

# USE OF THE IMPLICIT ASSOCIATION TEST IN RISK ASSESSMENT

Anthony G. Greenwald, University of Washington

## Abstract

This presentation focused on the potential use of implicit measures to supplement self-report measures of risk perception. The Implicit Association Test (IAT) measures associative knowledge that is hypothesized to be involved in control of action at low levels of self-awareness or self-regulation. Implicit and explicit (i.e., self-report) measures have recently been found to complement each other in predicting behavior. IAT research with adult smokers has shown that smokers (on average) associate smoking more with negative than with positive valence. This raises a question as to whether associative (experiential) knowledge, let alone rational (propositional) knowledge, is involved in habitual smoking behavior. Associative knowledge may nevertheless be very important in guiding the behavior of novice and occasional smokers.

1. **Rational and experiential thought systems.** Paul Slovic (2000) used Seymour Epstein's (1994) distinction between *rational* and *experiential* modes of thinking in analyzing determinants of risky choices, especially the decisions to start smoking, continue smoking, or give up smoking. The rational system is assumed to base choices on conscious appraisal of events. By contrast, the experiential system uses associative connections that may operate less consciously. Slovic hypothesizes that the experiential system may often dominate choices to engage in behaviors (such as smoking) that entail substantial health risks.

2. **Two classes of measures.** *Self-report* measures are often suitable for assessing the conscious appraisals that provide the rational system's operation. At the same time, the value of self-report measures is limited by their susceptibility to distortion associated with respondents' impression management tactics. *Implicit* measures are not useful for assessing conscious appraisals, but do offer a means of access to associative knowledge. Further, they have the advantage of not relying on introspective awareness or willingness to report accurately. Implicit measures therefore expected to be resistant to self-presentational distortions.

3. **The Implicit Association Test (IAT).** This is a specific implicit measure that was developed recently (Greenwald, McGhee, & Schwartz, 1998). The IAT provides a relative measure of association strengths, typically involving two concept categories (e.g., smoking and nonsmoking) and two attribute categories (e.g., relaxation and disease). The measure produced by the IAT is a *relative* measure, giving the difference between the strengths of one pair of associations (e.g., smoking-relaxation and nonsmoking-disease) and those of the complementary pair (smoking-disease and nonsmoking-relaxation). Many variations on the IAT have been investigated in the relatively short period since introduction of the measure (see review in Greenwald & Nosek, 2001). There is rapidly accumulating evidence for the validity of the IAT as a measure of association strengths (Greenwald, Banaji, Rudman, Farnham, Nosek, & Mellott, 2002; Greenwald, Nosek, & Banaji, 2003).

4. **IAT results obtained with smokers.** With samples of college-student current smokers and nonsmokers, Swanson, Rudman, and Greenwald (2001) used a few different IAT measures to investigate associations involving the concept of smoking. Their findings:

- Smokers (on average) associate smoking slightly more with negative than positive valence ( $d = -.28$ ). This finding was unexpected, because it was thought that the behavior of regular smoking might have been supported by associating smoking with positive valence.
- However, nonsmokers associate smoking much more strongly with negative valence ( $d = -.95$ ).

- c. Smokers associate smoking more with self than other ( $d = +.55$ ). This reveals that smokers have an 'implicit identity' association with smoking.
- d. By contrast, nonsmokers associate smoking (relative to nonsmoking) slightly more with other than with self ( $d = -.10$ ). It might be thought that this association should be stronger. However, it is likely that 'nonsmoking' is not an important identity association for nonsmokers, in much the same way that 'nonathlete' might not be an important identity association for people who are not athletic.

**5. Implications.** The IAT does not reveal that smokers associate smoking with positive valence. If Slovic's 'affect heuristic' conception is correct, this finding suggests that the affect involved in maintaining smoking for habitual smokers is not observed at the level of associations that can be measured by the IAT. Conceivably, it will require yet a different type of new measure to gauge the involvement of affect in the regulation of smoking behavior. Even so, implicit measures such as the IAT should be able to play a useful role, complementing self-report measures, in assessing cognitions that relate to risky health behavior.

## References

- Epstein, S. (1994). Integration of the cognitive and psychodynamic unconscious. *American Psychologist*, *49*, 709-724.
- Greenwald, A. G., Banaji, M. R., Rudman, L. A., Farnham, S. D., Nosek, B. A., & Mellott, D. S. (2002). A unified theory of implicit attitudes, stereotypes, self-esteem, and self-concept. *Psychological Review*, *109*, 3-25.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*, 1464-1480.
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (in press). Understanding and using the Implicit Association Test: 1. An improved scoring algorithm. *Journal of Personality and Social Psychology*.
- Slovic, P. (2000). Rational actors and rational fools: The influence of affect on judgment and decision making. *Roger Williams Law Review*, *6*, 167-216.
- Swanson, J. E., Rudman, L. A., & Greenwald, A. G. (2001). Using the Implicit Association Test to investigate attitude-behavior consistency for stigmatized behavior. *Cognition and Emotion*, *15*, 207-230.
- Greenwald, A. G., & Nosek, B. A. (2001). Health of the Implicit Association Test at age 3. *Zeitschrift für Experimentelle Psychologie*, *48*, 85-93.