

# INDIRECT AND IMPLICIT MEASURING

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WHITEPAPER



# UNDERSTANDING THE IMPORTANCE OF (UN) CONSCIOUS BEHAVIOUR

Within marketing, it is becoming increasingly important to understand consumer behaviour. Although the end result is often a conscious action (buying something), it is caused by a series of processes that are unconsciously controlled. Kahneman (2011) states that most of the decisions we make as humans are made automatically without us consciously thinking about it. Important

questions include:

- Why do we pick that one brand off the shelf?
- Why do we see one advertisement and not the other?
- Why is our first impression so defining?

These issues are often explained by the two systems that are active in our brain, system 1 and system 2.

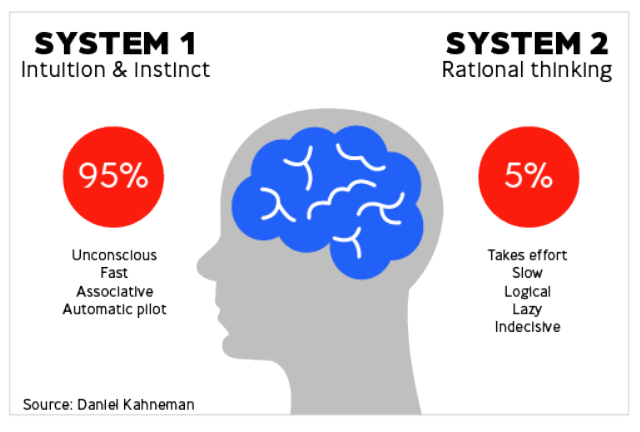
## HOW TO MEASURE A BRAND'S POSITION?

However, a lot of market research with traditional questioning methods focus on conscious thinking, making it difficult to identify unconscious processes. So, people often talk about conducting implicit measurements. In practice, however, we see that these implicit measurements are poorly validated or are performed incorrectly. Or these measurements show the aspects of an implicit test, but then only show rational results. Because the idea behind many implicit measurements is correct, but often large mistakes are made in implementation, DVJ has validated various methods and studied how these tests can best be used to better understand consumer behaviour.

Incidentally, this is not only the case with unconscious processes, but also with subjects that are very sensitive, or things people don't like to talk about. Think of subjects such as racism, drinking, domestic violence, or mental illness.

### SYSTEM 1 AND SYSTEM 2

According to Kahneman, when you make decisions, you use two different thinking systems. System 1 is fast, automatic, emotional and subconscious. System 2 is slower and more purposeful. You think about different considerations, different concepts and weigh all options. So, system 1 and system 2 comprise two completely different thinking processes that you go through when making decisions. This is a theory also known as "dual processing". In the past, research has often focused on system 2, while the combination of both systems is the most complete. System 1 in particular is best measured through implicit measurements of the process or direct measurements of behaviour.



# DIFFERENT WAYS TO MEASURE INDIRECT AND IMPLICIT

To gain insight into the entire customer behaviour and to better understand the things we aren't aware of, there are various techniques that can help. At DVJ Insights we distinguish:

1. **Implicit techniques:** If you want to study unconscious processes, unconscious behaviour or, for example, associations around sensitive subjects, it is advisable to measure this in an indirect or implicit way. This means measuring certain attitudes or behaviour without asking about it directly.
2. **Direct techniques of measuring behaviour:** The result is measured directly and, in some cases, may be better than an implicit technique. An example is the direct measurement of whether you want to look at advertising, or the result of a search or choice task.
3. **Indirect, projective techniques** are, for example, free associations or storytelling. It is important that these are used as a response mechanism (whitepaper: [how to conduct market research](#)) and in which the interpretation is done by people themselves.

DVJ has studied the validity of various methods. We have listed and validated various methods. In addition, we have also conducted research to further develop certain techniques so that they are more useful in a practical context rather than an academic one. This gives recommendations when, and in which context, which test is best to use.

The most important lesson that emerges from our comparison is that not one technique is suitable for all questions. It is the correct choice of techniques which provide the best answer and the best diagnosis. The trick is to combine these techniques as well as possible.

In this whitepaper, we will discuss the possibilities implicit measurement offers and how it can be with other forms of research. DVJ's advice is to always combine implicit techniques with open and projective techniques, such as free associations and storytelling, and direct techniques to measure behaviour. Combining these techniques with implicit techniques will lead to the full picture.

## INDIRECT AND DIRECT TECHNIQUES NECESSARY FOR ENRICHMENT

### ASSOCIATIONS AND STORYTELLING

Free associations and storytelling are two innovative indirect measurement methods which can be used as a response mechanism. These two techniques do not contain questions with fixed answer categories, but question what comes to mind first. "Listening" to what respondents write down provides much richer insights than fixed answer categories. Associations are an indirect form of questioning which encourages respondents to project their underlying motives, beliefs, attitudes and feelings (Van Osselaer & Janiszewski, 2001).

The principle of storytelling is based on the fact that a human's memory contains stories (Woodside, 2010). Therefore, human memory is better suited to tell stories than to answer questions with fixed categories. Storytelling really shows the experiences of respondents. This allows you to get more, and mainly "why" information from storytelling than you would get from closed questions. An important addition of DVJ to these two techniques is that people classify and enrich their answers themselves. This also makes them very useful as quantitatively rich KPIs.

### WILLINGNESS TO WATCH AND EYE-TRACKING

Especially in communication and purchasing behaviour, the result of an unconscious process is behaviour itself. For that reason, two techniques are important that are even better able to measure the "real" emotion. Measuring the willingness to watch is only valid if you do it immediately. It makes no sense to ask people to look at something. That is why DVJ has developed two techniques that can be performed simultaneously on large groups of people. For the willingness to watch, we have developed methods that are adapted to the media type that register exactly whether and to what extent people are willing to watch. In addition, DVJ has developed an online eye-tracking tool that measures exactly what people see and don't see. Consumer attention is important for the success of an advertisement or packaging design.

# IMPLICIT MEASURING

Several implicit tests have been developed in psychological research, among others by Harvard University. These tests are designed to study the implicit attitude to various sensitive topics, such as racism or gender-based discrimination. Despite criticisms on these tests (including Blauw, 2017), they have been used extensively in science and more recently in practical market research. DVJ Insights has researched the practical applicability of these various implicit tests. Based on an extensive analysis, we have come to 2 tests that give a good insight into the unconscious behaviour.

These tests are:

1. Implicit Association Test: This is used in various forms. In the validation study, we looked at the best possible design for this.
2. Instant Appeal Method: This test looks at the initial response to different stimuli. It has been studied how to best use this test.

We also conducted multiple validation studies for these two types of tests. The results of these studies are important for the use and application of these techniques.

## THE IMPLICIT ASSOCIATION TEST (IAT)

One of the most well-known tests is the implicit association test (IAT). Variations include the brief implicit association test (BIAT), the single-category implicit association test (SC-IAT) and the Go-NoGo association test (GNAT) (including Karpinski & Steinman, 2006; Nosek & Banaji, 2001; Sriram & Greenwald, 2009). All these tests are based on the same principle, that respondents should categorise words and pictures or photos as soon as possible. As an example, the task is to categorise cat pictures with positive and negative words. When someone has an implicit attitude (and in this case probably an explicit attitude towards cats), it will be easier to categorise cat pictures with negative words than with positive words. This will be reflected in the reaction times of the test. So, all the different tests are based on the same idea, but the way the pictures and words are shown and how respondents do the classification differs slightly. The "normal" IAT was not included in the validation study, because this test is even more extensive and therefore doesn't have a high practical applicability. This IAT is difficult to combine with other methods, so we advise against using it.

### HOW DOES THE SC-IAT WORK?

The first test is the SC-IAT, a test that measures the implicit attitude towards one category. This test is very suitable for measuring the attitude towards a desired action, such as when you want to quit smoking, or a brand. The original – by Harvard developed – test consists of 2 phases, each containing a test task and then 3 tasks with 24 words / images. This makes the test extensive and takes about 6 to 7 minutes to fill in.

In the SC-IAT, respondents have to categorise words and pictures (see Figure 1). They do this categorisation by pressing the "E" and "I" keys on the keyboard. The idea is to categorise a picture or word as soon as possible by the category on the left of the screen ("E") or on the right of the screen ("I"). The reaction times are tracked in the background and these reaction times are then used to calculate a D-score that represents the implicit attitude one has towards the subject of the test.

This test appears to work well in our studies for non-profit organisations that often want to change certain behaviour. As an example: The implicit attitude to smoking appears to be a good predictor of the explicit attitude, which in turn explains smoking itself. The implicit attitude to smoking has no relation to smoking itself (see Figure 2). This is probably caused by the fact that everyone has a negative attitude towards smoking, which is also caused by today's society. Here we see no differences between smokers and non-smokers. However, smokers on average have a more positive explicit attitude towards smoking than non-smokers. The SC-IAT can also be used to measure implicit attitudes towards a brand.

**POSITIVE**

**NEGATIVE  
OR IMAGE**



Figure 1: Example SC-IAT of smoking

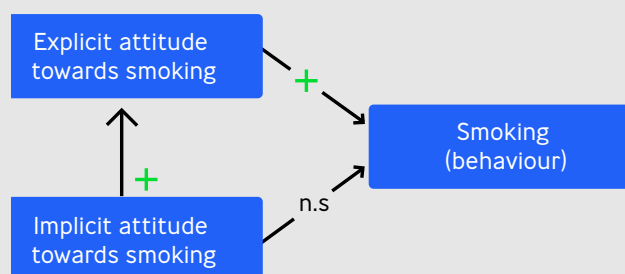


Figure 2: Relations between implicit and explicit attitude and behaviour

## SHORTENED SC-IAT

Because the SC-IAT is such a long test to conduct in an online experiment, we conducted a large-scale study in which we reduced the number of tasks and words / pictures. Small samples are often used in science, while in practical market research the samples are much larger. It seems plausible that with a larger sample the length of the test can be shortened while still obtaining reliable results. For a market research agency, the latter is very important. In addition, we are always optimising our questionnaires so that it is as much fun as possible for respondents to participate in our surveys. When questionnaires are too long, more respondents will drop out or no longer take the survey seriously, which has a negative impact on data quality.

The results of our experiment are surprising. We see no differences in the evaluation of the test with different lengths (average rating 4.2 / 5). Respondents indicate that they enjoy taking the test. The more tasks and words the test contains, the more time respondents are taking. Logically, the longer the test takes, the higher the drop-out rate.

Which again is an indication to shorten the test. To study whether we can actually shorten the test, we have to look at the average D-scores and the dispersion in them. When the test contains fewer words and tasks, it is likely that the dispersion in the scores will increase and the results are less reliable. Because we, and other market research agencies, work with large numbers of respondents, this fluctuation in scores can be compensated for.

In Figure 3, the D-scores are shown in box plots. The average score is an implicit negative attitude towards smoking (average score is below 0). What is striking is that the modified tests under the grey area show a lot of dispersion in the results. However, from a SC-IAT with 2 tasks and 12 words / pictures, the results differ little from the original SC-IAT with 3 tasks and 24 words. This modified version of 2 tasks and 12 words takes about 3.5 minutes to complete: twice as short as the original task! Also, the dropouts for the shortened task are significantly lower than for the full tasks. To conclude, this shortened SC-IAT is a good alternative to use in online research with large numbers of respondents.

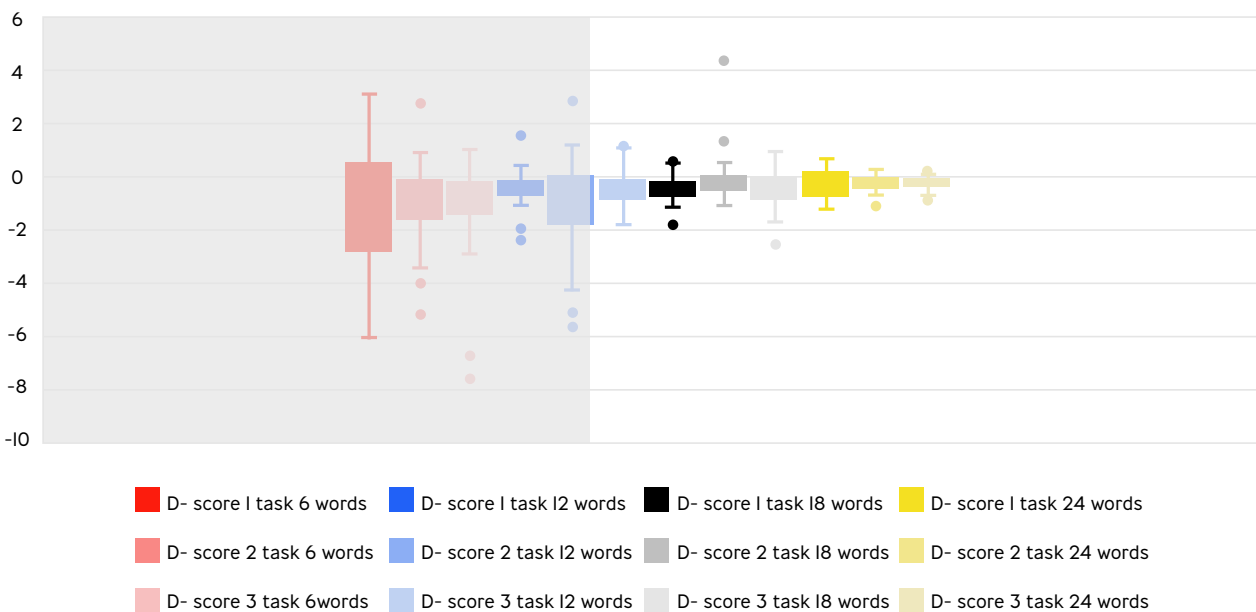


Figure 3: Box plots D-scores in different conditions

## BIAT and GNAT

In addition to the SC-IAT and the shortened SC-IAT, we have developed and tested the BIAT and the GNAT. The BIAT contains 2 tasks in which respondents use the "E" or "I" key for categorisation, just like with the SC-IAT. The difference with the SC-IAT is that the BIAT includes two categories and the results must be interpreted relatively. For example, if two brands are included in the test, the results are interpreted as: respondents have a more positive implicit attitude towards brand A than towards brand B. Figure 4 shows an example of how the BIAT can be used to measure implicit brand attitude. The results can only claim: Pepsi is rated more positively than Coca Cola. However, other measures

are needed to be able to tell what for instance the attitude is. It can be negative for both brands.



Two categories, and their items, are displayed above. Keep the two categories in your mind as you do the task.

Press 'K' When an item matches EITHER category. Press 'D' for anything else.

If you make an ERROR you will see a RED X. When this happens, make the CORRECT response to proceed. Go FAST. A few errors are OK.

Press the Spacebar to begin the task.

Figure 4: example BIAT brand (Pepsi vs. Coca Cola).

Source: Sriram & Greenwald, 2009.

The GNAT is also a test for two categories. However, respondents must press the space bar when the image or word that comes into view fits the category, and do nothing if it doesn't fit the category.

These validation studies carried out by DVJ show that respondents like to do the GNAT more than the BIAT. The GNAT is also easier to understand. The drop-out rate is

therefore 10% points lower for the GNAT than for the BIAT. However, the two tests are not evaluated differently. These are important arguments for favouring the GNAT over the BIAT. Another important argument is that the results for the GNAT are more intuitive and easier to interpret than those of the BIAT.

## INSTANT APPEAL METHOD

A commonly used test for measuring the strength of visual stimuli or brands is the instant appeal test. This test focuses on people's first impression. An important starting point for this test is the way in which a stimulus is displayed. The following principles are important:

- A first impression is formed within a few milliseconds. This first impression is pre-attentive and precedes cognitive knowledge. Recognition of stimuli is done through the same process. Humans are able to recognise something within a few milliseconds. That is why we quickly recognise people in a busy shopping street or whether we look at certain people or not. The first impression is driven by two main emotions, attraction and rejection. Both are important for the instinctive assessment of stimuli.
- The observation threshold plays a major role in the performance of the test. This is at 100-120 milliseconds. Therefore, it is essential that a stimulus is not displayed for longer, otherwise the cognitive process will predominate in the assessment.

However, in research we often show material for far too long and we don't measure instant appeal, but a reasoned impression. Which is why DVJ conducted a validation study with the aim of determining how long a stimulus should be displayed and how it can best be done. We performed the test under multiple conditions and with different stimuli.

The main learnings from the validation study are summarised below:

- Exposure should be no longer than 80 milliseconds, but it is best to show a stimulus for only 60 milliseconds. With an even shorter exposure, we noticed that it became difficult to measure an impression, and only recognition played a crucial role. With longer exposure, the impression became too explicit.
- Using a grid after showing the stimulus is essential. When showing something briefly, you are dealing with the retina of a respondent. This is because the image remains visible for a bit longer. This is called the delirious effect. The tricky thing about this delirious effect is that it is not constant and not the same for every person. For this reason, we recommend using a grid in this test that is shown immediately after exposure to avoid the lagging effect.

When the results of the validation study are taken into account, the Instant Appeal Method is a very good addition to measure first impressions. Especially for advertising, packaging and the visual identity of a brand, this first impression provides a very good idea of what people really think compared to other brands or advertisements. It doesn't leave out an answer and offers us a good measure to explain human behaviour. Products with a high degree of instant appeal are more likely to be chosen on a shelf and are also easier to recognise. So, make sure all your visual stimuli have a high degree of instant appeal.



## CONCLUSION

In summary, several implicit tests are very practical, when they are conducted in the correct form. If we look at the use of many implicit methods in practice, we often see a misuse, both in implementation and in reporting. The validation studies carried out by DVJ have led to a method of use that provides both the expected answer and can also be used in large-scale studies.

Depending on the research question and the subject, a choice can be made for a specific implicit test. However, it is very important to always include other measurement and questioning methods in the study in order to fully answer the research question. Indirect and implicit measurements are very useful additions to traditional marketing research.

Our evaluation of research shows that respondents like to carry out the various indirect methods and implicit tests. Especially when the design and form is adapted to the goal. It is important to always use these different methods in addition to other measurement methods to answer all research questions. Implicit tests measure the implicit attitude or attitude to a particular topic, but the 'why' question can't be answered. Therefore, it is advisable to only include implicit tests in a study, but to always integrate them in a holistic research design.

All methods of measurement have their pros and cons, it is the combination of methods which ensures a study provides valuable insights for the client.

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Dr Lisette Kruizinga is a senior methodologist at DVJ. Lisette obtained her PhD in marketing research at the University of Groningen and then worked in the academic world for several years. Since the beginning of 2019 she joined DVJ Insights and works as a Senior Methodologist.

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