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Need for Cognition

Definition

Need for cognition refers to an individual's tendency to engage in and enjoy activities that require thinking (e.g. brainstorming puzzles). Some individuals have relatively little motivation for cognitively complex tasks. These individuals are described as being low in need for cognition. Other individuals consistently engage in and enjoy cognitively challenging activities and are referred to as being high in need for cognition. An individual may fall at any point in the distribution.

Background and History

The term *need for cognition* was originally conceptualized by Arthur Cohen and his colleagues. In their work, need for cognition was defined as the need to make sense of the world. Therefore, greater need for cognition was associated with preference for structure and clarity in one's surroundings. Such a conceptualization emphasized intolerance for ambiguity and thus, appears closer to contemporary scales that measure need for structure or need for closure than to the current definition of need for cognition. However, John Cacioppo and Richard Petty retained the term *need for cognition* in acknowledgement of Cohen and his colleagues' early work.

Cacioppo and Petty proposed that need for cognition is a stable individual difference in the tendency to engage in and enjoy cognitively effortful tasks across a wide variety of domains(e.g. math, verbal, spatial). In addition, need for cognition was conceptualized as reflecting a stable intrinsic motivation that can be developed over time rather than a need in the traditional sense (i.e. a source of energy that motivates behavior). In the contemporary conceptualization of need for cognition, the emphasis is on cognitive processing (i.e. the activity of engaging in mentally challenging tasks) rather than cognitive outcomes (e.g. a structured

knowledge of the world). Importantly, need for cognition taps into differences in motivation rather than ability. This is supported by research showing that need for cognition is only moderately related to measures of ability such as verbal intelligence, ACT scores, high school and college GPA, and continues to predict relevant outcomes after cognitive ability is controlled.

Need for Cognition Measurement

Although the Need for Cognition scale was originally developed as a 34-item inventory, the most commonly used version contains 18 items that people rate on 5-point scales as being characteristic of themselves (or not). Some examples of scale items are "I prefer complex to simple tasks", "The notion of thinking abstractly appeals to me," and "I prefer my life to be filled with puzzles that I must solve." The scale has been established to have high internal consistency, suggesting that the individual scale items tap into the same construct. The scale also demonstrates good validity. That is, the scale correlates with other scales that measure individual differences that should be independent of but related to need for cognition. For instance, the scale correlates positively with other scales that measure the tendency to make complex attributions, and the tendency to seek out relevant information for decision-making and problem-solving.

Need for Cognition and Enjoyment of Cognitive Challenges

Consistent with the definition of need for cognition (NC), research indicates that high NC individuals spontaneously engage in a variety of mentally effortful tasks, whereas low NC individuals will participate in such activities only when there are external incentives to do so. For example, high NC individuals distinguished between strong and weak messages in a persuasive communication. This occurred regardless of whether the message came from a trusthworthy or untrustworthy source or took a surprising position or not. Low NC individuals, on the other hand,

distinguished between strong and weak arguments only when the arguments came from an untrustworthy source or took a surprising position. This means that low NC individuals scrutinized the message only when there were other motivations to do so (e.g., to check on an untrustworthy source). Other special circumstances that motivate low NC individuals to think include unexpected arguments, an approaching deadline, and a personally relevant topic.

This research suggests that high NC individuals find mentally complex activities inherently enjoyable but low NC individuals do not. In fact, there is much evidence that high NC individuals experience cognitively demanding tasks more positively than low NC individuals. Several studies demonstrated that compared to low NC individuals, high NC individuals reported more positive affective reactions (i.e. ratings of task enjoyment and pleasantness) and less negative ones (i.e. frustration and tension) to mental challenges such as math problems and complex number search tasks. Furthermore, high NC individuals have a greater tendency to seek information about new products and complex issues. For example, they are more likely to tune in to presidential debates. Such active pursuit of information reflects high NC individuals' intrinsic motivation for mental activity and challenges.

Need for Cognition and Engagement in Cognitively Effortful Tasks

Given their enjoyment of mental challenges, it is expected that high NC individuals have a chronic tendency to participate in cognitively effortful tasks. For example, high NC individuals are more likely to have an abundance of task-relevant thoughts than low NC individuals. Furthermore, these thoughts are more likely to determine the attitudes of high than low NC individuals. For example, in one study, participants saw an advertisement that contained strong arguments for an answering machine. High NC individuals listed more positive thoughts to the strong arguments presented about the answering machine than did low NC individuals. In

addition, attitudes toward the answering machine were correlated with thoughts among high NC individuals but not low NC individuals.

Not only do high NC individuals have more thoughts to persuasive messages and other stimuli, but they are also more likely to think about their thoughts, engaging in meta-cognition. When high NC individuals are confident in their thoughts they rely on them more than when they lack confidence in them. For low NC individuals, meta-cognitive processes are less likely. That is, they are less likely to think about whether the few thoughts they have are valid.

In sum, high NC individuals' thoughts and attitudes are influenced by their effortful assessment of merits of the information they receive, and the perceived validity of their thoughts. Low NC individuals, on the other hand, are more affected by simple cues that are contained in communications. In one study, participants viewed an ad for a typewriter. The ad was endorsed by either two unattractive women or two attractive women. Although high NC individuals gave equally positive ratings to the typewriter regardless of endorser attractiveness, low NC individuals' ratings were more positive when the typewriter was endorsed by attractive than unattractive women Because the attitudes of high NC individuals are more likely to be based on effortful thought, they tend to be held more strongly. Indeed, research has demonstrated that the attitudes of high NC individuals, compared to low NC individuals, are more persistent, more resistant to attacks and more predictive of behavior.

Besides attitude-related consequences, another implication of high NC individuals' tendency to process information is that they have better memory for information to which they have been exposed. For instance, when students received arguments about the implementation of senior comprehensive exams, those high in NC recalled a greater proportion of the arguments than those low in NC. In addition, high NC individuals have more knowledge on a variety of

issues. In the domain of politics, high NC individuals listed more information about presidential candidates and more consequences of electing various candidates to office. In other research, high NC individuals listed more types of birds and performed better on a trivia test than low NC individuals.

Need for Cognition and Biased Processing

Sometimes, there are variables that may bias one's processing. Since high NC individuals tend to focus on information rather than simple cues, their processing of information is more susceptible to various biases. One source of bias is mood. Positive mood tends to make attitudes more favorable in both high and low NC individuals. The difference is that whereas mood has a direct impact on attitudes in low NC individuals (i.e., mood serves as a simple cue), it impacts attitudes in high NC individuals through influencing the positivity of their thoughts.

Although high NC individuals may sometimes be biased in their processing, they are also more likely to correct their judgments if biases are detected because they are more likely to engage in the cognitive effort required for such correction. When the biasing factor is subtle and not very salient, it tends to impact the thoughts of high NC individuals, but when the biasing factor is more blatant, high NC individuals tend to correct for the bias. When they overcorrect for the bias this can lead to a reverse bias. In one type of bias, individuals' mood increases their estimates of the likelihood of events that match their mood. For example, a sad individual may think that sad events (e.g. senior citizens contracting Alzheimer's disease) are more likely to occur than angering events or happy events. In one study, participants were asked to estimate the likelihood of happy, sad and angering events, after they had been induced to be happy, sad or angry. Low NC individuals were biased in their estimates, depending on the mood they were in. For instance, low NC individuals gave a relatively high estimate for happy events when they had

been induced to be happy. On the other hand, high NC individuals overcorrected for such a bias. For example, high NC individuals who were in a happy mood gave a relatively low estimate for happy events.

Need for cognition is an often researched variable in social psychology due to its implications for people's attitudes, judgments and decision-making. This is because whether an individual is high or low in NC impacts how the individual processes information and reacts to variables such as a source's trustworthiness, the individual's mood, and so on.

See also Elaboration Likelihood Model; Intrinsic Motivation

Further reading

Cacioppo, J.T., Petty, R.E., Feinstein, J.A., Jarvis, W.B.G. (1996). Dispositional Differences in Cognitive Motivation: The Life and Times of Individuals Varying in Need for Cognition. *Psychological Bulletin, 119*, 197-253.