



Project Implicit

What is an implicit measure?

Implicit measures of judgments (attitudes, stereotypes, or self-concept) include measures that either do not alert the respondent to what is being measured or do not allow the respondent control over their response even if they know what is being measured. The Implicit Association Test (IAT) is the most widely-used tool in this class of measures.

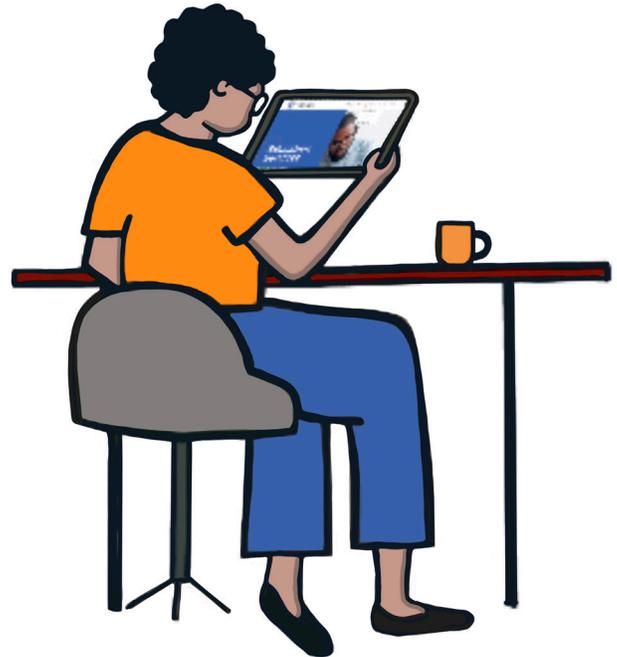
How does the IAT work?

The IAT measures the strength of associations between two target categories (e.g., Black People and White People; Men and Women) and two attribute categories (e.g., Good and Bad; Tall and Short). The idea behind the IAT is quite simple: people perform tasks faster and more accurately when the task relies on strong, highly practiced mental associations compared to when the task requires making associations that are weaker or less practiced.

What considerations and constraints should be considered in designing an IAT?

Additional information: Greenwald et al., 2019; Rudman, 2011.

- **Choose categories that are similar and familiar.** The items to be sorted should be easy to sort quickly and accurately. It is recommended that researchers avoid trying to measure highly complex concepts that an average person would not recognize without explanation since these concepts



might not spark automatic evaluations. Further, they may be too difficult to fit within the confines of a categorization measure that requires participants to respond quickly and accurately in order to be valid.

- **Choose categories that are mutually exclusive and stimuli that clearly fit into a single category.** In other words, there should be no question about which category is the “right” category when the participant is sorting the stimuli. For example, an IAT assessing attitudes toward Black people vs. White people should not use racially ambiguous images.
- **Be sure that one target category differs from the second target category on just one primary feature.** The stimuli should be well-matched. For example, in a Black/White Race IAT, the researcher should not include images of only men for one category and only women for another.
- **Avoid stimuli for one attribute category that are negations of possible stimuli for the contrasted attribute category.** For example, it is preferable to use “happy” and “sad” rather than “happy” and “unhappy”.
- **Include 3–8 stimuli for each target category and each attribute category.**



How is the IAT designed?

A typical IAT consists of seven blocks of trials. In each block, the participant sorts *stimuli* (e.g., words or pictures) that appear in the center of the screen using two different keys on the keyboard (e.g., “e” and “i”). The keys correspond to category labels that appear on the left and right sides of the screen, respectively.

In the example below, the following categories and stimuli are used:

- **Target Categories:** Flowers, Insects
- **Attribute Categories:** Pleasant Words, Unpleasant Words
- **Target and Attribute Stimuli:** Names of Flowers, Names of Insects, Pleasant Words, Unpleasant Words



PLEASANT WORDS

gentle, smile,
cheer, love,
enjoy, happy,
friend

UNPLEASANT WORDS

damage, vomit,
hurt, poison,
evil, gloomy,
ugly

FLOWERS

orchid,
daffodil, lilac,
rose, tulip,
daisy, lily

INSECTS

flea, centipede,
gnat, wasp,
roach, moth,
weevil

Block 1

The participant sorts **target** stimuli into the target categories (e.g., Flowers and Insects).

FLOWERS **INSECTS**

← daisy

FLOWERS **INSECTS**

flea →

What does the error message (i.e., the red X) mean?

The red X indicates that an item has been sorted incorrectly based on the categories shown at the beginning of the test. The items are predetermined to fit into one category or the other. Therefore, participants are sorting (not evaluating) when completing the task and when the pairing is objectively incorrect, the error message appears. It is important to note that a participant does not have to agree with a pairing (e.g., Black and Bad, Thin and Good, Female and Family), but they will need to follow the instructions regarding the categories in order to complete the test.

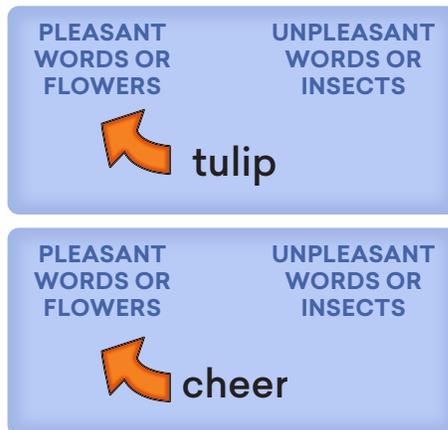
Block 2

The participant sorts **attribute** stimuli into the attribute categories (e.g., Pleasant, Unpleasant).



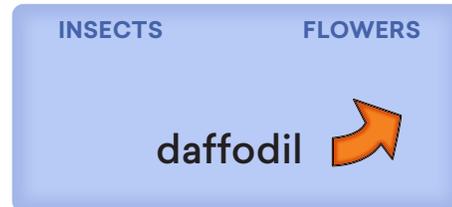
Blocks 3 and 4

One response key is used to sort stimuli into the categories Pleasant Words or Flowers while another key is used to sort stimuli into the categories Unpleasant Words or Insects. There is a practice block and a test block with a brief rest period in between.



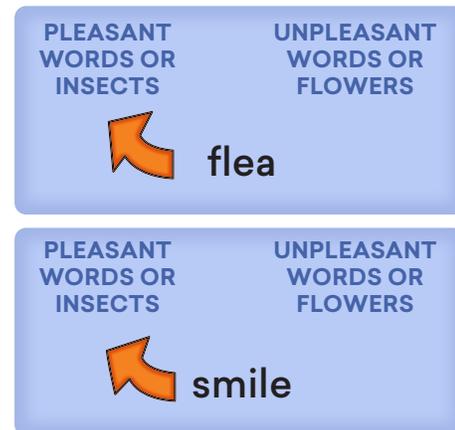
Block 5

The participant practices sorting target stimuli using the opposite keys than they previously used (i.e., if the category Flowers was on the left, it now appears on the right). The number of trials in this block is typically twice what was used in the first practice blocks in order to reduce potential learning effects.



Blocks 6 and 7

These blocks present pairings that are the opposite of what appeared in Blocks 3 and 4. One response key is used to sort stimuli into the categories Pleasant Words or Insects while another key is used to sort stimuli into the categories Unpleasant Words or Flowers. There is a practice block and a test block with a brief rest period in between.



How is the IAT scored, and what do the results mean?

An implicit Flowers-Pleasant/Insects-Unpleasant association is inferred if people are able to complete the task more quickly when Flowers + Pleasant Words and Insects + Unpleasant Words share response keys compared to when Insects + Pleasant Words and Flowers + Unpleasant Words share response keys. Researchers would typically say that this association reflects an *implicit preference for flowers relative to insects* or that it reflects an *implicit bias against insects compared to flowers*.