to succeed, or habits that compete with one's chosen course of action. For example, implementation intentions were found to block the distracting effects of temptations in the form of entertaining advertisements (during a math test) by inhibiting attention to the distraction. Implementation intentions were also found to effectively counteract the adverse effects of moods for goal pursuit. Implementation intentions can also protect goal pursuit from unwanted habits (e.g., ordering unhealthy food in a restaurant) in favor of a newly set change goal (e.g., eating healthy food). Research has found that habitual eating behaviors and implementation intentions each have an independent effect on subsequent healthy eating. That is, no matter whether the old unhealthy eating habits were weak or strong, implementation intentions improved the individual's diet. Prejudicial feelings and stereotypical beliefs are another habitual response that can be managed with implementation intentions; implementation intentions helped participants suppress the automatic activation of prejudicial feelings and stereotypical beliefs when mere fairness goals could not.

Third, individuals may fail to achieve their goals because they become rigid in their goal pursuit. They may either need to disengage from their goals because of new information that changes the value of the goal, or they may need to switch their means of approaching that goal because it has become ineffective. Research has shown that there are a number of ways that implementation intentions combat rigidity in goal pursuit:

1. Goal pursuit by implementation intentions respects the quality of the superordinate goal, including its

level of situational activation (i.e., if the goal is relevant in a given situation), the degree to which the goal is still held, and the strength of the goal.

2. Specifying a good opportunity to act on one's implementation intention does not make a person oblivious to alternative better opportunities.
3. Forming implementation intentions does not make a person unresponsive to the effectiveness or ineffectiveness of his or her if-then plans (i.e., if these plans turn out to be counterproductive, they are discarded, and the individual is able to operate on the goal intention alone).
4. Implementation intentions can be used to disrupt the escalation of commitment (i.e., when one course of action isn't working, but the individual keeps increasing his or her effort rather than abandoning his or her pursuit).

A final obstacle to goal pursuit is overextending the self. Individuals who expend effort on a given goal pursuit experience a subsequent reduction in the ability to self-regulate; this is called *ego depletion*. Ego depletion results from having drained one's regulatory resources by exercising self-control in a demanding first task; the ego-depleted individual then shows lowered performance in a subsequent task because these self-regulatory resources are now lacking. Because implementation intentions make self-regulation more automatic, they can be used to prevent the emergence of ego depletion (on the first task) as well as to enhance performance (on the second task) once ego depletion has occurred.

Research on implementation intentions has demonstrated that making if-then plans is a very effective self-regulation strategy of goal striving. The positive effects of this strategy are based on intentionally switching action control from conscious guidance by a goal intention to direct control by preplanned critical situational cues.

Elizabeth J. Parks-Stamm

Anja Achtziger

Peter M. Gollwitzer

See also Ego Depletion; Goals

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IMPLICIT ASSOCIATION TEST

Definition

Psychologists have long suspected the existence of thoughts and feelings that are not accessible by simply asking a person to report them. It may be that people are unwilling to report what they think and feel. Or, even more likely, people may not be aware of everything that they think and feel. Beginning in the 1980s, efficient alternatives to self-report measures were invented to study implicit or unconscious forms of thoughts and feelings. One such measure is the Implicit Association Test (IAT).

The IAT requires respondents to rapidly sort items from four different categories into groups. For example, imagine sorting a deck of playing cards—with red hearts, red diamonds, black clubs, and black spades—two times. For the first time, all the hearts and diamonds are sorted into one pile and all the clubs and spades are sorted into a second pile. This would be quite easy to do because the suits are being sorted by a common perceptual feature—color. Now imagine doing the same task but this time sorting clubs and hearts into one pile and diamonds and spades into the other. This would probably be harder and take longer to complete because clubs and hearts are not as related to each other as are hearts and diamonds. The simple idea is that things that are associated by some feature are easier to put together than things that are not associated.

Now translate the idea of sorting cards by their suit to sorting items by their social categories. A gender IAT, for example, would provide a measure of the relative strength with which *female* and *male* are associated with *family* versus *career* concepts. Like sorting cards by their suit, sorting *female* with *family* and *male*