The Usefulness of the Implicit Association Test for Consumer Behavior Research

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Samenvatting

Onderzoekers in sociale cognitie hebben onlangs erkend dat attitudes niet enkel werkzaam zijn op een expliciet, rationeel en bewust niveau. Integendeel, ze geloven dat attitudes ook automatisch geactiveerd kunnen worden en dat die activering vaak onbewust gebeurt. Omdat meetinstrumenten die gebaseerd zijn op zelfrapportering niet geschikt zijn voor het meten van deze automatisch geactiveerde attitudes, werden er alternatieve meetinstrumenten ontwikkeld. Eén van deze alternatieve meetinstrumenten die snel veel steun kreeg, is the Impliciete Associatie Test (IAT). De IAT is een computergestuurde taak die gebaseerd is op de interpretatie van reactiviteiten als indicatoren van automatisch geactiveerde attitudes.

Omdat de recente trend met betrekking tot automatische (impliciete) attitudes grotendeels voorbijgegaan is aan consumentenonderzoek, was het doel van dit doctoraat het onderzoeken van de bruikbaarheid van impliciete attitudes - zoals gemeten door middel van een IAT - voor consumentenonderzoek en de marketing praktijk. De focus lag daarbij op consumentensituaties waarin consumenten hun attitudes niet willen of kunnen blootgeven wanneer daar naar gevraagd wordt. Met andere woorden, we onderzochten of impliciete attitudes bijkomend inzicht in gedrag kunnen opleveren in consumentensituaties waar expliciete en impliciete attitudes verwacht worden te divergeren omwille van (1) de invloed van sociale druk op zelfrapportering of (2) de beperkte mogelijkheid van expliciete meetinstrumenten om automatische processen te registreren. Om deze doelstelling te bereiken, bestudeerden we expliciete en impliciete attitudes met betrekking tot ethisch consumentengedrag en advertenties die mannen en vrouwen afbeelden in verschillende geslachtsrollen.

We besluiten voor ethisch consumentengedrag, een onderzoeksdomein waar herhaaldelijk een kloof tussen attitudes en gedrag werd gevonden, dat (1) impliciete processen de evaluatie van ethische producten sturen, (2) de IAT een unieke bijdrage levert tot de voorspelling van gedrag, zelfs nadat er voor de invloed van het expliciet meetinstrument gecontroleerd werd, en (3) om niet-gebruikers van ethisch verantwoorde producten ethischer te doen handelen, niet enkel de expliciete, maar ook de impliciete attitude moet verbeterd worden. Verder lijkt het dat (4)
impliciete attitudes beïnvloed worden door communicatie gebaseerd op cognitieve processen (d.i. het lezen van een krantenartikel) maar niet door affect gebaseerde communicatie (d.i. een blinde smaaktest) en (5) dat ondanks de unieke contributie van de IAT tot de voorspelling van gedrag, de expliciete maat de beste gedragsvoorspeller blijft. Ten slotte besluiten we dat de kloof tussen attitudes en gedrag bij ethisch consumentengedrag wellicht niet kan worden toegeschreven aan meetproblemen bij vragenlijsten, maar eerder het resultaat is van de tegenstrijdige productkenmerken van ethische producten.

Met betrekking tot de advertenties rond verschillende geslachtsrollen, vinden we een consistente expliciete voorkeur voor advertenties met mannen en vrouwen in a-stereotiepe rollen. Echter, de impliciete evaluatie weerspiegelt geen consistente voorkeur voor de stereotiepe, noch de a-stereotiepe advertenties. Meer specifiek, we vinden een impliciete voorkeur voor de stereotiepe vrouw en de a-stereotiepe man. Maw, de resultaten opperen dat impliciete geslachtsstereotypering niet interageert met de automatische evaluatie van de advertenties. Gebaseerd op het spaarzaamheidsprincipe lijken de resultaten te suggereren dat mannen en vrouwen op een impliciet niveau warme advertenties verkiezen boven advertenties die kracht uitstralen, ongeacht het geslacht van het model in de advertentie.

Met betrekking tot de bruikbaarheid van de IAT in het algemeen besluiten we dat de IAT, momenteel, de traditionele vragenlijsten niet moet of kan vervangen bij onderzoek naar de attitudes ten opzichte van consumentenproducten (al kan het meetinstrument wel toegevoegd worden aan traditioneel onderzoek en extra inzichten opleveren). Voor reclame-onderzoek daarentegen suggereren de data dat de IAT nu al een bruikbaar en nuttig instrument is.
Summary

Recently, social cognition researchers have recognized that attitudes do not solely operate in an explicit, rational and conscious mode. Instead, it is believed that attitudes can also become activated in an automatic and often unconscious way. Because traditional self-report measures are not well-suited to capture these automatically activated attitudes, alternative measurement methods have been developed. One of these instruments that has rapidly received extensive support is the Implicit Association Test (IAT). The IAT is a computer-based task whereby reaction times are interpreted as an indicator of automatically activated attitudes.

Because consumer behavior research has largely missed out these recent trends on automatic (implicit) attitudes, the purpose of this dissertation was to examine the usefulness of the implicit attitudes as measured by the IAT for consumer behavior research and marketing practice. Thereby, we focused on consumer situations in which consumers are either unwilling or unable to reveal their attitudes when asked for it in an appropriate way. In other words, we examined whether implicit attitudes could provide additional insight in consumer behavior in situations where explicit and implicit attitudes can be expected to diverge due to (1) the influence of social pressure or impression management formation in self-reports or (2) the limited capability of explicit attitude measures to capture automatic processes. To that end, we examined explicit and implicit attitudes toward ethical consumer behavior and advertisements depicting men and women in different gender roles.

Concerning ethical consumer behavior, a research domain in which a reoccurring attitude-behavior gap has been found, we conclude that (1) implicit processes are involved with the evaluation of ethical products, and (2) the IAT provides unique contribution to the prediction of behavior after the influence of the explicit measure is controlled for and (3) to make non-users of ethical products more ethically, not only explicit, but also implicit attitudes need to be enhanced. Further, it seems (4) that communication based on cognitive processes (i.e. reading a newspaper), but not affect-based communication (i.e. blind taste test) influence implicit attitudes and (5) that explicit measures remain the best predictors of behavior, despite the unique contribution of the IAT to the prediction of behavior.
Finally, it is suggested that attitude-behavior gap found in ethical consumer behavior literature can be attributed to the discordant character of ethical consumer products and probably not to measurement problems related to explicit measures.

With respect to the evaluation of the ads depicting different gender roles we find consistent explicit preference for the ads showing men and women in a-stereotypical roles, while implicit evaluation does not show consistent preference for either stereotypical or a-stereotypical gender role portrayals. More specific, we find an implicit preference for the stereotypical woman and the a-stereotypical man. Thus, the results suggest that automatic gender stereotyping does not interfere with automatic ad evaluation. Based on the frugality principle the results seem to suggest that both men and women implicitly prefer warm ads to potent ads, irrespective of the gender of the model depicted in the ad.

Our general conclusion on the usefulness of the IAT in consumer behavior research and marketing practice is that, for the moment, the IAT could and should not replace the traditional self-reports when examining attitudes toward consumer products (although the measure can be used additionally and as such provide additional insights). By contrast, for advertising research, our results suggest that the IAT may already be a very useful tool.
CHAPTER 1

INTRODUCTION:
ATTITUDES AND CONSUMER BEHAVIOR
Chapter 1

Introduction: Attitudes and Consumer Behavior

1. Introduction

Attitudes express passions and hates, attractions and repulsions, likes and dislikes. Or, people have attitudes when they love or hate things or people and when they approve or disapprove of them. Because people express their likes and dislikes in many ways, all aspects of responding, including judgments, emotions, cognitions and overt behavior are infused with the evaluative meaning that attitudes impart (Crites, Fabrigar, & Petty, 1994).

It is the above presumed relationship between a person’s attitude on the one hand and his/her judgments and behavior on the other hand that has led to the central role that the concept holds within consumer behavior research. More specifically, consumer behavior researchers and marketers believe that when consumers have a positive attitude toward a product or an advertisement, they will be more likely to buy the product or process the advertisement. This implies that attitudes allow marketers and consumer behavior researchers to make predictions of behavior and to change behavior by changing attitudes.

For a long time, it has been assumed that attitudes are the result of a rational weighting of beliefs about the features of an attitude-object (e.g. product) (Fishbein & Ajzen, 1975) or the beliefs about the consequences of behavior toward an attitude-object (Ajzen & Fishbein, 1977) (Chapter 2). Recently however, new views on the attitude concept have emerged due to (1) a renewed interest on implicit memory and (2) substantial research on social cognition suggesting that a large part of our daily activities is the result of automatic processes (Greenwald and Banaji, 1995). More specifically, researchers have recognized that attitudes can not only operate in an explicit, rational and conscious mode, but that they can also become activated in an automatic and often unconscious way (Chapter 3). Explicit attitudes are measured by self-reports (surveys); implicit (automatic) attitudes are assessed by means of computer-based tasks that interpret reaction times as indicators of automatically activated attitudes. One of these measures that has
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rapidly received extensive support and forms the connecting thread through this dissertation is the Implicit Association Test (IAT, Greenwald, McGhee & Schwartz, 1998) (Chapter 4).

Although more and more researchers recognize the fundamental role that affect and unconscious motives may play in consumer judgments and decisions (Pham, 1998; Pham, Cohen, Prajewcs & Hughes, 2001; Shiv & Fedorikin, 1999; Shapiro, 1999), consumer researchers have largely missed out these recent trends on automatically activated attitudes (Bargh, 2002). At the start of this PhD project, only one study on implicit consumer attitudes could be found in consumer literature. To our knowledge, only two additional studies have been published ever since. This clearly illustrates the need for further research on implicit consumer cognition. Maison and her colleagues (2001, 2004) demonstrated in several studies that the IAT is a valid measure of implicit consumer attitudes for attitude-objects (e.g. yoghurt brands, fast food restaurants, cola) toward which explicit and implicit attitudes are likely to converge. Brunel, Tietje, and Greenwald (2004) suggested on the basis of one study that the IAT is capable of unraveling consumer attitudes that explicit attitude measures may not. More specific, they found inconsistent explicit and implicit attitudes toward ads with White versus Black spokesperson (Chapter 5).

2. Research objectives

The purpose of this dissertation was to examine (1) the value of the implicit attitude concept and (2) the usefulness of the IAT as a measure of implicit attitudes for consumer behavior research. The focus of our research was on consumer situations in which consumers may be (1) unwilling to reveal their attitudes in self-reports and/or (2) unable to reveal the attitudes that guide their behavior, thus, when retrospective access is limited. As compared to existing literature, we tried to go beyond the work of Maison et al. (2004) by examining attitudes with respect to consumer products toward which explicit and implicit attitudes were expected to diverge. Secondly, we attempted to extend the work of Brunel et al. (2004) by replicating their finding that the IAT may unravel consumer attitudes that explicit measures cannot reveal in another consumer setting where both social pressure and limited introspective access may bias explicit attitude measurement. Furthermore, we opted to stay close to marketing practice by tackling concrete problems found in the consumer behavior literature that related to attitudes and/or the attitude-behavior relationship.
3. Overview of the studies

This dissertation consists of three major parts. In the first part (Chapter 2-5) we extensively review recent literature on explicit, but mostly implicit attitudes, how they are measured, problems with attitude measurement and how attitude measurement may influence the attitude-behavior relationship. The second part is a bundling of eight experiments, structured among three studies: (1) Implicit Attitudes toward Green Consumer Behavior (Chapter 6), (2) Explicit and Implicit Determinants of Fair Trade Buying Behavior (Chapter 7), and (3) How to Portray Men and Women in Advertising? Explicit and Implicit Evaluations of Ads Depicting Different Gender Roles (Chapter 8). In the third and final part (Chapter 9), the findings of the studies are summarized and discussed, theoretical and practical implications are provided and limitations and directions for future research are outlined.

Note that the second part of the dissertation (Chapter 6, 7 and 8) consists of a bundling of three full papers published (Study 1 and 2)\(^1\) in or submitted (Study 3) to a journal. In other words, each chapter is the full account of an independent study with (1) a limited literature review, (2) a section on the methodology used, (3) results and (4) conclusions. As a result, some overlap between the chapters concerning the three studies (all related to IAT and consumer behavior) and the chapters that make up the theoretical part (about attitudes and IAT) was inevitable. We nevertheless chose this structure for two reasons. First, the theoretical part allowed us to go deeper into the IAT and the whole debate attached to the instrument, an opportunity that is not offered when writing a paper on implicit consumer attitudes. As such, the theoretical part can be considered as an introduction into a relatively new and highly complex body of research on implicit processes and the IAT, a review that hopefully will help and inspire fellow (consumer) researchers. Secondly, opting for a bundling of studies implies that each experiment is situated in the appropriate literature and that information irrelevant for the experiment at stake is filtered out by the author.

3.1. Study 1: Implicit Attitudes toward Green Consumer Behavior

The purpose of the first study was to look for the usefulness of the IAT to measure consumer attitudes in a consumer domain where a reoccurring attitude-behavior gap has been

\(^{1}\) Study 1 is accepted for publication in Psychologica Belgica; the first experiment of Study 2 will be published in Advances for Consumer Research 2005
found, namely green consumer behavior. One of the explanations for the attitude-behavior inconsistency is that explicit attitude measurement may be distorted by influences of social pressure or impression management formation. Therefore, it was expected that implicit attitudes could provide additional insights in the attitude-behavior relationship due to their presumed imperviousness to the effect of social forces. In a first experiment, we measured explicit and implicit attitudes as well as behavioral intention toward two fictitious brands of cleaning products. In the second and third experiment the attitude-objects under examination were assortments of real cleaning products. Thereby, the difference between the second and third experiment is situated in the design of the IAT to test the robustness of the effects found in Experiment 2. Further, we examined the relationship between both types of attitudes and behavioral intention. Finally, we included in the first and third experiment an alternative measure of implicit attitudes, the Extrinsic Affective Simon Task (EAST). The relationship between the IAT, EAST and explicit attitude measures are investigated.

3.2. Study 2: Explicit and Implicit Determinants of Fair Trade Buying Behavior

The motivation for the second study was the same as the one for the first study: the consistent weak attitude-behavior relationship found in previous research with respect to Fair Trade products. Nevertheless, the second study builds on the first study because (1) the behavior measure did not rely on self-reported intentions and (2) we tried to change implicit attitudes of non-users of Fair Trade products. In a first experiment we examined the explicit and implicit attitudes of known groups of users and non-users of Fair Trade products. Also, the relationship between explicit and implicit attitudes on the one hand and behavior on the other hand was investigated. The second experiment focused on non-users and how their implicit attitudes toward Fair Trade products could be changed. Before engaging in a replication of the first experiment, respondents in the second experiment were assigned to one of three experimental conditions. In a first condition respondents had a positive experiential experience with a Fair Trade product. More specifically, they were told that the chocolate they preferred in a blind taste test was Fair Trade chocolate. Respondents in the second condition were asked to read a newspaper article reporting objectively about the Fair Trade concept and the market share of Fair Trade chocolate. In the third condition, we instructed respondents to read a neutral newspaper article. The effects of the different experimental conditions on the implicit attitudes of non-users were examined.
3.3. Study 3: Explicit and Implicit Evaluations of Ads Depicting Different Gender Roles

In times where gender roles are blurring, both academics and advertising practitioners appear hesitant on how to portray men and women in advertisements. Moreover, standard copytesting is limited to self-report measures with limited ability to assess spontaneous (automatic) ad evaluation. The purpose of this research was two fold: (1) providing advertising academics and practitioners additional insights on the evaluation of different gender roles in advertisements and (2) confirming Brunel et al’s (2004) finding that the IAT may unravel ad evaluations that explicit measures may not reveal. In a first experiment, we measured explicit and implicit attitudes toward ads depicting women in stereotypical and a-stereotypical roles. The second and third experiment examined explicit and implicit ad evaluations toward different male role portrayals. The purpose of Experiment 3 was to test whether the labels used in the IAT of Experiment 2 could account for the effects in the latter experiment.

4. References


CHAPTER 2

ATTITUDES:

THEORY AND RESEARCH IN THE PERIOD 1928-1985
Chapter 2

Attitudes: Theory and Research in the Period 1928-1986

1. Introduction

In Chapter 2 we give a brief overview on how the attitude construct has been conceptualized and examined in the period between its first definition by Thurstone in 1928 and the rise of Implicit Social Cognition research starting in the mid 1980's. Although we acknowledge that it is impossible to point to an exact moment in time whereupon thinking about attitude has changed, we choose to set a virtual boundary to this first period in 1986, the year in which Fazio and his colleagues introduced the idea of automatic attitude activation (cf infra). Further we note that 'a brief overview' in the case of attitude research inevitably implies 'an incomplete overview'. However, the purpose of this chapter is not to be exhaustive, but to provide the reader of this a work a framework to put in perspective and understand the next chapters. We start this chapter with the definition of the attitude concept. Next, we briefly review some important features of attitudes and discuss how attitudes can be formed and changed. Thereby, we describe direct attitude formation and two prototype models of indirect attitude formation and change. Further, we discuss the relationship between attitudes and behavior by means of the Theory of Reasoned Action. Next, we look at how attitudes are measured and what the restrictions of attitude measurement are. To end, we draw some general conclusions.

2. Definition

The word attitude comes from the Latin term, aptus, which means fitness or adaptedness. Until the turn of the nineteenth century researchers have used the word in a biological sense as a physical expression of an emotion. That is, attitudes were linked with physiological tendencies to approach or avoid something (Mowen, 1993). In the 1920's the attitude-concept entered psychological research and until about two decades ago Social Psychology research- also often referred to as the scientific study of attitudes- focused on three main approaches of the attitude concept.
At first, the attitude concept was conceptualized as a combination of an individual’s evaluative judgments about a given object (Thurstone, 1928). That is, attitudes were seen as the positive or negative disposition of the individual toward an attitude-object. Thus, attitudes were viewed as the expression of passions and hates, attractions and repulsions, likes and dislikes for certain people, groups, situations and objects (Crites, Fabrigar, & Petty, 1994).

Although the previous definition of attitudes was quite valuable, theorists realized that it was also useful to consider properties of attitudes other than their global evaluative nature. As a result, the attitude concept developed from a uni-dimensional construct into a multidimensional construct embodied by the tripartite theory (Breckler, 1984). The tripartite model assumes that an attitude is a combination of affective, cognitive and behavioral responses to an attitude object. The affective component represents feelings about the object, the cognitive component reflects knowledge and beliefs about the object and the behavioral component refers to the tendency to act in a certain manner toward the object. Thus, according to the tripartite theory attitudes can be expressed through cognitive, affective and behavioral responses. Moreover, attitudes do not necessarily have all three components, either at the point of their formation or at the point of attitudinal responding. This means that attitudes can be formed primarily or exclusively on the basis of any of the three types of processes. However, the model assumes that when people directly encounter attitude objects, attitude formation probably occurs by all of these processes (Gilbert, Fiske, & Lindzey, 1998). The third stream of research focused primarily on the affective and cognitive antecedents of attitudes (Crites, Fabrigar, & Petty, 1994). In this view, the behavioral component will be determined by the attitude and not the other way around (Blackwell, Engel and Miniard, 2001).

From the definition of the attitude-concept we know that attitudes can differ from each other in terms of valence. That is, attitudes may be positive or negative. However, they can also be different on the basis of different other features. In the next section we will discuss the most important attitudinal features.

3. Features of attitudes

In this section, we will discuss some important features of the attitude-concept: attitude strength, attitudinal selectivity, attitudinal functionality, attitudinal heritability and attitudinal stability.
3.1. Attitude strength

Attitude strength is presumed to determine the power of an attitude to influence attitude-relevant responding, such as behavior, judgment, etc. In fact, researchers assume that strong attitudes lead to selective information processing, persist over time, resist counter persuasion, and have an impact on judgments and behavior (Petty & Krosnick, 1995).

Although there is no consensus on the exact conceptualization of attitude strength, most researchers agree the strength of an attitude is determined by its intra-attitudinal structure. In general, attitude strength is assumed to be a function of the extent to which the intra-attitudinal structure is extensive and coherent, that is, the more attitudes are connected to other attitudes, the greater their strength (Gilbert, Fiske, & Lindzey, 1998). Further, attitudinal strength is related to the accessibility of an attitude. Attitudes are shown to vary in their relative accessibility and more accessible attitudes are more likely to be associated with outcomes related to attitude strength such as stability, attitudinal resistance, selective judgment of attitude-relevant information and attitude-behavior consistency. A third determinant of attitude strength (weakness) is attitudinal ambivalence. For instance, people have ambivalent attitudes when they have ‘mixed feelings’ toward an attitude-object. That is, when the attitude consist of both positive and negative aspects. It is assumed that extreme (or very strong) attitudes are generally less ambivalent than moderate attitudes. Finally, a number of other variables have been examined as forms of attitude strength and assembled as the subjective awareness that an attitude is strong. Examples of such variables are attitude importance, attitude certainty, attitude conviction, etc. (Gilbert et al., 1998).

3.2. Attitudinal selectivity

Attitudes exert selective effects on information processing. They bias information processing in favor of material that is congruent with one’s attitudes. That is because people are motivated to defend their attitudes from information that would challenge them (Eagly & Chaiken, 1993).

Festinger (1957) was the first to tackle the idea of selective exposure and selective attention empirically, which resulted in the development of the Cognitive Dissonance Theory. The central idea of the cognitive dissonance theory is that, in order to reduce dissonance and ensure consonance, people approach information that supports their attitudes and avoid information that challenges them. Further, attitudinal consistent information is perceived and evaluated more
precisely than attitudinal inconsistent information. Likewise, pro-attitudinal information is more memorable than counter-attitudinal information (Eagly and Chaiken, 1993). According to Sherif and Hovland (1961) attitudes serve as judgmental resources and therefore people assimilate or minimize the dissimilarity of information that is relatively close to their own attitudes whereas they contrast or exaggerate the dissimilarity of information that is relatively distant. Moreover, these perceptual distortions are assumed to influence judgment: statements that are assimilated are evaluated relatively positive (e.g. as fair and unbiased), whereas statements that are contrasted are evaluated relatively negative (e.g. unfair and biased).

3.3. Attitudinal heritability

A recent development in attitude research is the recognition among psychologists that attitudes can have a certain degree of genetic basis. For instance, Tesser (1993), argued that attitudes that have a substantial genetic basis tended to be stronger than attitudes with little genetic basis. Attitudes that are genetically determined are responded to more quickly, and are more resistant to change. Examples of attitudes with sizeable heritability are: altruism, aggression, attitudes toward a job, attitudes towards alcohol, authoritarianism. Tesser (1993) stated that there was no such thing as a gene for attitudes towards jazz as there was a gene for eye color. However, he provided evidence for the existence of mechanisms by which directly heritable physical differences may result in specific attitudes in a particular cultural environment. Concrete examples are genetic differences in sensory structures such as taste, hearing and sensitivity towards touch. Those heritable differences could affect attitudes towards food, loud music, preferences for lovemaking practices, etc.

3.4. Attitudinal functionality

The importance of the attitude concept also stems from its functionality to the individual: attitudes enable people to adapt to their environment. By evaluating stimuli that enable surviving as good and threatening stimuli as bad, people are able to persist in life (Katz, 1960; Mowen, 1993).

Generally, four types of attitude functions can be distinguished (Katz, 1960): (1) the organization of knowledge function. This function relates to the fact that attitudes help people to organize their universe and give meaning to the unorganized and chaotic world. For instance consumers may form negative attitudes towards over-friendly salespersons. When such a
salesperson is encountered, the consumer interprets the situation based upon his/her attitudes. As a result, he or she will be motivated to resist selling attempts from the person; (2) the *utilitarian or approach/avoidance function* of attitudes assist people to accomplish maximization of rewards and minimization of punishments. For instance, a consumer may express positive attitudes toward designer clothing in order to gain the affection of someone known to ‘love’ this type of clothing (i.e. a reward); (3) the *value-expressive or social identification function* enables the definition of the self-concept to others. In a consumer setting this means that people express positive attitudes toward various products, brands, services in order to make a statement about themselves. For instance, people expressing that their favorite political party is ‘Vlaams Belang’ make a statement about their self-concept and their values with respect to members of ethnic minorities; and (4) the *ego-defensive or self-esteem maintenance function* protects the individual from basic truths about themselves or from the harsh realities of the external world. An example would be consumers who purchase and express positive feelings toward beauty aids and diet products in order to defend themselves against underlying feelings of physical inadequacy. According to Katz (1960), the individual’s overall evaluation of an object depends on the function being served.

### 3.5. Attitudinal stability

Traditionally, attitudes have been viewed as evaluations that are stored in memory, persist over time and become activated automatically (on the mere presence of an attitude-object). Allport (1935) noted: ‘attitudes are often as rigid as habits...and often persist throughout life in the way in which they were fixed in childhood or in youth’. Accordingly, Tesser (1993) concluded that some attitudes have a large heritable component and that these attitudes are especially resistant to change.

In recent years, a different view of attitudes has emerged. Instead of viewing attitudes as stored evaluations of objects and issues, researchers have noted that people construct attitudes instantly, depending on available and accessible information at a certain point in time (Chaiken, 1980; Petty & Cacioppo, 1986). More extremely, some researchers have argued that evaluations are so context-dependent that there is no such thing as a ‘true’ attitude (Anderson, 1974). Empirical findings that support the context-dependent approach of attitudes are ample: people are shown to infer attitudes from perceiving their own behavior (Olson, 1990), their own thoughts and feelings (Wilson & Hodges, 1992), their mood (Forgas, 1992) and the nature of the social context (Wilson & Hodges, 1992). According to this context dependent perspective, people construct
attitudes that are highly influenced by the context, after which these attitudes are stored in memory temporarily. When a different context is encountered, a new attitude is formed to replace the old one.

4. Attitude formation and change

Attitudes can be formed and changed in both a direct and indirect way or by a mix of both. In the next section, we will discuss the three types of attitude formation and change.

4.1. Direct attitude formation

There are two types of direct attitude formation: classical and operant conditioning processes on the one hand and the mere exposure phenomenon on the other.

In a classical conditioning process, a previously neutral stimulus (i.e. conditioned stimulus, CS) is repeatedly paired with the unconditioned stimulus (UCS, e.g. a stimulus of positive or negative valence). In the pairing the CS precedes the UCS and after a number of such pairings the valence of the UCS may be transferred in the direction of the CS. From a classical conditioning perspective, an attitude is a conditioned response that can be evoked by a conditioned stimulus. For example, Shimp, Stuart and Engle (1991) showed that positive attitudes could be conditioned to known and unknown brands of cola. In their experiment, the unconditioned stimuli were photos of beautiful water scenes, while the conditioned stimuli were various brands of cola. A slide presentation was used to show the stimuli to the subjects in the study. In the experimental condition, the beautiful water scenes always preceded the slides showing the brand names. In the control condition, the order of presenting the different types of slides was randomized. That is, sometimes the brand name was shown before the water scenes and other times the water scene came first. The results showed evidence of classical conditioning: attitudes were changed in the experimental condition, but not in the control condition.

Formally, operant conditioning can be defined as 'a process in which the frequency of occurrence of a specific behavior is modified by the consequences of that behavior'. Thus, when a consumer emits a behavior, such as buying a product, the consequences of that behavior will determine the probability of the reoccurrence of the behavior. That is, if the product performs well and thus the behavior is positively reinforced, the likelihood of a repurchase will increase. However, if the behavior is punished, for instance because friends ridiculized the purchase, the
likelihood of a repurchase will decrease. Like classical conditioning, operant conditioning is more likely to occur as the number of pairings between conditioned and unconditioned stimulus increase (Reynolds, 1968). Attitudes may also result from operant conditioning processes. For example, an individual may have a conversation with friends about making a holiday trip in which (s)he makes some statements about his/her preference. The positive or negative reactions of the friends may reinforce or punish the individual’s evaluations.

Another mechanism of direct attitude formation is the mere exposure phenomenon. This phenomenon explains that seeing an attitude-object over and over again may lead to a greater liking of that attitude-object (e.g. a product, an advertisement), even without explicit recognition of the object (Janiszewski, 1990; Shapiro, 1999). For mere exposure to positively influence affect it must occur in either neutral or positively evaluated circumstances. Otherwise, that is, if the consumer perceives the stimulus negatively, the repeated exposures could lead to an increase in the dislike for the stimulus.

4.2. Indirect attitude formation

Attitudes are not only being formed directly, but also indirectly. In such instances, attitudes are linked to beliefs on the one hand and behavior on the other hand. Belief-based models, widely accepted throughout the 1960s and 1970s, embodied this indirect attitude formation. Common to these models is that they all view attitudes as a function of beliefs and the values or utilities associated with those beliefs. Attitudes, in turn, may lead to (purchase) behavior (Fishbein and Middlestadt, 1995). The most well-known belief-based model is the multi-attribute model.

The multi-attribute model that has received the most attention from consumer and marketing researchers is the attitude-toward-the-object model or the Fishbein model (Mowen, 1993). The central idea of the model is that attitudes are a function of the beliefs an individual holds about an attitude-object. Beliefs reflect the sum of the expected values of the attributes ascribed to an attitude-object. These expected values have two components. The first component is the subjective probability that the attitude object has or is characterized by the attribute; the second component is the subjective evaluation attached to the attribute (Fishbein & Ajzen, 1975).
Schematically, the Fishbein model of attitudes can be presented as follows:

\[ A_o = \sum_{i=1}^{n} b_i e_i \]

\( A_o \) = the overall attitude towards object, action or event \( o \)

\( b_i \) = the strength of the believe of whether or not object \( o \) has some particular attribute \( i \)

\( e_i \) = the evaluation of the goodness or badness of attribute \( i \)

\( n \) = the number of beliefs

From a managerial perspective, the attitude-toward-the object model suggests that three factors influence attitude formation: (1) the salient attributes, (2) the extent to which consumers believe that the object possesses the attributes and (3) the way in which the attributes are evaluated.

### 4.3. Dual process models of attitude formation and change

Since the beginning of the 1980s, a change in thinking about attitudes occurred. Several theories, models, and approaches began to argue in favor of non-belief-based determinants and to reject the notion of a purely cognitive, expectancy-value basis for attitude (Fishbein and Middlestadt, 1995). In general, dual process models distinguish two types of persuasion: one emphasizing cognitive processing and the other de-emphasizing detailed cognitive processing. Well-known examples of a dual process models in consumer behavior research are the Heuristic-Systematic Model (HSM; Chaiken, 1980), the Elaboration Likelihood Model (ELM; Petty & Cacioppo, 1986) and the Motivation and Opportunity as Determinants of mode of behavior (Fazio, 1990). In the next section, we discuss the ELM, probably the most cited dual process model in consumer behavior research.

#### 4.3.1. The ELM model

The elaboration likelihood model (ELM; Petty & Cacioppo, 1986) integrates the processes responsible for attitude formation and change. Further, the model predicts the strength of the attitudes that result from those processes.
According to the ELM (See Figure 1, De Pelsmacker, Geuens & Van den Bergh, 2004) there are two ways ("routes") to attitude change: the central route and the peripheral route. Attitude change via the central route is based on information processing. This means that the individual will weight the advantages and disadvantages of an attitude-object (e.g; a product and/or the arguments in a message) carefully. On the other hand, attitude change via the peripheral route is characterized by limited information processing and a more substantial influence of simple symbols (‘cues’) related to the attitude-object or the environment of the attitude-object. An example of such simple cues may be the number of arguments in an advertisement message (instead of the quality of the arguments), the status and the attractiveness of the spokesperson or the number of times that the message is repeated. Thus, the central route assumes a more elaborate and deeper way of information processing than the peripheral route. As a result, attitudes formed or changed by the central route are generally speaking more enduring and stronger than attitudes formed or changed by the peripheral route. This means that they are more consistent, persistent and resistant to the influence of new information. An important condition to follow the central route is the willingness to process the message, which depends on the motivation and the involvement of the receiver with the topic of the message. A second condition is the opportunity and ability of the receiver to process the information. For this, knowledge and level of education may play an important role. Complex messages require more knowledge and insight than simple messages. When the receiver does not fulfill both conditions (willingness and ability), attitude change can still occur through the presence of cues. Furthermore, people do not always strictly follow the central or peripheral route. It is possible that as an extension to the central route, the peripheral route will be followed. This means, for example, that design or other cues in an advertising message can have an extra effect, next to the attitude change by the central route. Also, the central route does not always lead to objective processing. More specific, in case of existing attitudes, judgment is likely to be biased by a previously formed attitude.

5. The attitude-behavior link

Allport stated in 1935 that the attitude concept is social psychology’s most indispensable object and we can probably conclude the same for consumer behavior research. Now that we know that attitudes are the positive or negative disposition of the individual toward an attitude-object and most importantly that this disposition is assumed to determine the individual’s behavior toward the object, the relevance of the concept for marketers becomes obvious: the attitude concept owes its central role in consumer behavior research to the presumed relationship
Figure 1: The Elaboration Likelihood Model (Petty & Cacioppo, 1980)

Central Processing
- Support arguments
- Neutral arguments
- Counter-arguments

Opportunity
- Yes
- No

Ability to process
- Yes
- No

Motivation to process
- Yes
- No

Message
- Persuasive cue present
- No processing
- Peripheral processing

Permanent positive attitude change
- Yes
- No

Permanent negative attitude change
- Yes
- No

Temporary attitude change

Retain initial attitude

with behavior. Marketers assume that when consumers have a positive attitude toward a product or an advertisement, they will be more likely to buy the product or to process the advertisement. Further, by manipulating attitudes marketers may also manipulate behavior indirectly. In the next sections we will discuss how attitudes relate to behavior as well as the factors that may moderate the attitude-behavior relationship.

5.1. The Theory of Reasoned Action

The theory of reasoned action (TORA) was developed by Fishbein and Ajzen (1977) in order to improve the ability of the attitude-toward-the-object or Fishbein models (See above) to predict behavior. The authors recognized that the Fishbein model did not take into account the fact that a person may have a positive attitude toward a brand, for instance a Porsche, but will never engage in the behavior of buying it (because of e.g. the high cost price). Therefore, the new model did not predict the (formation) of the attitude toward the object, but focused on predicting a person's intentions to behave in a specific manner.

The TORA extends the attitude-toward-the-object in several ways (See Figure 2). First, the model does not attempt to predict behavior per se, but the intentions to behave. Secondly, a new construct, the subjective norm (SN), has been added to the model. The subjective norm represents (1) the persons' belief of what other people think they should do and (2) the motivation to comply with the influence of other people. Thus, SN introduces the powerful effect of reference groups into the model. Algebraically, the SN can be written as follows:

\[ SN = \sum_{j=1}^{n} NB_j e_j \]

- \( SN \) = subjective norm
- \( NB_j \) = the normative belief that a reference group or person \( j \) thinks that the consumer should or should not perform the behavior
- \( MC_j \) = the motivation to comply with the influence of referent \( j \)
- \( n \) = the number of relevant reference groups of individuals
The third change involved the object to which attitudes are directed. Instead of assessing attitudes toward the object, attitudes toward the behavior are assessed. As a result, in the TORA the focus is on the perceived consequences of a behavior. The formula for the TORA is:

\[ B \approx BI = w_1 (A_B) + w_2 (SN) \]

- \( B \) = behavior
- \( BI \) = behavioral intention
- \( A_B \) = attitude toward performing the behavior
- \( SN \) = the subjective norm
- \( w_1 \) and \( w_2 \) = empirically determined weights

Empirically, \( A_B \) and \( SN \) are obtained directly from consumers by means of questionnaires. The attitude toward the behavior is the result of the belief that performing a particular behavior will result in a particular consequence. In consumer behavior research, assessing the consequences of buying a certain product rather than whether or not a product possesses certain attributes results in an enhanced ability to take into consideration factors that may act to impede intentions to behave (Gilbert et al., 1998, Mowen, 1993). For instance, consider the purchase of a sports car, the consequences of this purchase may be: dropping a vacation, figuring out how to get a loan, being released from car troubles, etc.

Figure 2: The Theory of Reasoned Action (Fishbein & Ajzen, 1977)
perceived behavioral control. Perceived behavioral control is defined as people’s perception of whether they can perform the behavior if they wish to do so.

5.2. Moderators of the attitude behavior-link

The Theory of Reasoned Action already suggested that there is no one-to-one relationship between attitude and behavior. Therefore, an important challenge in consumer research is to explain the discrepancy between consumers’ attitudes and their actual behavior. While many consumer researchers have been pessimistic about the ability of attitudes to predict behavior (Wicker, 1968), others think that the real issue is about knowing when attitudes predict behavior. A variety of factors have been found to influence the extent to which attitudes predict consumer behavior (Cialdini, Petty & Caccioppo, 1981).

A first moderating variable is the involvement of the consumer. In the purchase decision attitudes are likely to predict behavior only when consumers are highly involved. Secondly, situational factors such as time, illness and so forth may intervene and cause attitudes not to predict behavior well. A third important moderator is attitude strength. A meta-analysis by Kraus (1995) showed that increased accessibility and thus increased attitude strength was associated with greater attitude-behavior consistency. Furthermore, the attitude-behavior consistency is moderated by dimensions of attitude strength such as amount of cognitive elaboration (Pieters and Verplanken, 1995), certainty/confidence (Petkova et al, 1995), attitudinal ambivalence (Sparks et al, 1992), attitudinal stability (Doll and Ajzen, 1992), affective-cognitive consistency (Kraus, 1995) and direct experience (Kraus, 1995). Further, various personality factors are also known to moderate the relation. An example is self-monitoring, that is, the sensitivity of people to how others see them. People who are high self-monitors constantly watch other people, what they do and how they respond to the behavior of others. Such people like to ‘look good’ and will therefore usually adapt well to differing social situations. On the other hand, low self-monitors are generally oblivious to how others see them and hence behave in their own (different) way (Snyder & Gangestad, 1986). Kraus (1995) concluded that low self-monitors showed higher attitude-behavior consistency than high self-monitors.

Finally, a reason for a weak (or strong) the attitude-behavior relationship rather than a moderator of the relation is attitude measurement. Most importantly, attitude
measurement should be reliable and valid, an issue that will be introduced in section 6 and further discussed in the remainder of the dissertation. In addition, the measure of attitude should be at the same level of abstraction as the measure of behavior in order to obtain attitude-behavior consistency (Mowen, 1993). For example, if the behavior involves consumers attitudes towards a specific environmentally-friendly cleaning product (e.g. Ecover all purpose cleaner), the attitude measurement should not deal with less specific (i.e. more abstract) questions about attitudes towards environmentally-friendly products in general.

6. Attitude measurement

Attitudes can be measured directly or indirectly. During the period 1928-1986 direct attitude measurement was preferred (Greenwald & Banaji, 1995), although also some indirect measures were quite popular among marketing practitioners. In the next sections we discuss both types of measures.

6.1. Direct attitude measurement

In consumer behavior research attitudes are usually measured by means of self-reports, often in the form of multi-item Likert type scales or semantic differentials (Kihlstrom, 2004). A semantic differential consists of a set of 7-point bipolar scales. These scales are characterized by opposites such as good/bad, attractive/unattractive, favorable/unfavorable, etc. In a semantic differential respondents are asked to point the end of a continuum (e.g. good or bad) that describes the attitude-object at best by marking the number that is the closer to that end as compared to the contrasting end. When using Likert scales, respondents are presented a series of statements about the attitude-object and are asked to indicate their degree of agreement with each, according to a 5 or 7-point scale ranging from ‘strongly agree’ to ‘strongly disagree’. It is important, although often difficult in practice, for the range of statements used in the scale to cover all the cognitive, affective and conative aspects that the topic involves. Both semantic differentials and Likert scales can be used quantitatively by assigning values to each scaling position and calculating average scores as indications of the individual’s attitude. An advantage of both measures is that they provide a convenient and reproducible way of determining and comparing attitudes to different topics (Evans, Moutinho & Van Raaij, 1996).
Although self-reports are shown to be useful and efficient measures of attitudes that have brought great advances, their accuracy and functioning is dependent on three key assumptions. A first assumption is that people have *attitudes toward all possible attitude-objects* or, if this is not the case, that they can *form them on the spot*. Secondly, it is assumed that people are *aware* of their attitudes, beliefs and values that guide their behavior, and thirdly that respondents are *willing* to reveal them in a questionnaire (Brunel et al., 2004). However, different researchers have indicated multiple times that these assumptions are not always valid (Greenwald and Banaji, 1995).

First, individuals who have never heard of a topic are unlikely to have formed a prior attitude. However, although people do not hold attitudes to all possible attitude-objects, they will always report an attitude when asked for it in a questionnaire. Thus, even when they are unfamiliar with the attitude-object, respondents will still answer the question in order not to seem *hesitant*. Further, when asking people to fill in a questionnaire they will start thinking and look for information in order to come to a meaningful evaluation. However, this rational process may lead them to form an attitude that probably would not be formed in other situations, such as a purchase situation (Kardes et al., 1993). Other problems are biased responses due to *demand artifacts*. A demand artifact refers to the phenomenon that respondents try to guess what result the researcher is looking for and answer in a way that is consistent with that result (Shimp, Hyatt, & Snyder, 1991). Further, when previously formed attitudes are difficult to access, respondents may report newly created attitudes (Fazio et al., 1986). Or, even when respondents can identify previous experiences, they may be unaware of the influence of those experiences, which also may result in inaccurate reports (Greenwald and Banaji, 1995). Finally, people may be aware of their attitudes but *reluctant to reveal* them in front of an unfamiliar researcher. This may especially be the case for socially sensitive topics such as homosexuality in advertising or attitudes toward racial minorities. In such cases, respondents do not report how they really feel or believe in order to hide social or personally undesirable attitudes (Fisher, 1993; Holtgraves et al., 1997).

### 6.2. Indirect attitude measurement

An alternative way to measure attitudes is using indirect measures. By keeping the respondent hesitant about the attitude-object being measured (Dovidio and Fazio, 1992), researchers believe to be able to probe into respondents' *true* attitudes even for socially
sensitive topics. Typical examples of indirect attitude measures that are quite popular in applied consumer behavior research are projective techniques. In a projective task respondents are asked to generate stories in response to ambiguous photographs or drawings, or to generate descriptions about abstract stimuli. It is assumed that while generating stories based on the behavior of others, respondents indirectly project their own beliefs and feelings onto the situation (Kinnear and Taylor, 1991). As a result, it is assumed that projective techniques can circumvent the problem of social desirability bias. We refer to the next chapter for an overview of the different types of indirect measures.

Greenwald and Banaji (1995) indicate that indirect attitude measurement has been a peripheral phenomenon in attitude research due to the widespread assumption (even if not explicitly stated) that attitudes operate primarily in a conscious mode.

7. Conclusions

We conclude from this chapter that until the mid 1980’s the attitude-concept has been conceived as the positive or negative disposition of the individual toward an attitude-object. Thereby it was assumed that this positive or negative disposition is based on cognitive or affective aspects or a mix of both and that there is a relationship with behavior that may vary from very weak to very strong. In order to map the circumstances in which attitudes relate to behavior researchers have tried to identify different moderators of the attitude-behavior relationship, such as attitude strength, personality factors, etc. For a marketer, attitudes are important because of their relationship with behavior. Attitudes allow marketers to predict behavior or to manipulate behavior by changing consumers’ attitudes. Attitudes can be changed through a peripheral or central route depending on the motivation and the ability of the individual to retrieve information that is stored in memory. From the heavy reliance on direct attitude measures we deduce a ‘homo economicus’-like perspective on consumers’ attitudes. That is, it has been assumed that the consumer holds an attitude toward all possible attitude-objects or that he/she can form one on the spot. Moreover, the consumer was assumed to be aware of his/her attitude and willing to reveal it when asked in an appropriate way. Because these assumptions are not always valid, attitude measurement is considered an important reason for weak attitude-behavior consistency. In sum, we may conclude that between 1928 and 1986, it was a widespread -but not widely stated- assumption that attitudes operate primarily in a conscious or explicit mode. Recently, however, researchers recognized that
attitudes can also be activated automatically and that this activation often occurs outside conscious awareness. In the next chapter, we will discuss this new approach with respect to the attitude concept more thoroughly.

8. References


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CHAPTER 3

NEW PERSPECTIVES IN ATTITUDE RESEARCH
Chapter 3

New Perspectives in Attitude Research

1. Introduction

As already indicated in Chapter 2, new ideas about the attitude concept have emerged in psychological research since the mid 1980’s. More specifically, during the past two decades, social psychologist came to acknowledge that unconscious processes play a dominant role in the judgments and actions of individuals. Clearly, this conclusion stands in deep contrast with the ‘homo economicus’ view of the human nature that assumes that individuals make judgments and take actions consciously, utilizing reasons and intentions. The purpose of Chapter 3 is to have a look at the origins of the ‘new’ conceptualization of attitudes before discussing what the consequences are for attitude features, operation, formation, change and the attitude-behavior relationship. To end, we discuss how these unconscious attitudes can be measured and draw some general conclusions.

2. Implicit social cognition

Recently, social psychologists have abandoned the idea that social judgment and behavior always operate under conscious control. Bargh, Chen and Burrows (1996) for instance, demonstrated that after reading words that related to stereotypes of the elderly, such as ‘wrinkle’ and ‘walking stick’, people tended to walk more slowly. Further, being subliminally exposed to pictures of African American males made people more hostile, and thinking about professors improved respondents’ performance at Trivial Pursuit (Bargh et al., 1996; Dijkstra & van Knippenberg, 1998). Common to these effects is that they all appear unconscious and beyond voluntary control. The study of such unconscious or implicit processes is often referred to as implicit social cognition.
The identifying feature of implicit social cognition is 'that traces of past experience influence judgment and behavior even though the influential earlier experience is not remembered in the usual sense- that is, it is unavailable to self-report or introspection' (Greenwald and Banaji, 1995). In the next sections we will discuss the paradigms that founded Implicit Social Cognition research next to implicit cognition's most examined concept: the implicit attitude.

2.1. Implicit memory

In general, it is assumed that a renewed interest in research on implicit memory drew social psychologist's attention to the influence of unconscious processes on deliberative decisions (Greenwald and Banaji, 1995). Experiments of Jacoby and his colleagues (1989) showed that respondents attributed the ease of perception when re-encountering a stimulus (i.e. perceptual fluency) to characteristics of the stimulus other than an unremembered recent encounter. More specifically, in their 'becoming famous overnight' experiment Jacoby et al. (1989) found that 24h after non-famous names were read from a list with both famous and non-famous names, non-famous names were more likely to be mistaken for famous names than were similar names that were never seen before. Thus, non-famous names read on day 1 were likely to be mistakenly judged as famous on day 2. And, according to Greenwald and Banaji (1995), it is the same misattribution principle that forms the basis of implicit social cognition research.

2.2. The Attitude Accessibility Model

A second pillar responsible for the changing ideas about the attitude-concept is the Attitude Accessibility Model developed by Fazio and his colleagues (1986). According to the model attitudes can be activated automatically on the mere observation of the attitude-object. That is, the mere encounter of an attitude-object is assumed to lead to the activation of the representation of the attitude-object in memory on the one hand and the evaluation (good/bad) associated with this memory representation on the other hand. Further, the model assumes that the likelihood that automatic attitude activation occurs, is determined by the associative strength of the attitude. Associative strength is the strength of the association between an attitude object and an evaluation in memory. The model presumes that strong attitudes are accessed and thus activated more easily than weak
attitudes. Finally, the model asserts that automatically activated attitudes can affect behavior without awareness of the individual (Fazio, Sanbonmatsu, Powell & Kardes, 1986).

Later on, Bargh, Chaiken, Govender and Pratto (1992) concluded that the automatic activation of attitudes is pervasive and relatively un-conditional. They found that most evaluations stored in memory, for both social (e.g. ethnic groups) and nonsocial (e.g. flowers) objects, become active automatically on the mere presence or mention of the object in the environment. Further, it has been demonstrated that the automatic activation effect is independent of an evaluative processing goal (i.e. when respondents are not instructed to evaluate the attitude-object), a previous temporal activation of the relevant evaluations, the verbal character of the stimuli and the conscious, active rehearsal of the primes (e.g. Bargh et al., 1992; Hermans, De Houwer, & Eelen, 1994). Moreover, Hermans, Crombez and Eelen (2000) demonstrated that the automatic attitude effect is based on very efficient processes. In their study, participants performed a standard affective priming task while simultaneously reciting a series of digits. The results confirmed that respondents found it easier to classify words that have the same valence as the preceding prime than to classify words with a valence that is different from the preceding prime. Most importantly, the effect was not mediated by the memory load manipulation, which proved the efficiency of the process.

Although different researchers believe in the pervasiveness of the automatic activation effect, others have set some limitations to the effect. More specifically, they argue that the conditions for automatic attitude activation are more complex than the mere exposure to a category cue. Gilbert and Hixon (1991), for instance, showed a moderating effect of cognitive load on automatic stereotyping in Caucasian Americans. They found that when exposed to an Asian target, non-busy respondents showed spontaneous stereotype activation whereas busy respondents did not. But when respondents had to rate an Asian target on stereotypical traits, which stimulated stereotype activation, the pattern reversed. Busy respondents were more likely to apply these activated stereotypes than

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2 We will discuss the affective priming procedure in section 2.8.2.1. In short, in affective priming tasks respondents are asked to classify target words as being positive or negative. Thereby, each target word is immediately preceded by a prime word that 'has to be ignored'. When prime and target correspond (i.e. have the same valence), respondents should find it easier to classify the target. Thus, the presentation of an attitude object as a prime should activate any associated evaluations (due to the automatic activation effect) and, consequently, facilitate a related classification (Fazio et al., 1986)
were non-busy respondents. Apparently, when cognitively loaded, stereotype activation occurs only when the category is salient and relevant enough for the goal at stake. Blair and Banaji (1996) observed that automatic stereotype activation in priming depends on the expectations of the participants about the relationship between prime and target stimuli. When respondents expected that a counter-stereotypic target would systematically follow the primes, results no longer showed evidence of automatic activation of stereotypic associations. Another example is the experiment of Wittenbrink, Judd and Park (2001) showing that the context in which an attitude-object is presented can eliminate, hinder or suppress automatic attitude activation. The results showed that when Black faces were presented in a positive Black stereotypical situation, such as a church visit, implicit stereotype activation did not occur. However, when the Black faces were shown in a stereotypical negative Black context, such as a street corner, evidence of implicit stereotyping was found.

2.3. The automaticity of being

Based on findings of implicit memory (e.g. Jacoby et al, 1989) and automatic attitude activation research (e.g. Fazio et al., 1986) as discussed above and many other experiments on the influence of automatic processes on social judgment and behavior, many social psychologists have come to agree with Bargh and Chartrand’s (1999) conclusion that ‘most of a person’s everyday life is not determined by their conscious intentions and deliberate choices, but by mental processes that are put into motion by features of the environment and that operate outside of conscious awareness and guidance’ (Bargh and Chartrand, 1999, p. 462). To enforce their statement, the authors identified different forms of automatic self-regulation. Two forms of automatic self-regulation are closely related to attitudes and will be discussed in the next sections: the automatic effect of perception on action on the one hand and the continual automatic evaluation of one’s experience on the other hand.

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3 The section on automaticity of being is largely based on the article of Bargh and Chartrand, 1999
2.3.1. The perception-behavior express link

According to Bargh and Chartrand (1999) the first automatic self-regulation system is perception. In fact, it is not hard to believe that perceptual activity is largely automatic and not under conscious or intentional control. For instance, we can not perceive the orange on the desk as purple through an act of will. Therefore, perception can be considered the route by which the environment directly causes mental activity. Through perception internal representations of the outside world are activated. This implies that behavior can not only come from consciously thinking about the behavior but also from outside the head (See Figure 1). Via perception a direct and automatic route is provided from the external environment to action tendencies. As an illustration, Berkowitz (1997) suggested that such an automatic mechanism underlies media effects on behavior. For instance, perceiving aggressiveness of an actor in a movie or on television can unintentionally activate the perceiver’s own behavioral representation of aggressiveness. Thereby, the likelihood that the perceiver himself will engage in aggressive behavior may be increased (Berkowitz, 1997).

Figure 1: The perception-behavior express link (Bargh & Chartrand, 1999)

![Diagram](image)

Fazio et al. (1986) already indicated in the *Attitude Accessibility Model* that attitudes can be activated automatically based on the mere encounter of the attitude-object. In their work on ‘the automaticity of being’ Chartrand and Bargh (1999) extend
Fazio et al.'s model by concluding that people constantly and automatically evaluate their own experience. More specific, they assume the existence of a perception-evaluation link and an automatic effect of the perception-evaluation link on mood and behavior. Moods are generally viewed as less intensive and more enduring than emotions and therefore typically not instant responses to environmental events (Clark & Fiske, 1982). However, in a series of experiments, the authors demonstrated that unconsciously making mainly positive or mainly negative evaluations results in changes in the individual's mood. Thus, by constantly and automatically evaluating their own experience, people become in a good or a bad mood. Further, they showed that automatic evaluation may have some behavioral consequences. In an experiment, the researchers instructed respondents to push the lever away from them when negative words were presented on a computer screen and to pull the lever toward them when positive words appeared. The results showed that people were faster to pull the lever when the stimulus was positive and to push the lever when the stimulus was negative as compared to the reverse combinations (pushing the lever + positive and pulling the lever + negative). Thus, unintentionally evaluating a stimulus may result in automatic behavioral predisposition toward that stimulus. Bargh and Chartrand (1999) concluded that the automatic evaluative processes prepare the individual to make the appropriate response in case of an absent mind.

2.4. Implicit attitudes

The renewed interest in implicit memory, the widespread recognition that attitudes can be activated automatically (often outside conscious awareness) and the belief about the pervasiveness of automatic processes in every day life resulted in the distinction between explicit attitudes on the one hand and implicit attitudes on the other hand. Explicit attitudes are conscious attitudes that are mainly measured by means of self-report measures. In fact, the explicit attitude concept represents the thinking about attitudes as described in chapter 2. Implicit attitudes on the other hand, are formally defined as 'introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward social objects' (Greenwald & Banaji, 1995). According to Greenwald and Banaji (1995) implicit attitudes show how the attitude activated by one object can be (mis)attributed to another. Thus, the authors consider implicit attitudes as existing attitudes projected onto a novel object. Further, they demonstrated that implicit attitudes may be predictors of behavior. The latter idea is contrary to what traditional research has established as the conditions
under which attitudes are predictive of behavior: when we are conscious of our attitudes. Later, Wilson et al (2000) defined implicit attitudes as: ‘Evaluations that (a) have an unknown origin (i.e. people are unaware of the basis of their evaluation); (b) are activated automatically; and (c) influence implicit responses, namely uncontrollable responses and responses that people do not view as an expression of their attitude and thus do not attempt to control.’ Below we will discuss some empirical findings indicating implicit attitude effects.

2.4.1. Implicit attitude effects

2.4.1.1. Halo effects

Originating from personality research, the halo effect has generally been defined as ‘the tendency for judgment of a novel attribute (A) of a person to be influenced by the value of an already known, but objectively irrelevant attribute (B). Then, the direct measure of evaluation of A implicitly expresses the attitude toward B, on the condition that the subject does not identify the attitude toward B as the source of the evaluation of (A)’. Thus, because the evaluation of B is misattributed to the evaluation of A, halo effects can be considered as implicit attitude effects (Greenwald and Banaji, 1995).

In consumer behavior research, one of the most known and frequently examined halo-effect is physical attractiveness. Physical attractiveness is shown to be an important objectively irrelevant attribute that influences evaluative judgment on various other dimensions. Attractive males and females are judged to be kinder, more interesting, more sociable, happier, stronger, of better character, and more likely to hold prestigious jobs (Dion, Bescheid, and Walster, 1972). In advertising research for instance, halo effects are observed for ads using physically attractive models to recommend a product. In such cases, the attractive models in the ads are the objectively irrelevant attributes that influence evaluations of those ads on other dimensions, such as quality or effectiveness (Baker & Churchill, 1977). Because advertising audiences are mostly inattentive, they may especially be susceptible to the implicit effects of an irrelevant cue.
2.4.1.2. Mere exposure

The mere exposure effect refers to the relationship between seeing an attitude-object over and over again and the resulting greater liking for that attitude-object (e.g. a product, an advertisement; Janiszewski, 1990, Janiszewski & Meyvis, 2001; Shapiro, 1999). For a long time, there was no generally accepted explanation for the mere exposure effect. Recently however, several findings suggested that the effect is in fact an implicit attitude effect. The reason for this conclusion is the observation that the mere exposure effect is the strongest when conditions reduce subjects' memory for the effect-producing exposures. Janiszewski (1993), for instance, demonstrated that cognitively loaded respondents showed stronger mere exposure effects for a new brand than respondents that were not cognitively loaded. That is, the loaded respondents misattributed a feeling of familiarity with respect to the brand (caused by perceptual fluency) to a positive feeling toward the brand. Because of their loaded mind, respondents could not consciously process the brand names to which they were exposed and as a result, they could not identify repeated exposure as the cause of their feeling of familiarity with the brand.

2.4.1.3. Subliminal attitude conditioning

According to Greenwald and Banaji (1995) subliminal affective conditioning may be better understood as an implicit attitude effect. Subliminal affective conditioning is a process in which positive or negative attitudes are induced to neutral stimuli by presenting a briefly flashed pleasant or unpleasant stimulus just before presenting the initially neutral stimulus. Thereby the briefly flashed pleasant or unpleasant stimulus cannot be perceived consciously. Thus, in case of subliminal affective conditioning, an attitude evoked by the first (briefly flashed) stimulus is mistakenly attributed to the second stimulus.

2.4.1.4. Instant attitudes

According to Fiske (1982) instant attitudes can be defined as the near-immediate liking or disliking for a novel object on the first encounter with it. Examples of instant attitudes are almost immediate sympathy or antipathy for characters in films, for football teams etc. Sometimes there is an obvious explicit basis for the instant attitude, such as
apparent self-other similarity. In other cases, the instant attitude may have no introspectively accessible basis. By this we mean that people may not know the source of their liking. In such cases instant attitudes can be considered implicit attitudes (Greenwald and Banaji, 1995).

2.4.1.5. Context effects

Several studies revealed that contextual factors, such as the weather, the order of questioning, etc. can influence the response patterns of subjects in survey research (Schwarz and Clore, 1983; Schwarz, Strack, and Mai, 1991). These effects can be interpreted as implicit influences of peripheral information on evaluative judgments because they are shown to weaken or even disappear when subjects are made aware of the implicit attitudinal stimulus. For instance, Schwarz and Clore (1983) demonstrated that the effect of weather on the later quality of life question was eliminated when respondents were asked to describe the weather before filling in the questionnaire.

2.5. Features of implicit attitudes

2.5.1. Relationship between implicit and explicit attitudes

Now that we know that attitudes often exist outside awareness and conscious control, the question raises how the relationship between implicit and explicit attitudes should be conceived. We can distinguish two main approaches. A first approach assumes that implicit and explicit attitudes reflect one single attitudinal construct (Fazio et al. 1995; Fazio & Olson 2003). According to this view, attitudes can be compared to icebergs, with explicit attitudes seating above the surface of conscious control and awareness and implicit attitudes seating below it. Thus, in this view, the formation of an attitude is assumed to follow a single processing stream and implicit measures tap evaluations before conscious control can be initiated, while explicit measures tap the products of the intentional evaluation process (Nosek, 2005). Because implicit and explicit attitude measures tap one single attitudinal construct and given the right conditions, implicit attitudes, explicit attitudes and attitude-related behavior should all correlate. Further, from this perspective, implicit and explicit attitudes only differ to the extent that the individual deliberatively alter his/her explicit responses (Nosek, 2005). By
this we mean that explicit and implicit attitudes will be dissociated only when social desirable forces or impression management distort the expression of explicit attitudes. A second approach assumes that implicit and explicit attitudes are independent of each other (Greenwald and Banaji, 1995; Wilson et al., 2000). For instance, according to the dual attitude model of Wilson et al. (2000) people can have dual attitudes, one implicit and one explicit attitude that both coexist in memory. The implicit attitude is activated automatically, whereas the explicit one requires both motivation and cognitive capacity to retrieve from memory. When people have the capacity and motivation to retrieve explicit attitudes, explicit attitudes can override implicit attitudes, leading them to express the former. Implicit attitudes are reported when people lack the capacity and motivation to retrieve explicit attitudes. Further the model assumes that the influence of implicit attitudes is omnipresent. Even when the explicit attitude has been retrieved from memory, the implicit attitude influences implicit responses. Implicit responses are uncontrollable responses, such as nonverbal behaviors, or responses that people do not view as an expression of their attitude and thus do not attempt to control. In sum, the dual attitude perspective assumes separate mental processes, which may also explain the lack of relationship that is often found between the two types of attitudes. However, it is not argued that implicit and explicit attitudes may not have some mental processes in common and show weak correlations. Likewise, Rudman and Heppen (2003) concluded that explicit and implicit attitudes are conceptually distinct because both types of attitudes stem from different sources. More specifically, implicit attitudes are assumed to be influenced more than explicit attitudes by early experiences, affective experiences, cultural bias, and cognitive consistency principles (Rudman, 2004). We will go deeper into the studies of Rudman and her colleagues in section 2.6. on implicit attitude formation and change.

With respect to the relationship between the two types of attitudes, Nosek (2005) concluded that the relationship between explicit and implicit attitudes is moderated not only by the type of attitude-object being examined (e.g. social versus non-social object), but also by four attitude features, namely self-presentation, attitude strength, attitude dimensionality and perceived self-group discrepancy. In sum, the results of the study indicated that (1) attitudes associated with more self-presentation elicit weaker implicit-explicit relations as compared to attitudes associated with less self-presentation; (2) stronger attitudes bring out stronger implicit-explicit attitude relationships than weaker attitudes; (3) attitudes existing on a bipolar evaluative dimension, that is, when positive
attitudes toward an attitude-object implies a negative attitude toward another attitude-object (e.g. being pro gun control implies being against gun rights), show stronger implicit-explicit correspondence than unipolar attitudes (e.g. being pro male, does not imply being against female); and (4) attitudes that are perceived as different from group norms (i.e. perceived self-group discrepant attitudes) result in stronger explicit-implicit associations than normative attitudes. Thus, attitudes that are believed to constitute an individual’s unique identity (i.e. being different from the group), are assumed to be closer related to the self and therefore more accessible.

2.5.2. **Attention as a moderator of implicit effects**

A general principle within implicit cognition is that *attentional focus* reduces weak automatic influences on judgment. Attentional efforts appear to disrupt the influence of weak cues – either perceptual cues or memory traces – that might otherwise have guided judgment. This has been confirmed by substantial empirical evidence (Schooler and Engstler-Schooler, 1990; Wilson & Schooler, 1991, Janiszewski, 1993, etc.) Wilson and Schooler (1991) for example, reported that subjects who were asked to introspect on their reactions to several brands of jelly subsequently rank ordered those brands in a fashion more discrepant from expert rankings than did subjects not given the opportunity to introspect. This suggests that introspection reduced the logic of preferences. The reverse is also true, that is, *distraction* increases implicit effects. For example, Kruglanski and Freund (1983) demonstrated that imposing time pressure on a judgment task in order to decrease attentional resources available for the task, increased the level of ethnic stereotyping in the respondent’s judgment. Finally, *recall of the implicit cue* decreases implicit effects. That is, implicit attitude effects are reduced, eliminated, or reversed when people are made aware of the nature of the manipulation. As discussed earlier, Janiszewski (1993) demonstrated that the mere exposure effect is much stronger when procedures that reduce the memory of previous exposure are involved.

2.5.3. **Awareness of implicit attitudes**

Greenwald and Banaji (1995) remain unclear on whether people are aware or unaware of their implicit attitudes. Some of their examples, such as evaluations resulting from mere exposure effect, demonstrate that people are aware of their attitude, but not
know where it comes from. That is, people appear unaware that the positive evaluation has resulted from frequent exposure to an attitude object, but they are aware of the positive evaluation itself. However, in examples on implicit prejudice it was shown that people may be unaware of their implicit evaluation. That is, people that explicitly disavow racial prejudice may appear unaware of their implicitly held ethnic prejudice. According to the dual attitude model of Wilson et al. (2001) there are four types of dual attitudes and each type is determined by two dimensions: (1) the awareness of the implicit attitude and (2) the motivation and cognitive capacity to override the implicit attitude with an explicit attitude. In situations of 'repression' and 'independent systems', people are unaware of their implicit attitudes. Repression refers to an attitude that is kept out of awareness because of its anxiety provoking character. Then, a dual attitude is the result of people also having a more conscious (explicit) attitude toward the same attitude object that is different from the repressed one. Repression is illustrated when people who are sexually attracted to members of the same sex develop homophobia as a defense reaction. In case of independent systems, the two evaluations exist independently, with one influencing implicit responses and the other influencing explicit responses. A third type of dual attitudes is automatic overriding. In the case of automatic overriding the explicit attitude automatically 'overrides' the implicit attitude, so that people do not always experience the latter attitude consciously. Thus, in case of independent systems and automatic overriding, respondents are not fully aware of their attitudes. Finally, motivated overriding refers to a situation in which people are fully aware of their implicit attitude. When people consider an attitude as undesirable, they will be motivated to override their implicit attitude with another - explicit - attitude. Therefore both motivation and cognitive capacity are required. For example, people may experience automatic negative evaluations towards other racial groups. Because they condemn this reaction they may be motivated to override it with a more positive explicit attitude. In other words, explicit attitudes will differ from implicit attitudes because the former will be biased due to self-presentational forces. The four types of dual attitudes are presented schematically Table 1:
Fazio and Olson (2003) argued that we should not speak about explicit versus implicit attitudes but about explicitly versus implicitly measured attitudes. That is because implicitly measured attitudes should not necessarily be unconscious and thus the term ‘implicit attitude’ may be misleading. Implicit measures refer to measures in which respondents are unaware that their attitudes are assessed, but that does not mean that they are unaware that they possess those attitudes. That is, an explicit-implicit dissociation may occur because the implicit measure reflects associations to which the individual has no introspective access, but such dissociation may also occur because people are reluctant to admit on the explicit measure the attitude that is revealed by the implicit measure. Similarly, De Houwer (2005) argued that we could better use the term indirect measure instead of implicit attitude measure because it is unclear to what the term ‘implicit attitude’ refers. We will discuss this more thoroughly in section 2.8. on implicit attitude measurement.

2.5.4. Implicit attitude: context dependent versus context independent

For a long time, implicit attitudes have been viewed as automatic activated responses following exposure to relevant stimuli in the environment. That is, it has been assumed that implicit attitudes always and unconditionally follow exposure to a particular stimulus (Fazio et al., 1986, see Bargh, 1999). By contrast, Wittenbrink, Judd and Park (2001) suggested that implicit attitudes are - just like explicit attitudes- multifaceted constructs and depending on what aspects of the representation becomes salient, different implicit ‘attitudes’ will emerge. In other words, they find it likely that context effects not only affect activation under controlled conditions, but also activation that occurs outside conscious awareness and control. In a first experiment the authors showed that implicit attitudes toward Blacks measured for White participants varied as a result of exposure to either a positive (a family barbecue) or a negative (a gang incident) stereotypic context.
The second experiment showed the same context effects under automatic processing conditions. That is, in an evaluative priming task implicit attitudes toward blacks differed depending on whether the primes with White or Black faces contained a Black positive versus negative stereotypical background (church interior vs street corner). Although Wilson et al. (2000) assume that implicit attitudes are stable constructs that change, like old habits, very slowly, they also believe that people can hold different implicit attitudes toward an attitude-object depending on the salient feature of the object (i.e. dependent on the context in which the stimulus is presented). For example, Mitchell, Banaji, and Nosek (2003) found that respondents had a positive implicit attitude toward Michael Jordan when the category athlete was made salient, and a negative one when the African American category was salient. Thus, the authors concluded that the two automatic evaluations of the same attitude object are function of the way people categorized the object and have little to do with cognitive capacity.

2.6. Implicit attitude formation and change

According to Wilson and colleagues (2000) implicit attitudes are formed through direct experience with an attitude-object. Further, they believe that both implicit and explicit attitudes are summary evaluations based on a variety of sources of information and there is no reason to assume that the one is more affective or cognitive than the other. By contrast, Rudman and Heppen (2003), as discussed earlier in section 2.5.1., argued that different sources form the basis of explicit and implicit attitudes. More specific, early experiences, affective experiences, cultural bias, and cognitive consistency principles are assumed to affect implicit attitudes more than explicit attitudes (Rudman, 2004). In two experiments probing into the sources of negative implicit attitudes towards smoking held among smokers, Rudman and Heppen (2003) found that implicit attitudes correlated with early negative (childhood) experiences related to smoking, whereas explicit attitudes correlated with more recent smoking related experiences. With respect to these early experiences, Rudman (2004) reasoned that developmental events may have greater impact on implicit than explicit attitudes. That is because much of what is learned is preverbal and taught indirectly. In an experiment Rudman and Goodwin (2004) demonstrated that people that were primarily raised by their mother implicitly preferred women to men and, vice versa, people that implicitly preferred women, also held more favorable implicit attitudes their mother as compared to their father. Explicitly, however, no correlation was found between gender and parents. Concerning the influence of affective experiences, the
‘smoking experiment’ also showed that smokers have more negative implicit attitudes towards smoking after reading an affective newspaper article on the effects of smoking on family life as compared to a control group. A feeling of guilt accounted for the reduced implicit preference. Moreover, explicit attitudes were not affected by reading the newspaper article or not (Rudman & Heppen, 2001). Thirdly, implicit attitudes may be more affected by one’s cultural environment than explicit attitudes. This assumption is in line with Karpinski and Hilton’s (2001) conclusion that the implicit attitudes (as measured by the IAT) may reflect societal views rather than individual preferences. The latter authors indicated that the greater anti-Black bias for both Black and White participants on implicit measures as compared to explicit measures may be explained by the system justification theory saying that minorities non-consciously rationalize their lower status by internalizing the negative views held by society of their in-group. The cultural environment explanation is compatible with the influence of early and affective experience on implicit attitudes because, learning about one’s place in the world is likely to occur early in life and to be emotionally charged. Finally, based on a numerous empirical findings, Rudman (2004) concluded that implicit attitudes, identity, self-esteem, self-concept conform the cognitive consonance principle (i.e. people want consonant evaluations toward related attitude-objects), while the self-reported constructs do not. For example, in studies on implicit gender stereotyping, it was found that people associating themselves more with warmth as compared to power also associated their gender more with warmth provided that they identified with their gender.

2.7. The attitude-behavior link revisited

The prevalence of implicit attitudes next to explicit attitudes sheds new light on the attitude-behavior consistency. According to the dual attitude model (Wilson et al. 2000) the attitude-behavior consistency depends on the type of attitude (implicit attitude versus explicit attitude) and the type of behavior (implicit behavior versus explicit behavior) involved. Thus, one individual can possess simultaneously two types of attitudes, which predict different types of behavior. Fazio and Olson (2003) argued that Fazio’s (1990) model of ‘Motivation and Opportunity as DETERminants of mode of behavioral decision-making’ (MODE-model) provides a useful perspective for considering the relationship between implicit and explicit attitudes on the one hand and behavior on the other hand. According to the MODE model there are two different processes through which attitudes can guide behavior: a spontaneous process and a
deliberative process. Under conditions of low motivation and opportunity, links between attitudes and behavior arise as the result of spontaneous processing that is driven by the accessibility of the attitude (Fazio, 1986, 1990). It is assumed that the more accessible (and the stronger) the attitude, the more likely that this attitude will be activated when encountering the attitude-object and the more it will bias the processing of relevant information. Under these conditions, the weight of the attitude is larger than the weight of current thoughts, resulting in a bias of information processing in an attitude congruent direction. When motivation and opportunity are high, however, behavioral decisions are made in accordance with the mechanisms that underpin the theories of reasoned action/planned behaviour. That is, behavior is the result of careful consideration of all available information. Further, de MODE model explicitly postulates the possibility of processes that are neither purely spontaneously nor purely deliberative. Thus, the model assumes mixed processes that involve both automatic and controlled components (Fazio, 1990). According to Fazio and Olson (2003) implicit attitudes can be considered the result of spontaneous processing and assumed to guide spontaneous (automatic) behavior, whereas explicit attitudes would be the result of deliberative processing and the basis for intentional actions. Consequently, the attitude most predictive of behavior depends on the motivation and opportunity to deliberate. When motivation and/or opportunity are low, behavior is expected to be largely a function of the automatically activated attitude and hence the implicit measure should prove more predictive. When motivation and opportunity are high, the explicit measure should be more predictive (Fazio & Olson, 2003).

2.8. Measurement of implicit attitudes

Implicit attitudes are measured by means of implicit measures and researchers justify the use of these types of measures because self-reports cannot (1) reflect the individual’s attitudes and cognitions without the respondent being aware of the fact that his/her attitudes and cognitions are measured, (2) reflect attitudes and cognitions that can not be accessed through introspection, and (3) circumvent the influence of social desirability and intentional deception (e.g. Fazio & Olson, 2003; Brunel et al., 2004; De Houwer, 2005; cf Chapter 2, section 6.1.1.). Thus, it is assumed that implicit attitude measures should uncover different associations as compared to explicit measures (Greenwald et al., 1998). In other words, implicit measures are not the ‘bona fide
pipeline' to respondents' 'true' attitudes, instead, the two measures are assumed to stem from different processing streams (Brunel et al., 2004).

In an attempt to define the concept "implicit measure", De Houwer (2005) argued that the term 'measure' can be used in two different ways: (1) to refer to a measurement procedure and (2) to refer to the outcome of a measurement procedure. According to the author, 'implicit' can only be used meaningfully to refer to the fact that the outcome of the measurement procedure has certain functional properties (e.g., that the outcome reflects an attitude even though people cannot control the measurement outcome). 'Implicit' thus refers to 'the conditions under which an outcome can be found, the variables that influence the outcome, or the processes that are assumed to produce the outcome' (De Houwer, 2005). Further, he suggested that a measure can only be described as implicit if (1) the functional properties of the measurement outcome are examined empirically and (2) it is made explicitly which functional properties the term 'implicit' is meant to refer to (e.g. implicit in the sense of uncontrollable).

When regarded as procedures, one can never say that a measure is implicit. A procedure cannot be unconscious, uncontrollable or automatic. Instead, a procedure is merely a set of instructions on how to implement a certain measure or task. When considered as procedures, measures can be characterized as direct or indirect. In direct measures, people are asked to self-assess the to-be-measured construct. In indirect measures, the construct is inferred from a behavior other than self-report (e.g., the speed of responding). Although most existing implicit measurement outcomes are outcomes of an indirect measurement procedure, there is no one-to-one link between both. For instance, it is possible that the outcome of certain direct measures (e.g., speeded evaluation) can have the functional properties of implicit measures. But as is always the case, one needs to verify empirically whether a measurement outcome is implicit by examining its functional features of the measurement outcome.

2.8.1. Indirect measures

Well-known examples of indirect measures are projective techniques. Projective techniques are used to reduce barriers that may be at hand in certain interview situations, such as psychological barriers (i.e. the memory, the unconscious, emotions), language barriers and social barriers (De Pelsmacker & Van Kenhove, 2002). When subject to projective techniques, respondents are asked to generate stories in response to ambiguous
photographs or drawings, or to generate descriptions to abstract stimuli. It is assumed that while generating stories based on the behavior of others, respondents indirectly project their own beliefs and feelings onto the situation (Kinnear and Taylor, 1991). Therefore, projective techniques allow exploring people’s thoughts, feelings and experiences. They help respondents to discuss private issues or unconscious motives without them feeling threatened by direct questioning (Haire, 1950). Examples of projective techniques that are often used are: *association techniques*, in which respondents have to report the first thing that comes to mind when seeing a stimulus (Tull and Hawkins, 1993); *word and sentence completion tasks* asking respondents to complete incomplete words and sentences; *bubble drawing tasks* that require respondents to fill in thought or speech bubbles in a cartoon drawing (Gordon and Langmaid, 1988) and *role playings* where the respondent is asked to adopt the role or behavior of for instance a brand or product (Tull and Hawkins, 1993). A projective technique that is frequently used to reduce social desirability bias is *indirect questioning*. In case of indirect questioning respondents have to formulate answers to structured questions from the perspective of another group or person. More specifically, respondents are asked to predict the behavior of relevant/similar others in a particular situation (Fisher, 1993). Although it has been shown that the technique reduces the effects of social desirability bias on self-report measures (Fisher, 1993), a more recent study suggested that indirect questioning may also introduce attitude-irrelevant variance (Fisher & Tellis, 1998). For instance, a consumer’s prediction about the alcohol-related behavior of a typical other may be free of social desirability bias, but contain little information about the self if the respondent is a non-drinker. In other words, the result of indirect questions may indeed be unbiased, but also unvalid. Further, also other authors claim that projective techniques (in general) often lack convergent validity and possess poor psychometric qualities (Lilienfeld, Wood, & Garb, 2001). Churchill (1995), for instance, concluded that projective techniques typically suffer from subjectivity in coding and interpreting the qualitative data.

Another indirect measure is the *information test*, which assesses the respondent’s knowledge about an attitude-object by means of clearly defined success criteria\(^4\). The idea behind the test is that the respondent’s attitude toward the object should guide the

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\(^4\) Success criteria indicate when a solution or the fulfilment of a task has satisfied its objectives and met the requirements.
selection and retention of knowledge. Therefore, the test provides an indirect measure of
the attitude. Although the information test allows bypassing social desirability, the
method may be confounded with need for cognition (Churchill, 1995; Brunel et al., 2004).
Other measures with defined success criteria and robustness to social desirability ask
subjects to estimate a groups’ opinion or identify the social norms of an event.
Accordingly, Vargas et al. (2004) have recently developed an indirect measure that is
based on the differential interpretation of a series of vignettes. The measure consists of
vignettes that each describe characters behaving in discrepant ways and following each
vignette, respondents are asked to rate the character with respect to the attitude-object
under consideration. It is assumed that different people will encode the scenarios in
different ways. For instance, imagine a vignette that describes a woman that does not
attend religious services, but claims to be a religious person because she occasionally
prays and watches religious TV programs. Vargas et al. (2004) argue that because the
woman behaves in both religious and non-religious ways, her behavior should be
discrepant for both religious and atheistic people. Thus, the behaviors should lie in the
latitudes of rejection of both religious and atheistic people and therefore, they should be
contrasted away by both. By this we mean that religious should consider the person as
unreligious and that atheistic people should evaluate the person as religious.
Consequently, to the extent that individuals consider the behaviors as relatively religious,
one can infer that the perceivers themselves are not religious and vice versa.

Although the previously discussed indirect measures are insensitive to influences
of impression management or social norms, they do not provide any insight in the
automaticity of the attitude (Dovidio & Fazio, 1992). In reply to this methodological gap
and mindful of the importance of automaticity in every day life and attitude formation,
social cognition researchers have developed implicit measurement instruments designed
to capture automatic processes. Examples of such measures are the Affective Priming
Task (Fazio, Jackson, Dunton, & Williams, 1995; the Implicit Association Test
(Greenwald et al., 1998), the Extrinsic Affective Simon Task (De Houwer, 2003) and the
Go/No-go Association Task (Nosek & Banaji, 2001). Typical for these types of measures
is that they use reaction time as an indicator of automatically activated attitudes. The
underlying idea is that an attitude is stored in the mind as an association between the
representation of the attitude-object and the representation of positive and negative
valence (e.g. Fazio, 1986). Therefore, respondents will perform instructions that prime the
same (re)action toward concepts that are associated in mind faster than instructions that
demand a similar action toward concepts that are not or less associated in mind. Because respondents cannot control the influence of attitudes on their response latencies (reaction speed), the advantage of using latency judgments is that they circumvent reliance on the willingness or ability of respondents to express their opinions. In the next section we will discuss the ‘mother’ of all reaction speed based measures, namely the affective (evaluative) priming procedure.

2.8.1.1. The affective priming procedure

The affective priming procedure is a structured indirect measure of attitudes that is based on the principles of the classic priming paradigm. In a classic priming task, respondents have to complete a lexical judgement task that consists of classifying target stimuli as words and nonwords. The findings of numerous experiments indicated that lexical decisions for concepts associated with the prime were facilitated by exposure to the prime (Fazio, 2001). That is, when the prime and target stimulus were associated (e.g. bread – butter), classification occurred faster than when the prime and target were unrelated (e.g. bread – nurse).

Affective priming is used to measure attitude activation and consists of classifying a series of target words according to their evaluative meaning. That is, respondents are asked to classify target words as being positive or negative. Each target word is immediately preceded by a prime word that ‘has to be ignored’. When prime and target correspond (i.e. have the same valence), respondents should find it easier to classify the target. In other words, the presentation of an attitude-object as a prime should activate any associated evaluations and, consequently, facilitate a related classification (Fazio et al., 1986). As a consequence, variations in response latencies that are produced in the course of the categorization task are interpreted as measures of automatic attitude activation (e.g. Bargh et al., 1992; Fazio et al., 1986). Thus, in line with the attitude accessibility model (see section 2.2.), the affective priming effect demonstrates that affect may be activated automatically from memory on the mere observation of an affect-loaded stimulus. In other words, the presentation of the stimuli not only results in the activation of the related representation in memory, but also activates - within a fraction of a second after its

5 Response latency is the time interval between stimulus onset and the individual’s response (e.g. pressing the right computer key; Fazio, 1990).
presentation— the evaluation associated with this memory representation. Moreover, it indicates that the outcome of this affective decision process can influence subsequent cognitive and emotional processes. Priming effects can be obtained using both subliminal and conscious level exposures (e.g. Fazio et al., 1986) and they are assumed to vary as a function of associative strength (Fazio, 2001).

Although affective priming effects have demonstrated the possibility of indirect measures to assess automatically activated attitudes, the method also suffers from poor psychometric qualities. Bargh et al. (1992) showed that priming effects can be detected even with weak primes. Further the recency of prior access to the attitude toward the prime might affect priming results by increasing the activation level of the association (Bargh et al., 1996). Also, priming measures are shown to have low internal consistency and test-retest reliability. As a consequence, the measure may be not sensitive enough to measure individual differences (Bargh et al., 1992).

With the purpose of tackling the psychometric shortcomings of the affective priming procedure on the one hand and to further extend research on the effects of automatically activated attitudes on the other hand, several new response latencies measures were recently introduced in social cognition research (cf. supra). One measurement instrument that has received rapid and extensive support is the Implicit Association Test (IAT, Greenwald et al., 1998). In the next chapter we will discuss the IAT extensively. Further, we will shortly review related response latency measures. These measures can be considered first attempts to broaden indirect attitude measurement beyond the possibilities offered by the IAT.

3. References


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CHAPTER 4

THE IMPLICIT ASSOCIATION TEST
Chapter 4

The Implicit Association Test

1. Introduction

In Chapter 4 we will thoroughly discuss the most well-known indirect measure that is based on the interpretation of reaction times as indicators of automatically activated attitudes: The Implicit Association Test (IAT). Although the instrument was developed only in 1998 by Greenwald and his colleagues, it has received rapid and extensive support from researchers active in a variety of research domains. We dedicate almost an entire chapter to the IAT because the instrument constitutes the connecting thread for the remaining of this dissertation. At the end of the chapter we shortly review two other promising implicit measures, the Extrinsically Affective Simon Task (De Houwer, 2003) and the Go/No Go Association task (Nosek & Banaji, 2001) and formulate general conclusions.

2. Description of IAT and its aims

As indicated in the previous chapter, one of the most promising reaction-time based measures is The Implicit Association Test (IAT) (Greenwald et al., 1998). The functioning of the IAT is based on two important assumptions: (1) the memory is an associative network of concepts in which related concepts activate each other (Collins & Loftus, 1975; Greenwald et al., 2002) and (2) an attitude is stored in memory as the association between the representation of the attitude-object and the representation of positive and negative valence (Fazio, 1995). The idea behind the IAT is that it should be easier to map two concepts onto a single response when those concepts are related
in memory than when the concepts are not related. In other words, the IAT was designed to measure the relative strength of association between concepts.

2.1. The design of the IAT

Table 1 (cf Greenwald et al. 1998) describes in detail the sequence of tasks that constitute an IAT measuring implicit attitudes toward White and Black racial categories. In the table, we can see that there are five discrimination tasks (i.e. numbered columns). In step one, respondents have to discriminate between the two target concepts, namely White and Black names. The dots in row 3 indicate that respondents should press the left key for Black names and the right key for White names. In step two, the attribute categories, namely positive and negative words, are introduced and respondents are asked to press the left computer key for positive words and the right computer key for negative words. The target and the attribute discrimination are superimposed in the third step. That is, in a combined categorization task, respondents have to press the left response key for Black names and positive words and the right response key for White names and negative words. In the fourth step, the respondent learns reversed response assignments for the target discrimination. The final step superimposes the reversed target discrimination with the original attribute discrimination. Now, respondents have to press the left key for White names and positive words and the right key for Black names and negative words. If the target concepts are differentially associated with the attribute dimensions, respondents should find one of the two combined tasks easier. The difference in response latency is thus an indicator of the implicit attitudinal difference between the target categories. Presumably, larger IAT effects reflect stronger associations in memory between the concept pairings that, in turn, facilitated judgment. In many experiments superior performance was found for the evaluative compatible combinations as compared to the incompatible combinations (Greenwald et al, 1998.; Greenwald & Nosek, 2001), which can be taken as evidence for the validity of the IAT. The IAT effect is calculated by subtracting the mean response time in task 5 (Black names+positive/ White names+negative) from the mean response time in task 3 (White names+positive /Black names+negative). Positive scores would indicate an implicit preference for White people to Black people.
Table 1: The design of the IAT

<table>
<thead>
<tr>
<th>Sequence</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task description</td>
<td>Initial target-concept discrimination</td>
<td>Associated attribute discrimination</td>
<td>Initial combined task</td>
<td>Reversed target-concept discrimination</td>
<td>Reversed combined task</td>
</tr>
<tr>
<td>Task instructions</td>
<td>BLACK WHITE •</td>
<td>+ words • - words •</td>
<td>BLACK • + words • WHITE • - words •</td>
<td>BLACK •</td>
<td>BLACK • • + words • WHITE • • WHITE • - words •</td>
</tr>
</tbody>
</table>

Difference in mean response time required to fulfill tasks 3 and 5 indicates the IAT effect

Greenwald et al. (1998) applied this procedure and found that White people implicitly prefer White names as compared to Black names. Moreover, even White people who explicitly disavowed prejudice showed a preference for White names over Black names (Greenwald et al., 1998).

An advantage of the IAT is that it is shown to be a very flexible measure (Greenwald et al., 1998). That is, the IAT cannot only be used to measure attitudes toward a large variety of attitude-objects (e.g. self-esteem defined as the attitude toward the self), but also to measure non-evaluative beliefs and associations by changing the attribute dimension into a non-evaluative dimension. For instance, the IAT can be used to measure implicit stereotyping by using male and female names as target concepts and weak versus strong (instead of positive vs negative words) as attribute concepts (Rudman, Greenwald, & McGhee, 1999). Another advantage of the measure is that IAT effects generally have a large effect size and high test-retest reliability. Finally, the IAT is easy to implement and software for doing so is widely available (De Houwer, 2002).
2.2. What does the IAT measure?

According to the Unified Theory of Implicit Attitudes, Stereotypes, Self-concept and Self-esteem (Greenwald et al., 2002), the social knowledge structure of an individual consists of an associative network of concepts. Thereby, concepts may be persons, groups or attributes. Mostly, the central concept of a knowledge structure is the Self and the Self is associated with other social constructs in the network. The IAT is assumed to be a valid measure of implicit associations in this type of structures. That is, the IAT is assumed to be a valid measure of automatic attitudes, stereotypes, self-esteem and self-concept. Moreover, the measure could reveal associations that an explicit measure cannot reveal (Greenwald et al., 2002; Brunel et al., 2004). That is, the IAT is assumed also to register attitudes that the individual is unwilling or unable to reveal (cf section 6.1.1., Chapter 3).

Based on the Unified Theory (Greenwald et al., 2002), Brunel et al. (2004) concluded that the IAT can be used to measure implicit consumption related constructs in an associative consumer knowledge structure. By means of Figure 1, the authors demonstrated a hypothetical consumer knowledge structure for a visual artist computer user. In the figure, we see that the consumer is in the center and that attribute, person and group concepts are represented in the ovals. The positive and negative sign rectangles represent the attribute valence concepts. The boldness of the lines between concepts indicates the strength of automatic associations between concepts. From the structure we read that the consumer holds positive attitudes toward Apple computers (direct and indirect positive associations) and more negative attitudes toward Microsoft and Windows based computers. The bold line between ‘Me’ and Apple computers suggest that there is brand identification between with Apple, but not with Microsoft. Further, we see that the IAT can be used to measure brand images. In the structure Apple computers appear to be associated with image attributes such as smart and aesthetic, while Microsoft is paired with the attribute computer virus.
Also, the influence of peer groups, such as friends, on brand image is represented in the structure by the lines between my friends, me and Apple computers. Brunel et al. (2004) remarked that not all possible consumer behavior constructs are included in the above consumer knowledge structure and thereby stress the flexibility and comprehensiveness of this representation. It is suggested that the IAT provides a means to measure the relative strengths of the automatic associations between the constructs in the structure. For instance, the IAT can easily be used to assess implicit attitudes toward Apple versus Microsoft (Apple/ Microsoft vs pleasant/unpleasant) or to measure brand identification (Apple/Microsoft vs me/other). Further, the structure also suggests that brand images can be measured by means of the IAT (e.g. Apple/Microsoft, smart/aesthetic). Although there is no doubt that the IAT can measure the association between Apple/Microsoft and for instance smart/aesthetic, examining brand images thoroughly by means of the IAT may be limited. That is because using the IAT not only presumes that the researchers have insight in the relevant attributes constituting brand image, also several IAT’s need to be administered to map the total image of a brand.
3. Psychometric properties of the IAT

3.1. Reliability

Across several studies test-retest reliabilities of the IAT have averaged above $r = .60$ (Greenwald et al., 2002) and satisfactory internal consistency were found ($\alpha > .80$) (Banse, Seise, & Zerbes, 2001; Greenwald & Nosek, 2001). On the basis of four studies including an IAT, that were available on a demonstration website, Greenwald and Nosek (2001) found split-half reliabilities of IAT effect measures that ranged from $r = .89$ to $r = .92$ (Ns ranged from 9491 to 22648).

Further, the IAT showed stability across several procedural variations, such as variation in the response side of the attribute dimension (i.e. left or right response key), the time interval between response to one stimulus and presentation of the next stimulus item (varied from 150 to 750 ms), variation in the number of items representing the target concepts and the attributes (5 or 25), and order of mixed categorization tasks (as long as there is counterbalancing of the order in the study) (Greenwald and Nosek, 2001). Moreover, Greenwald et al. (1998) demonstrated that IAT effects are stable over differences in treating data from error response and in the strategies used to deal with the typically skewed latency distributions.

It has been established that even people who know what the IAT is trying to assess (e.g. group prejudice) still reliably produce the IAT effect, indicating its robustness and apparent imperviousness (McConnell & Leibold, 2001). The IAT is less sensitive to instructions to fake than explicit measures are (Asendorpf, Banse & Mücke, 2002; Banse, Seise, & Zerbes, 2001). In the experiment of Banse et al. (2001) heterosexual respondents that were hesitant about the functioning of the IAT were instructed to fake extreme positive attitudes toward homosexuality. The results showed that respondents were able to simulate more positive explicit attitudes, but could not influence the IAT effects.

3.2. Validity

3.2.1. Overlap with normative ratings

In one of the first experiments using the IAT, Greenwald et al. (1998) demonstrated that the IAT is able to reveal differences in associations between concepts that are almost universal in the population. More specific, they showed that the measure is
capable of detecting differences in valence associated with familiar nonsocial objects such as flowers, musical instruments, insects and weapons.

3.2.2. Known group approach

Secondly, the IAT is shown to assess racial and ethnic group differences (Greenwald et al., 1998; Dasgupta, McGhee, Greenwald & Banaji, 2001; Kuehnen et al., 2001). For instance, Greenwald et al. (1998) found that the IAT indicated in-group preference among Japanese and Korean respondents. In the experiment, Japanese and Korean Americans were asked to complete an IAT in which Japanese and Korean surnames and positive and negative words had to be categorized in two combined categorization tasks. The results showed that Japanese Americans were faster in the task in which Japanese surnames were combined with positive words and Korean surnames with negative words, while Korean Americans were faster in the reversed task.

Swanson, Rudman and Greenwald (2001) investigated the attitude-behavior consistency for stigmatized behavior (i.e. behavior that is disapproved by others) using both explicit and implicit (IAT) measures. Therefore, attitudes toward behavior of stigmatized actors (smokers) and non-stigmatized actors (vegetarians and omnivores) were determined. Smokers showed greater attitude-behavior consistency in their explicit attitudes toward smoking than in their implicit attitudes. That is, whereas smokers had positive explicit attitudes toward smoking, they had negative implicit attitudes as registered by the IAT. By contrast, vegetarians and omnivores revealed attitude-behavior consistency at both implicit and explicit levels. The researchers concluded that the implicit negative attitudes of smokers toward smoking might reflect its status as a stigmatized behavior, or its addictive nature.

In the experiment of Banse et al. (2001), an IAT adapted to measure implicit attitudes toward homosexuality revealed more positive implicit attitudes toward homosexuality for homosexuals than for heterosexuals.

Note that the experiments discussed above should be considered as illustrative examples and not as an exhaustive list that demonstrates the known group differences the IAT is capable of measuring. Because reporting such an exhaustive list would lead us too far we conclude in summary that the IAT has shown to be a useful tool for measuring
known group differences on different other topics such as alcohol (Wiers, van Woerden, Smulder & de Jong, 2002), self-esteem (Banse, Seise, & Zerbes, 2001), consumer attitudes (cf next chapter, Brunel et al., 2004; Maison et al., 2004), etc.

3.2.3. Predictive validity

With respect to the predictive validity of the IAT, Marsh, Johnson, and Scott-Sheldon (2001) demonstrated that the IAT but not explicit measures were predictive of condom use with casual, but not with main partners. More specific, for the group of respondents that reported having sex with a casual (non-steady) partner within the last six months, the IAT related with self-reported condom use. The explicit measure only related to condom use for respondents who reported having sex with a steady partner. This suggested that explicit and implicit measures of attitudes differentially predicted deliberate (steady partner) versus spontaneous (casual partner) behavior in the domain of condom use.

In an experiment of McConnell and Leibold (2001) testing whether the IAT relates to inter-group discrimination (behavior), White undergraduates interacted separately with White and Black experimenters. During these interactions, trained judges and the experimenters themselves assessed the behavior of the respondents. After the interaction with the experimenter, the respondents completed explicit measures on racial prejudice and a corresponding IAT. The judges’ ratings of respondents’ social behaviors appeared to be correlated with the IAT, while no relationship was found with the explicit measures. That is, the results showed that larger IAT effect scores predicted greater speaking time, more smiling, more extemporaneous social comments, fewer speech errors, and fewer speech hesitations in interactions with the White (vs Black) experimenter. In other words, the IAT was found to be predictive of behavioral leakage.

Asendorpf, Banse, and Mücke (2002), demonstrated that the IAT significantly increased the prediction of spontaneous shy behavior in a realistic social situation. In the experiment, shyness was induced by asking the respondents to interact with an above-average physically attractive\(^6\), unfamiliar, opposite sex peer (who was a confederate of the experimenter, but introduced as another respondent). Additionally, the respondents

\(^6\) The words in italic refer to the traits that were used to induce shyness in the respondents
were told that the conversation was *videotaped*. Three judges independently judged spontaneous (body movement and tenseness of the body) and deliberative behavior (speech and movements illustrating speech) based on the videotape of the conversation. The results indicated that the shyness IAT significantly and uniquely predicted spontaneous shy behavior, and the explicit self-ratings of shyness significantly and uniquely predicted controlled shy behavior.

### 3.2.4. Convergent validity

Several researchers have indicated correlations between IAT measures and semantic priming measures of association strength (Cunningham, Preacher, & Banaji, 2001; Mellot & Greenwald, 2000; Rudman & Kilianski, 2000). For instance, Rudman and Kilianski (2000) showed significant correlations between scores on an IAT measuring gender authority associations and a priming measure assessing attitudes toward gender authority. More specifically, associating men with high authority and women with low authority covaried with negative attitudes toward female authority. Phelps et al. (2000) reported convergence of IAT-measured automatic race preferences and a physiological measure called the fMRI. That is, the study demonstrated that IAT effects were linked to the activation of the amygdala (a subcortical structure associated with emotional learning and evaluation) in White participants when viewing unfamiliar African American faces. Further, the IAT was not associated with the activation of regions in the brain typically involved in explicit processing.

On the other hand, Bosson and his colleagues did not find a correlation between the IAT and measures of implicit self-esteem. Banaji (1999) suggested that the multifaceted character of the implicit self-esteem construct could explain this lack of validity. In her view, the different indirect measures tap separate, unrelated components of implicit attitude and therefore, she recommended to implicit-attitude researchers to give up the idea that the multiple measures of the same construct must correlate.

### 3.2.5. Discriminant validity

Since the introduction of the IAT, researchers (Greenwald et al., 1998; Bosson et al., 2000; Brauer, Wasel & Niedenthal, 2000; Ottoway et al., 2001; Greenwald and
Farnham, 2000) have agreed on the fact that the IAT and explicit measures assess different, but related constructs. The IAT is assumed to measure automatic evaluative associations whereas explicit measures determine conscious, controlled attitudes. The correlations between explicit measures and the IAT have been shown to range from high and significant to low and insignificant (Nosek & Banaji, 2002). Nosek and Banaji (2002) concluded on the basis of a review of empirical IAT findings that the correlation between explicit and IAT measures can be limited by (1) inaccuracy in self-reports due to impression management and self-presentational forces. For example, McConnell and Leibold (2001; see also Banse et al., 2001) found a significant correlation between the IAT and explicit measures of prejudice after control for social desirability; (2) inaccuracy in self-reports because the attitude is not accessible through introspection or because of limited attitude elaboration; and (3) a lack of variance with some attitudes which can be homogeneous across a specific population. An example of the discriminant validity of the IAT is demonstrated by the Rudman and Glick (2001) study. They found that prejudice against female job applicants was associated with implicit but not explicit measured gender stereotypes. Finally, even when impression management or inaccessibility are not a concern, IAT measures can explain variance in consumption behavior over and above that accounted for by explicit measures. Maison et al. (2004) demonstrated in a multiple regression analysis the unique contribution of the IAT (i.e. after the influence of the explicit measure was controlled for) to the prediction of drinking Coca cola versus Pepsi, (cf infra).

3.3. Alternative sources of the IAT effect

As discussed earlier the IAT is assumed to measure the strength of association of concepts in memory. However, also other mechanisms than associative strength have been suggested as alternative explanations for the IAT effect (De Houwer, 2002). In the next sections we discuss familiarity, context, task recoding and societal views as alternative accounts for the IAT effect.

3.3.1. Familiarity

A first potential confounding factor for the IAT effect is the familiarity of the individual items (i.e. stimuli) used to represent the target concepts. Different researchers
demonstrated that the use of low familiarity stimuli reduces the sensitivity of the IAT (Greenwald et al., 1998; Ottoway, Hayden and Oakes, 2001). Consequently, the value of the IAT as an individual differences measure might decrease by employing low familiarity stimuli. By contrast, Rudman et al. (1999) showed in an IAT measuring implicit attitudes toward young versus old people that being more familiar with either young or old names did not influence the results. Later on several other studies further established that variations in the familiarity of items used to represent the contrasted concepts did not influence the IAT effect (Dasgupta, McGhee, Greenwald & Banaji, 2000; Rudman, Greenwald, Mellot, & Schwartz, 1999; Ashburn-Nardo, Voils, & Monteith, 2001). Recently, however, Kinoshita and Peek-O’Leary (2005) argued that the race IAT effects (White vs Black/ pleasant vs unpleasant) found in previous studies (e.g. Dasgupta et al., 2000) do not provide evidence against the familiarity explanation. More specifically, they claim that differences in familiarity with the categories used in the IAT may account for the IAT-effect due to task-recoding based on salience asymmetry (cf infra). Thereby it is assumed that familiar categories are more salient than unfamiliar categories. Also, the ‘linguistically unmarked’, and the ‘positive’ are assumed to be more salient than the ‘linguistically marked’ and ‘negative’. Because of the lack of clarity on the role of familiarity in the explanation of the IAT effect, it is recommended to experimenters to attempt to control word familiarity (i.e. using reasonably familiar items) in order to minimize task difficulty and error variance. Further, it is important to select stimuli that clearly fall into one of the two categories (e.g. positive versus negative, Black versus White) (Greenwald and Nosek, 2001).

3.3.2. Context

A second factor that could influence IAT effects is the context. As discussed earlier, Wittenbrink et al. (2001) showed that context effects can influence automatic attitude activation by making one aspect of an attitude concept more salient than another aspect. In an experiment using an IAT they demonstrated that implicit attitudes toward Blacks measured in White participants varied as a result of exposure to either a positive (a

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7 For example, in the dimension height, ‘tall’ is unmarked because the question ‘how tall is he?’ does not imply that the person is tall, but ‘short’ is marked because the question ‘how short is he?’ does imply that the person is short.
family barbecue) or a negative (a gang incident) stereotypic context prior to the experiment.

Based on a structural and process analysis of the IAT, De Houwer (2001) also concluded that affective reactions will be mainly guided by the attitude toward the feature that is most salient or relevant to us within the context where we encounter the attitude object. In an experiment, he showed that British respondent's reactions to an IAT in which names of British (Princess Diana, Margeret Tatcher, etc) and foreign (Hitler, Einstein, etc) celebrities had to be categorized, was not influenced by the affective evaluations of the exemplars used for the categories. That is, the results indicated an implicit preference for British names over foreign names irrespective of the valence of the exemplars. Consequently, it was concluded that IAT performance is very much dictated by the task instructions to categorize the target stimuli and not by the individual stimuli representing the concepts (Fazio & Olson, 2003). However, Steffens and Plewe (2001) suggested that the selection of stimuli can have a profound influence on IAT scores. To test this, they measured implicit gender attitudes by means of an IAT with typical female and typical male names as target concepts and positive and negative words as attribute concepts. The results showed that the effect (i.e. implicit preference for women to men) was twice as large when the positive words were stereotypical female adjective (e.g. intuitive) and negative words were stereotypical male adjectives (e.g. brutal) than when positive words related to men (e.g. independent) and negative words to women (e.g. bitchy). In response, De Houwer (2002) argued that the exemplars might have had a temporarily effect on attitudes toward the target concept (also see Govan & Williams, 2004). Thus, the positive items describing positive female traits and negative items describing negative male traits may have temporarily heightened the positive attitude toward women and the negative attitude toward men. Such an explanation is compatible with De Houwer (2001) finding an impact of the target concepts representing the stimuli, but not of the individual stimuli. That is, in his British-foreign IAT, not all exemplars within the target concept categories were of the same valence and therefore, the relative attitudes towards the concepts should not have changed. Accordingly, Govan and Williams (2004) demonstrated in several experiments that when each target concept is represented by a stimulus array that is associated one single evaluative dimension (e.g. all examples of unpleasant flowers such as nettles and Venus flytrap versus all examples of relatively pleasant insects such as butterfly and firefly), stimulus items may influence IAT effects by driving participants to re-define the categories. For instance, their
unpleasant flower/pleasant insect IAT revealed an implicit preference for insects over flowers, a finding that is the reverse of the effects found in the traditional flower/insect IAT. As a result, it is recommended to avoid exemplars of one concept that are all in the same way related to another concept (e.g. all examples of despised Blacks and admired Whites).

It is important to note that the existence of context effects does not necessarily raise doubts about the validity of the IAT. Instead, Dasgupta and Greenwald (2001) considered it as a support of internal validity that ‘IAT measures can be influenced in a theoretically expected fashion by procedures that might be expected to influence automatic attitudes or stereotypes’. For example, they have found that viewing photos from admirable members of stigmatized groups (elderly or African Americans) and despised members of non-stigmatized groups (youngsters or European Americans) in an ostensible measure of ‘general knowledge’ at the beginning of the experiment reduced automatic negative implicit associations measured by the IAT towards those groups.

Related to context effects is the impact of the manner in which the IAT is administrated. More specifically, does the order in which explicit and implicit measures are completed in an experiment affect the results of the IAT measure? Early studies using the IAT have mostly used a fixed order of implicit and explicit measures, with the explicit measure occurring first. The assumption was that the IAT would be unaffected by completing the explicit measures first, but that the nature of explicit measures could not warrant the same assumption (Greenwald, Nosek, & Banaji, 2003). However, the above discussed experiments already suggested that implicit attitudes are malleable and influenced by contextual cues. Moreover, Bosson et al. (2000) demonstrated that when implicit self-esteem was measured after explicit self-esteem, correlations between implicit and explicit self-esteem measures as well as correlations between implicit measures and the to-be-predicted criterion, tended to be higher. This may raise concerns about the ‘implicitlyness’ of implicit measures. It is possible that explicit measures preceding implicit ones, brings implicit tasks under greater conscious control (i.e., makes them less implicit). However, other researchers have failed to find that implicit and explicit measures relate more strongly when explicit measures are completed first. Because no generalizations are possible concerning order effects, researchers must give careful consideration to the order in which they administer implicit and explicit measures (Greenwald et al., 2003)
3.3.3. Task recoding

Another alternative source for IAT effects relates to the fact that respondents may recode tasks instructions in the IAT with the purpose of simplifying the categorization task. According to Mierke and Klauer (2001), respondents may recode the task instructions in the compatible block, that is, the block in which associated concepts share the same response key. For instance, in the flower-insect IAT, respondents may have simplified the compatible block (i.e. the block in which flower and positive words are assigned to one key and insect and negative to another key) as follows: press one key for positive words (flower and positive words) and press another key for negative words (insect and negative words). As a result, only two instead of four category-response assignments need to be applied. Because such a recoding is not possible in the incompatible task (press one key for flower and negative and another for insect and positive) performance will be superior in the compatible task. Additionally, Mierke and Klauer (2003) concluded on the bases of four experiments that conventionally scored IAT effects contain inter-individual differences that are method-dependent and content-independent. That is, they argue that inter-individual differences in IAT effects may be partly due to inter-individual differences in task switching ability. Further, they showed that IAT effects can be obtained even when a preexisting association between the response categories is absent.

In the flower-insect IAT recoding can be related to the associations being measured. However, recoding can also be based on information unrelated to the associations that one tries to measure. For instance, Rothermund and Wentura (2001, 2004) indicated that respondents may recode task instructions based on the salience or mere perceptual features of the categories (also see De Houwer, Geldof & De Bruycker, 2005). According to the authors, respondents will recode each pair of categories into a YES (i.e. figure) and a NO (i.e. ground) category and this recoding thus not seem to occur on the basis of conscious, intentional processes. Thereby, it is assumed that stimuli will be categorized on the basis of whether they do belong to the YES category or do NOT belong to the YES category. This means that stimuli are not necessarily sorted on the basis of the categories presented in the instruction tasks. IAT performance will be faster when both the target and attribute YES category are assigned to the same response key than when the two YES categories are assigned to different response keys. That is because, in the latter case, respondents do not only have to determine whether the stimulus belongs to the YES category or not, but also whether it belongs to the target or
attribute YES category. As a consequence, IAT effects are determined by the category the respondent chooses as YES category (De Houwer, 2002). Rothermund and Wentura (2001, 2004) argue that salient categories are chosen as YES categories and that unfamiliar stimuli are more salient than familiar stimuli. Also, the valence and linguistic markedness of a category is a determinant of salience: negative and linguistic marked stimuli are considered more salient than positive and unmarked stimuli. Additionally, De Houwer et al. (2005) argued that perceptual and functional similarity is another source of salience. Kinoshita and Peek-O’Leary (2005) subscribed the figure-ground or salience asymmetry account as alternative explanation for the IAT effects found in IAT’s measuring racial attitudes. However, they disagree with Rothermund and Wentura (2001, 2004) in their arguments that familiar items are more salient than unfamiliar items and that familiarity may explain race IAT effects (see section 2.3.1 on familiarity).

The figure-ground is compatible with the results of Brendl et al. (2001). In the experiment of Brendl et al. (2001), respondents reacted faster in the task combining negative words and non-words and positive words and insects than in the task combining positive words and non-words and negative words and insects. This effect could be attributed to the fact that non-words and negative words are more salient than insects and positive words. Or, in other words, the effect is the result of assigning non-words and negative words to the YES (figure) category and insect and positive words NOT to the YES category (ground). However, in a comment on the salience asymmetry account of the IAT, Greenwald et al. (2004) described two experiments that yielded results problematic for the salience asymmetry interpretation. Also, Mierke and Klauer (2003) concluded that asymmetries in salience may be sufficient to produce IAT effects, but they are not a necessary precondition. In sum, although it is doubtful that the IAT effects are always due to salience asymmetries, it is clear that they at least sometimes are (Rothermund and Wentura, 2004, Experiment 3b). Therefore, one should avoid using highly salient categories to prevent figure-ground asymmetries is IAT effects (De Houwer, 2002).

3.3.4. The IAT reflects societal views

Karpinski and Hilton (2001) suggested an environmental association interpretation of the IAT. They concluded that the IAT scores reflect the associations a person has been exposed to in his or her environment, rather than the extent to which the
person supports those evaluative associations. In their experiments, the authors demonstrated an effect of being exposed to new associations between the examined attitude objects (e.g. elderly) and certain attributes (e.g. positive) on the IAT. That is, in a memory task at the beginning of the experiment respondents were exposed to new pairings associating youth with negative items and elderly with positive items. The results showed that respondents' preference for youth in a subsequent IAT was reduced, but not in the explicit attitude measure. Reinterpreting the IAT measuring racial attitudes, the authors suggested that a high score on the White/Black IAT should not be seen as demonstrating that the individual has more favorable evaluations of Whites as compared to Blacks. Instead, the score indicates that the individual has been exposed (within his/her culture or family or throughout his/her life) to a larger number of positive-White and negative-Black associations than vice versa (e.g. in American society, Blacks have been historically portrayed in a negative manner).

Also Olson and Fazio (2004) suggested that IAT effects may be contaminated by 'extra-personal associations' that (1) do not contribute to one's own attitude, and thus (2) do not become activated upon encountering the object, but are nevertheless (3) available in memory. That is, the researchers reasoned that the task instructions in the IAT to associate an attitude-object (e.g. peanut) with positivity in one task, may activate information about the attitude-object that has positive implications (e.g. that hundreds of uses for the peanut can be invented) other than the degree of positivity the respondent feels toward the attitude-object. The consequence of recalling information that does not form the basis for one's attitude, but results from task instructions, is facilitation of associating the attitude-object with pleasant. Therefore, a more positive attitude estimate for the IAT will be found. Furthermore, Olson and Fazio (2004) suggested that the IAT may reflect the influence of extra-personal associations that are opposite to one's actual attitude. For instance, a person with a severe allergy to (and, hence strong negative attitudes toward) peanuts, but who is socialized in a 'pro-peanut' world (assuming that most people feel to some extent positive to peanuts), may in response to task instructions in an IAT that assign 'pleasant' and 'peanut' to one response key, activate (either strategically or unconsciously) positive extra-personal information about peanuts available in memory. As a result, the IAT may reflect more positive attitudes toward peanuts than the person would normally display. In order to reduce the contamination of these 'extra-personal associations' the authors developed a variant of the IAT, the 'personalized' IAT. The 'personalized' IAT differs from the traditional IAT in two ways:
(1) the category labels 'pleasant'/'unpleasant' are replaced by 'I like'/'I don't like' and
(2) no error feedback is provided at the end of each task. Further, the attribute stimuli are
not normatively associated with a given valence (e.g. football). In two experiments the
'personalized' IAT revealed relatively less racial prejudice among Whites as compared to
the traditional Black-White IAT. Furthermore, two other experiments (measuring
attitudes toward apple vs candy and Bush vs Gore) demonstrated that the personalized
IAT correlated more strongly with explicit measures of attitudes and behavioral intentions
than did the traditional IAT. In response, Nosek and Hansen (2005) state that the
experiments of Olson and Fazio (2004) lack empirical demonstration for the removal of
the influence of extra-personal associations on the IAT-effect. Moreover, they conclude
that there is no empirical evidence for a meaningful distinction between personal and
extra-personal evaluative associations or for the influence of extra-personal associations
on the IAT. According to the authors attitudes are the product of the method of
measurement and both the 'original' IAT and the 'personalized' IAT capture unique
aspects of the attitude construct.

4. Other response latency based indirect attitude measures

One important disadvantage of the IAT is that the measure requires the use of
complementary pairs of concepts and attributes (e.g. flower and insect, positive and
negative words). As a result, the IAT can only provide a relative measure of attitudes, but
not a measure of attitudes toward a single target concept. That is, the IAT informs us only
about the strength of the associations between for instance the target concept flower and
the attribute concepts positive and negative relative to the strength of the associations
between the target concept insect and the attribute concepts (De Houwer, 2002). For
concepts that form natural pairs in the social world (e.g. male and female) the relative
character of the IAT does not provide a problem. However, there are also concepts for
which this feature of the IAT is limiting (Nosek & Banaji, 2001). For instance, it is
difficult to design an IAT to measure implicit attitudes toward sales persons in general.
Secondly and also as a result of the relative character of the IAT, an IAT effect can not be
interpreted univocally. For instance, in the flower-insect IAT, the faster response time in
the flower + positive task as compared to the flower + negative task suggests that the
concept flower is more positive than the concept insect. However, this conclusion may be
due to the fact that (1) flower is positive and insect negative, (2) both concepts are
positive, but flower more than insect or (3) both concepts are negative, but flower less than insect (De Houwer, 2003). Finally, some problems of the IAT are shown to be related to the recoding of task instructions in one task (i.e. the compatible task) or both tasks of the measurement instrument (Mierke & Klauer, 2001; Brendt et al., 2001; Rothermund & Wentura, 2001).

In order to tackle these problems with the IAT two new reaction time-based attitude measures have been developed: the Extrinsically Affective Simon Task (De Houwer, 2003) and the Go/No Go task (Nosek & Banaji, 2001). These measures are particularly interesting because they are—to our knowledge—the only measures that provide a direct answer to problems related with the IAT. Further, both measures were also used in the studies that will be presented in the next chapters. Note that we are aware of the existence of several other reaction time-based attitudes measures such as the Affective Simon Task (De Houwer & Eelen, 1998), the Relational Stroop Task (De Houwer, 2003), etc., but it is beyond the scope of this work to give an exhaustive overview of these measures.

4.1. The EAST

In an EAST task respondents are asked to press a positive or negative key in response to a non-evaluative attribute of a valenced word (e.g. color). In a typical EAST, white and colored words have to be classified in one and the same task. Respondents are asked to press one of the two keys on the basis of the valence of the white words and the color of the colored words. By assigning one response key (e.g. the left response key) to positive white words and the other (e.g. the right response key) to negative white words, the response keys become extrinsically associated with positive or negative valence. For instance, in De Houwer's (2003) Experiment 1, colored words were normatively positive and negative nouns; white words positive and negative adjectives. Respondents were told that for white words the meaning of the word was important. They were instructed to press the good key (P) when positive white words appeared on the screen and to press the bad key (Q) when negative white words popped up on the screen. If the words were colored, however, respondents had to press the good or the bad key based on the color of the word (and not the valence). More specific, half of the respondents were asked to press the good key in response to bleu words and the bad key in response to green words (irrespective of the valence of the words). The other half of the respondents received
inversed instructions. The results of the experiment showed that respondents classified colored words faster and/or more accurate when the respondent had to press the extrinsically positive response key in response to a positive colored word and the extrinsically negative response key in response to a negative colored word than in the reverse situation. To put it more concrete, reactions were faster when bleu words required pressing the good key and the presented bleu word was positive as compared to when bleu words required pressing the good key and the presented bleu word was negative. This same reasoning can be made for the green word. An EAST-effect is calculated for the positive and negative nouns (i.e. the attitude-objects in this experiment) separately. This means that for each attitude-object an EAST score is calculated and the EAST score is thus not a relative score. The score is calculated by subtracting reaction times and percentage of errors on trials with an extrinsically positive response from reaction times and percentage of errors on trials with an extrinsically negative response. As a consequence, in this example, a positive EAST score signifies a positive attitude.

An advantage of the EAST is that the task is less sensitive to the influence of non-associative variables that might be used to recode an IAT. That is because the EAST effect (unlike the IAT effect) is calculated by comparing different trials in the same task (IAT effects are based on the comparison of two tasks). More specifically, trials in which the response and the colored word have the same valence are compared with trials in which the response and the colored word have a different valence. Moreover, the EAST allows measuring single attitudes as well as multiple attitudes, whereas the IAT can only measure dichotomous, relative attitudes (see above). However, further refinement of the measure is recommended as De Houwer (2005) did not find evidence for the EAST to be reliable enough to detect inter-individual differences in attitudes. But just like the IAT, the EAST is a flexible measure that also can be used to measure non-evaluative associations or can be adapted to use other stimuli than words (e.g. black-and-white-pictures and pictures with a color filter).

4.2. The Go/No Go Association Task

Similar to the IAT, the GNAT measures implicit attitudes or beliefs by assessing the strength of association between a (single) target category and two poles of an attribute dimension. The strength of association is determined by the ease with which respondents can discriminate items belonging to the target (e.g. flowers) and attribute (e.g. good)
category from distracter items not belonging to these concepts. In other words, the
strength of association between concepts is assessed by observing the ease with which
signal can be distinguished from noise. The GNAT consists of two tasks. In one task
respondents are asked to press the space bar when stimuli that represent the target
category (e.g. flowers) and an attribute (e.g. positive) appear on the screen (=signal) and
do nothing if items that do not belong to those categories (=noise) pop up. In a second
task respondents receive similar instructions, but now they have to press the space bar for
the target category (e.g. flowers) and an alternative attribute (e.g. negative). The
difference in accuracy (‘sensitivity’) between the two tasks is taken as a measure of
implicit attitude toward the target category (Nosek and Banaji, 2001). Thus, the extent to
which the concepts that constitute the signal are associated will determine the ‘sensitivity’
or ‘the discriminability of signal from noise’.

The GNAT is particularly interesting because the measure does not only allow to
measure implicit attitudes toward one single category, but also to control the evaluative
context. In five experiments, Nosek and Banaji (2001) showed that the GNAT could
measure automatic preferences toward a concept when the context (i.e. noise) (1) was a
single category (e.g. fruit is signal and bug is noise), (2) consisted of generic items (e.g.
fruit is signal and generic items that do not constitute a clear category such as coffee,
book, gem, etc, are noise) (3) was a superordinate category (e.g. fruit is signal and other
food items such as broccoli, beef, are noise), and (4) was absent (e.g. fruit is signal and
only evaluative items (e.g. negative) and thus no other concept items were noise).
Especially the latter finding is important as it suggests that the presence of a contrasting
concept category is not necessary in an evaluative context. Another interesting feature of
the GNAT is its ability to separate natural dichotomies into their component parts. For
instance, in an experiment measuring implicit attitudes toward Black and White racial
categories using the GNAT (Nosek & Banaji, 2001, Experiment 6), both positive attitudes
toward the in-group (Whites) and negative attitudes toward the out-group (Blacks) are
observed.

Blair, Ma, and Lenton (2001) showed by means of the GNAT that imagery about
strong female leaders resulted in a stronger association between the female concept and
the concept ‘strong’ (as compared to the concept weak) among women. Further, by using
the GNAT Mitchell et al. (2003) varied the evaluative context in which Black and White
faces were presented. That is, the GNAT allowed the researchers to alter the salience of
race and gender in the evaluation of White males, and Black females. Depending on the salience of race or gender, the evaluation of the faces changed. More specifically, Black females (signal) were evaluated more positive when gender was the salient category (White and Black male names are noise) as compared to when race was the salient category (White female and White male names are noise). For White males the reversed conclusions could be drawn.

Although the GNAT can be viewed as a promising solution to the shortcomings of the IAT, the problem of task recoding based on non-associative variables remains an issue. This is because, just like the IAT effect, the GNAT-effect is based on the comparison of two different tasks. Further, the measure also struggles with low test-retest reliabilities. Moreover, the GNAT scores tend to show only weak correlations with IAT scores (Nosek and Banaji, 2001). Clearly, further refinement of the measurement instrument is needed to increase the instrument’s reliability and validity.

5. Conclusion

In this chapter, we argued that the IAT is a well-known and widely supported instrument for measuring implicit attitudes toward social constructs. Until now, the IAT has been mostly studied in the context of stereotypes and prejudices and there the validity and reliability of the instrument has been demonstrated extensively. Moreover, the IAT is shown to have superior psychometric features as compared to other indirect measures of attitudes. Although it is advised to carefully adapt the design of the IAT to each specific research situation in order to avoid confounding factors interfering with IAT effects, most researchers agree that the instrument measures the strength of association between social concepts (but see Rothermund & Wentura, 2004). Further, and probably most importantly for attitude research, the IAT has been shown to be predictive of behavior. A disadvantage of the IAT is that the instrument can only measure relative attitudes and that, in some cases, task-recoding may account for the IAT effect. As a result, the EAST and the GNAT were developed to withstand problems related to the IAT. When selecting a measure of implicit attitudes, researchers should use the task that best maps on the theoretical question of interest. The IAT is clearly the most appropriate measure when measuring implicit attitudes toward natural dichotomies (e.g. male/female) or concepts we think about in terms of relative comparison (e.g. coke vs pepsi). Both the GNAT and
the EAST offer possibilities in situations where the attitude-object of interest has no clear comparison category like, for instance, attitudes toward smoking or when multiple attitudes need to be assessed. However, when using the latter two measures some caution is recommended as they are shown to have inferior psychometric qualities as compared to the IAT. In the next chapter, we will summarize the first studies exploring the influence of automatic processes in consumer behavior as well as the usefulness of the IAT in consumer behavior research.

6. References


Chapter 5

The IAT and Consumer Behavior Research

1. Introduction

From the previous three chapters we conclude that social psychologists have shifted their views on the attitude-concept from a mainly cognitive approach to an approach with increasing attention to the possibility of automatic and non-conscious influences on choices and behavior. Thereby, social psychologists made a distinction between implicit and explicit attitudes, with implicit attitudes being the result of spontaneous processes and explicit attitudes resulting from conscious, intentional processes. Explicit attitudes should be measured by means of direct attitude measures, such as self-reports, while implicit attitudes require indirect measures, such as the Implicit Association Test. The purpose of Chapter 5 is to examine to what extent consumer behavior research has kept pace with these key developments in social cognition research. To that end, we will first review different studies demonstrating automatic processes in consumer behavior. Next, we will discuss four pioneer studies using the IAT in a consumer context and finally, the main differences between the pioneer studies and the studies included in the dissertation will be pointed out.

2. The role of automatic (implicit) processes in consumer behavior

For more than 60 years, the field of consumer behavior research has been dominated by purely cognitive approaches (e.g. the TORA) that assume that consumer decisions and behaviors are made in a more or less deliberative way. However, during the past two decades, thinking about consumers has changed and consumer researchers have increasingly paid attention to the possible influence of automatic and unconscious
processes on consumer behavior (Shiv and Fedorikhin, 1999; Bargh, 2002; Pham, 2004; Maison et al., 2004; Brunel et al., 2004).

For instance, Janiszewski (1988), for instance, concluded that pre-attentive analysis of information can enhance a consumer’s liking for the information. More specifically, after reading an article in a fictitious newspaper, respondents showed greater liking for non-attended verbal ads placed on the right side of the article as compared to non-attended verbal ads placed on the left side of the article. The reverse was found for non-attended pictorial ads. Janiszewski ascribed the effect to an efficient subconscious process instigated by the differential activation of the left and right hemisphere in the brain. That is, stimuli that appear in a person’s left visual field immediately activate the right hemisphere and stimuli presented in the right visual field activate the left hemisphere due to a phenomenon called matching activation. Thus, a pictorial ad presented in the left visual field, activates directly the right hemisphere, which is the most efficient hemisphere to process pictorial information. The pictorial information is then stored in mind as an accessible mental representation. During subsequent evaluation of the pictorial ad, the accessible mental representation will allow for a more fluent perception of the stimulus, making it seem more familiar and encouraging a more positive evaluation of the ad. The same can be concluded for a verbal ad placed to the right from the attended article. In a next study, Janiszewski (1990) drew similar conclusions on the unconscious influence of print advertisement organization on affect toward a brand name. That is, he found support for his hypothesis that a brand name is liked more when placed to the right of pictorial information or to the left of verbal information in an ad. Finally, in 1993, Janiszewski, extended his work by showing that the mere exposure to a brand name or product package can encourage a consumer to have more favorable attitude toward the brand, even when the consumer cannot recollect the initial exposure.

Building on Janiszewski’s finding that incidental (mere) exposure may have an effect on subsequent judgments with respect to both the ad and the brand, Shapiro and colleagues (1997) examined the effects of incidental ad exposure on the formation of

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8 The matching activation phenomenon refers to an increased availability of resources in one hemisphere because of an increased processing load in the opposing hemisphere (in this case the instructions to read the article). The adaptive function of the increased readiness of the less activated hemisphere is the anticipation of cooperative processing of the two hemispheres.
consideration sets. Incidental exposure can be induced by asking respondents to fulfill a task (e.g. reading an article) which reduces the availability of cognitive resources to process secondary information (e.g. an advertisement) that surrounds the primary stimulus. Shapiro (1997) concluded that mere exposure toward an ad will increase the likelihood that the product depicted in the ad will be included in the consideration set. Further, the effect was shown to be robust and even present when (1) the respondents had no explicit memory for the ads or (2) when they were explicitly trying to avoid choosing products that were depicted in the ads (Shapiro, 1999).

Shiv and Fedorikhin (1999) showed that when consumers have to choose between two ambiguous attitude-objects such as chocolate cake (with positive feelings toward taste but negative cognitions related to calorie intake) and fruit salad (with less positive feelings toward taste, but positive cognitions related to low calorie intake), choice will be affect or cognition driven depending on the processing resources available to fulfill the choice task. That is, when cognitive resources are limited, automatic affective reactions tended to have more impact on choice as compared to cognitive reactions. As a result, under limited cognitive resources, respondents were likely to choose the product that was superior on the affective dimension but inferior on the cognitive dimension (e.g. chocolate cake). By contrast, when respondents were able to deliberate on their choice, preference was likely to go out to the product that was superior on the cognitive dimension (e.g. fruit salad). The work of Shiv and Fedorikhin (1999) is different from previous research (such as e.g. the ELM) because the focus is on lower-order affective reactions that are elicited spontaneously by an alternative in the choice task (i.e. stimulus-induced-affect). Thereby, lower-order affective reactions are assumed to arise from relatively automatic processes whereas higher-order affective reactions are the result of more controlled higher-order processes involved in thinking, reasoning, and consciousness.

Finally, an experiment by Holden and Vanhuele (1999) replicated the false fame effect in a consumer context. They demonstrated that a single auditory exposure to fictitious brand names may create the impression, after a period of 24h, that these brand names really exist. The authors argue that ‘knowing the brand’ is the result of brand familiarity coupled with the failure to remember the exposure context.
The examples discussed above unequivocally suggest an influence of automatic processes on consumer behavior. Therefore, the new insights supplied from social cognition research on the automatic activation of attitudes, automatic processes influencing behavior, and new indirect measures designed to measure automatic processes without losing psychometric qualities, constitute a challenging and promising opportunity for consumer researchers to better understand consumer attitudes and behavior. Or, as formulated by Bargh (2002) 'the realm of consumer research would seem to be the ideal playing field on which to establish whether the new models of automatic goal pursuit and automatic evaluation processes do, indeed, apply to the real world, [...]'.

3. The IAT in consumer behavior research

At the start of this doctoral dissertation (October, 2001) only one paper could be found applying the IAT in the marketing field. That is, 'The Implicit Association Test as a measure of implicit consumer attitudes', written by Maison, Greenwald, and Bruin, and published in the Polish Psychological Bulletin in 2001. In a first experiment, Maison et al (2001) compared implicit and explicit attitudes toward sodas and juices. The results revealed significant correlations between IAT-measured implicit attitudes and explicit measures of liking, subjective beliefs about the drinks, behavioral intention and behavior. The second experiment involved ambivalent explicit attitudes (i.e. attitudes with positive and negative aspects at the same time). The attitude-objects were high- and low calorie products and only female respondents participated in the experiment. The authors assumed that high calorie products would be liked for their taste, but disliked for the high-fat and sugar content, whereas low calorie products would be liked because of their healthiness and disliked for their taste. The results showed, as expected, ambivalent explicit attitudes (i.e. low calorie products were perceived as healthier than high calorie products, but high calorie products were perceived as tastier than low calorie products) and an implicit preference for low calorie food products. However, when calculating an overall attitude score based on both the positive and negative aspects for each product, explicit preference also goes out to low calorie food products. Further, significant positive correlations were found between explicit ratings of the items 'tasty' and 'healthy' and implicit attitudes and between implicit attitudes on the one hand and self-reported eating habits and feelings of guilt after eating high calorie products on the other hand. The authors concluded that the IAT could be applied to consumer attitudes. Further, they
pointed at the correlation between the IAT and self-reported behavior and that the challenge lied in further research addressing the 'behavior'-issue more thoroughly.

During the final stage of this dissertation, two more studies on implicit consumer attitudes and their relation to behavior have been published in the Journal of Consumer Psychology. In one study, Maison, Greenwald and Bruin (2004) built on their earlier study by examining in three experiments implicit attitudes toward different types of brands of yoghurt, fast food restaurants and cola. Because the brands represent products for which consumers are (1) typically aware of their attitudes and preferences and (2) lack reasons for suppressing them in self-reports, correlations between IAT-measured attitudes, self-reported attitudes, brand preferences and product use were expected. In all three the experiments the results met expectations: implicit attitudes strongly correlated with explicit attitudes ($r \geq .43$) and behavior (i.e. self-reported and observed behavior). Generally, heavy users of a particular brand demonstrated more positive implicit attitudes towards that brand than light users. In the third study, respondents that recognized their preferred cola brand in a blind taste test (i.e. coca cola or pepsi), showed more positive implicit attitudes toward that brand as compared to respondents that did not recognize their preferred brand. However, this finding only applied to a subsample of heavy users of the respective brands and no results for the explicit measure were formulated. Further, the regression analyses predicting behavioral indicators from implicit (IAT) and explicit (self-report) measures consistently revealed that independent contributions of explicit attitudes were significant and related to beta coefficients that were equal to or larger than those for implicit attitude measures. However, the beta coefficients of the IAT were not statistically significant in two of the three studies. The authors assigned the non-significant attribution of the IAT to the prediction of behavior to the strong correlations between the IAT and the self-report measures.

Brunel, Tietje, and Greenwald (2004) obtained similar results. On the basis of the results of their first study, the researchers concluded that in situations where implicit and explicit attitudes were expected to converge (i.e. attitudes towards Macintosh versus PC Windows based machines), IAT measures of brand attitude and brand relationship showed strong, positive correlations with explicit measures of brand attitude, ownership, and usage ($r \geq .50$). Moreover, they found that the IAT effectively discriminated between pro Mac and pro PC respondents. Finally, the results showed significant implicit self-
brand connection for Mac users, but not for PC users. According to Brunel et al. (2004) the strong Mac brand relationship could stem from 'the loyalty that Mac users have developed after years of being a small share in the computer world and the strong sense of community exhibited by Mac users'. In a second study on the race of advertising spokespeople, the authors demonstrated that under some conditions the IAT could uncover consumers' attitudes that traditional measures did not detect. In the experiment, explicit and implicit attitudes towards ads for sportswear advertisements portraying African-American (Black) and European-American (White) athlete-spokespersons were measured. The results showed that at the explicit level there was no difference between attitudes towards the ads with White spokespersons as compared to ads with Black spokespersons. However, the IAT revealed a strong preference for ads containing White spokespersons. Also, no significant correlation between the explicit and implicit measures could be found. When analyzing White and Black participants' subgroups, divergent results arose. White participants showed an in-group (=pro-White) IAT preference, but no significant explicit preference. Opposite results were found for the Black group: Black respondents showed a pro-Black preference at the explicit level, but no significant implicit preference. The authors concluded that 'the explicit measures may have reflected views that participants wished to present, whereas the implicit measures reflected more uncontrollable automatic associations'.

Finally, we have found an unpublished study by Wänke, Plessner, Gärtner and Friese (2001) that investigated attitudes toward food products of well-established and no-name brands. For the respondents with a difference between implicit and explicit attitudes, the results revealed that, at the end of the experiment, 90% chose the brand congruent with their explicit attitude (and incongruent with their implicit attitude) in case of no time restriction. For respondents with similar implicit and explicit attitudes, 82% chose the brand congruent with their attitudes. When time pressure was imposed, only 38% of the respondents with different implicit and explicit attitudes chose the brand consistent with their explicit attitudes, while 62% chose the brand congruent with their implicit attitudes. For respondents with similar attitudes, again 83% preferred the brand congruent with their explicit attitudes. These data support the assumption that when implicit and explicit attitudes differ, spontaneous behavior is more consistent with implicit than with explicit attitudes, while the opposite is true for controlled behavior.
4. Aims of current Phd-project

It is the above mentioned -and at that time only available- pioneer work on implicit consumer attitudes by Maison and her colleagues (2001) that inspired us to further examine the usefulness of the IAT for consumer behavior research. We became particularly interested in the application of the IAT in consumer situations where (unlike in the experiments of Maison et al., 2001) explicit and implicit attitudes are likely to diverge. To put it differently, we wanted to (1) examine situations in which consumers are either unwilling or unable to report their attitudes in self-reports and (2) explore whether the IAT could predict variations in consumer behavior beyond those explained by parallel explicit measures. Thereby, we tried to stay close to marketing practice by tackling concrete problems found in the consumer behavior literature that relate to attitudes and/or the attitude-behavior relationship.

Although we acknowledge the recently published studies (Brunel et al., 2004; Maison et al., 2004) relate to the studies included in current dissertation, some important differences have to be pointed out. First, none of the studies discussed above examined whether the use of the IAT in combination with explicit measures predicts behavior more accurately than self-report measures alone in situations where consistently weak explicit attitude-behavior relationships have been found. More specifically, no study dealt with consumer situations in which self-reported attitudes toward fast moving consumer goods may be distorted by processes like social desirability bias, impression management or self-deception. Therefore, in the first two studies, we examined explicit and implicit attitudes toward ethical consumer products, a consumer domain in which consistently weak (explicit) attitude-behavior relationships were found. Secondly, although Brunel et al. (2004) showed that implicit measures toward ads depicting Black models may uncover associations that respondents prefer not to reveal or may be unable to reveal, the study does not allow extrapolation of the findings to automatic processes in other advertising settings. As such, our practical oriented approach based on (1) questions like ‘where do we expect explicit and implicit attitudes to differ’ and ‘where do we think that the IAT may provide additional insights in consumers’ attitudes’ combined with (2) the reiterating sighs from advertising practitioners hesitant on how to depict men and women in ads, has lead us to a third series of experiments focusing on consumers’ attitudes toward different gender role portrayals in ads. We will discuss the different studies more thoroughly in the next chapters.
5. References


CHAPTER 6

IMPLICIT ATTITUDES TOWARD GREEN CONSUMER BEHAVIOR
Chapter 6

Implicit Attitudes toward Green Consumer Behavior

1. Abstract

The purpose of the first study was to examine the usefulness of implicit (automatic) attitudes to explain the weak attitude-behavior relationships often found in green consumer behavior research. Therefore, not only explicit but also implicit attitudes toward green consumer behavior were measured by means of the Implicit Association Test (IAT). Explicit measures revealed positive attitudes, while the IAT showed more positive attitudes toward the ecological than toward the traditional product (Experiment 1) or no differences in these attitudes (Experiments 2 and 3). When existing products were involved, implicit attitudes related to behavioral intention, even in case the explicit attitude measure did not. Finally, a logistic regression analysis showed that the IAT uniquely contributes to the prediction of behavior, even after the influence of the explicit attitude measure is controlled for.

2. Introduction

Recent survey research on green consumer behavior indicates that there is strong evidence for consumer's growing environmental concern and willingness to change consumption patterns (Yam-Tang & Chan, 1998). Alwitt and Berger (1993) reported that about seventy per cent of consumers show high levels of environmental concern. However, it seems that when it comes to purchasing and consuming products and services, buying behavior is often inconsistent with these attitudes. In fact, the market share of the majority of environmentally friendly low-involvement products amounts to less than 1% (Roozen, 1999). This means that most consumers do not give
up their traditional brands and do not convert to the environmentally friendly alternative (Grunert, 1993).

There are two classes of possible explanations for the discrepancy between environmental attitudes and actual consumer behavior. A first class relates to features of environmentally friendly products, while the second class is connected to measurement problems. The discordant character of environmentally unfriendly products may be a first reason for the low attitude-behavior consistency in green consumer behavior. On the one hand, an environmentally unfriendly product may offer important benefits to consumers, such as convenience, performance or a good price, while on the other hand environmentally friendly products respect the environment, but may show a lower quality or higher prices (Alwitt & Berger, 1993). Further, even if people express positive attitudes toward environmentally friendly products, this may not be translated in actual purchase behavior because there is not in every product category a green alternative available (Yam-Tang & Chan, 1998). A last reason is that in case of environmentally friendly products, the ethical criterion (being environmentally harmless) is just not taken into account. Price, quality, convenience and brand familiarity are still the most important decision factors (Roberts, 1996; Tallontire et al., 2001).

With respect to measurement problems in research on green consumer behavior, several authors (La Trobe & Acott, 2000; Roozen & De Pelsmacker, 1998) agree that people are motivated to hide their real attitudes and/or purchase patterns and falsely claim that they actually buy environmentally friendly products, in order to impress the researcher or to hide personally or socially undesirable behavior. Another source of bias is ‘leading questioning’. Questions like ‘I would rather use products with recyclable packages than with no recyclable packages’ have been proven to exert a directing influence on consumers (Schwepker & Cornell, 1991). Further, in self-report attitude measures respondents are forced to express an opinion. Even when people are unfamiliar with the attitude-object, they will still answer the question in order not to seem hesitant. In such cases, respondents think and look for information in order to form a meaningful evaluation, which often results in ‘artificial’ evaluations and opinions that do not reflect the real (spontaneous) evaluation (Kardes et al. 1993). Finally, self-report measures assume that respondents are aware of (i.e. have access to) their attitudes. However, substantial research on social cognition suggests that a large portion of our daily activities
is the result of cognitive processes that occur outside conscious awareness and control (Greenwald and Banaji, 1995; Bargh, 2002). Traditional self-report measures are not well suited to capture these implicit processes.

The latter point is related to the recent distinction between explicit attitudes on the one hand and implicit or automatic attitudes on the other hand (Fazio, 1990; Wilson, Lindsey, & Schooler, 2000). Explicit attitudes are attitudes that operate in a conscious mode and are typically measured by self-report tasks (surveys). Implicit attitudes are 'introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward social objects' (Greenwald & Banaji, 1995, p. 8). The distinction between implicit and explicit attitudes is consistent with the view of dual-processing models that are commonly used in consumer behavior research (Fazio, 1990, Fazio & Olson, 2003). Fazio and Olson (2003) argued that the MODE-model is a useful perspective for considering the relationship between the two types of attitudes and behavior. According to the MODE model there are two different processes through which attitudes can guide behavior: a spontaneous process and a deliberative process. Under conditions of low motivation and opportunity, links between attitudes and behavior arise as the result of spontaneous processing that is driven by the accessibility of the attitude (Fazio, 1986, 1990). It is assumed that the more accessible (and the stronger) the attitude, the more likely that this attitude will be activated when encountering the attitude-object and the more it will bias the processing of relevant information. Under these conditions, the weight of the attitude is larger than the weight of current thoughts, resulting in a bias of information processing in an attitude congruent direction. When motivation and opportunity are high, however, behavioral decisions are made in accordance with the mechanisms that underpin the theories of reasoned action/planned behavior. That is, behavior is the result of careful consideration of all available information. However, it is not hard to imagine that consumers do not always have the opportunity or the motivation to process an advertisements' content or to elaborate thoroughly on which brand to choose. Consumers in the supermarket, for instance, often pick products out of the shelves without deliberating on the personal costs and benefits attached to buying these products. Moreover, more and more researchers recognize the fundamental role that affect and unconscious motives may play in consumer decisions (Pham, 1998; Pham, Cohen, Prajcus, & Hughes, 2001; Shiv & Fedorkin, 1999). Further, earlier empirical findings in consumer research can be reinterpreted as
implicit attitude effects (Greenwald & Banaji, 1995). The mere exposure effect, for instance, explains that the mere exposure to an ad or product may lead to a greater liking of that ad or product, even without an explicit recognition of the ad or product (Janiszewski, 1990; Janiszewski & Meyvis, 2001; Shapiro, 1999). Another example can be found in halo-effect research where physically attractive models are shown to be the objectively irrelevant attributes that influence evaluations of advertisements on other dimensions, such as quality (Baker & Churchill, 1977; Greenwald & Banaji, 1995; Patzer, 1985). Finally, Bargh (2002) suggests that ‘the realm of consumer research would seem to be the ideal playing field on which to establish whether the new models of automatic goal pursuit and automatic evaluation processes do, indeed, apply to the real world, […]’

The arguments presented above suggest that the inconsistency between green consumer behavior and self-reported attitudes could be due to problems with self-report measures. Recently, researchers have developed a number of alternative attitude measures that do not rely on self-reports. These measures are assumed to register implicit attitudes and to be less sensitive to social desirability effects. If the weak attitude-behavior consistency in the context of green consumer behavior is indeed due to measurement problems, one would thus expect that the results of these alternative attitude measures should be more consistent with actual green consumer behavior. That is, contrary to explicit measures, implicit measures could reveal that consumers have a more negative implicit attitude toward green products than toward traditional products. We tested this prediction in three experiments in which we used the Implicit Association Test (IAT) to measure implicit attitudes toward fictitious (Experiment 1) and real green products (Experiments 2 and 3). Before we describe these experiments, we will describe the IAT, present a brief overview of initial experiments using the IAT in consumer behavior research, and formulate our expectations.

3. Implicit attitude measurement

Implicit attitudes can be measured by indirect measures that use reaction time as an indicator of automatically activated attitudes. Examples of such measures are the Implicit Association Test (Greenwald et al., 1998), the (Extrinsic) Affective Simon Task (De Houwer, 2003; De Houwer, Crombez, Baeyens, & Hermans, 2001) and the Go/No-go Association Task (Nosek & Banaji, 2001). The assumption behind those indirect
measures is that in memory, an attitude is stored as an association between the representation of the attitude object and the representation of positive and negative valence (e.g. Fazio et al., 1986). Therefore, respondents will perform instructions that prime the same (re)action toward concepts that are associated in mind faster than instructions that demand a similar action toward concepts that are not or less associated in mind. Because respondents cannot control the influence of attitudes on their response latencies, the advantage of using latency judgments is that they circumvent reliance on the willingness or ability of respondents to express their opinions.

3.1. The Implicit Association Test

One method of examining implicit attitudes that has received a lot of attention over the past years is the Implicit Association Test (IAT, Dasgupta, McGhee, Greenwald, & Banaji, 2000; Greenwald, McGhee, & Schwartz, 1998). The IAT is a computerized response latency task that measures the strengths of associations between concepts. Respondents are asked to categorize stimuli that represent two pairs of contrasted concepts (two target concepts and two attribute concepts) as fast and accurately as possible. More specifically, during the IAT, respondents press a left or a right computer key based on the category to which the presented stimulus belongs (e.g., flower name, insect name, pleasant or unpleasant word). In the first task, respondents are instructed to press the left key when pleasant words and words referring to the first target concept appear on the screen and to press the right key when unpleasant words or words referring to the second target concept (e.g., insects) pop up. In the second task, instructions are reversed (e.g., press left for insects and positive words; press right for flowers and negative words). If the target concepts are differentially associated with the attribute dimensions, respondents should find one of the two combined tasks easier. The difference in response latency is thus an indicator of the implicit attitudinal difference between the target categories. In many experiments, superior performance was found for the evaluative compatible combinations (flowers + pleasant words) as compared to the incompatible combinations (insects + pleasant words). Thus far, substantial evidence exists for the IAT’s convergent and discriminant validity (Greenwald & Nosek, 2001). Further, the IAT has shown to be a very useful tool for research on different topics such as racial attitudes (Dasgupta & Greenwald, 2001), stigmatized behavior such as smoking (Swanson et al., 2001), and gender stereotypes (Rudman, Greenwald, & McGhee, 2001).
3.2. IAT in consumer research

Only a few studies have used the IAT to measure consumer attitudes. Maison et al. (2001, 2004) examined implicit attitudes toward different types of products (juices and sodas; low and high calorie products) and brands (brands of yogurt, fast food restaurants and cola). The results showed positive correlations between implicit attitudes as measured by the IAT and both explicit attitudes and behavior (self-reported and observed). In general, frequent users of a particular product or brand had IAT reaction times indicating a more favorable implicit attitude toward that brand than light users. A study by Wänke, Plessner, and Friese (2002) investigated attitudes toward food products of well-established and no-name brands. For the respondents with a difference between implicit and explicit attitudes, the results revealed that, at the end of the experiment, 90% chose the brand congruent with their explicit attitude (and incongruent with their implicit attitude) when there was no time restriction for making the choice. For respondents with similar implicit and explicit attitudes, 82% chose the brand congruent with their attitudes. When time pressure was imposed, only 38% of the respondents with different implicit and explicit attitudes chose the brand consistent with their explicit attitudes, while 62% chose the brand congruent with their implicit attitudes. For respondents with similar attitudes, again 83% preferred the brand congruent with their attitudes. This means that the data support the assumption that when implicit and explicit attitudes differ, spontaneous behavior is more consistent with implicit than with explicit attitudes, while the opposite is true for controlled behavior. In consumer research, it has until now not yet been examined whether implicit attitudes are more strongly related to behavior as compared to explicit attitudes in situations where consistently weak attitude-behavior relationships are found.

4. Present research

As we stated earlier, the purpose of our study was to explore the usefulness of the IAT for determining consumers' attitudes toward environmentally friendly products. We chose (environmentally friendly) cleaning products as attitude objects. Implicit attitudes toward cleaning products are likely to have an important impact on consumer behavior because cleaning products are low-involvement products that do not involve long effortful considerations on which brand to choose. Moreover, for most respondents, explicit and
implicit attitudes toward green products are expected to differ, because these products are subject to ethical concerns and social norms. The IAT may thus reveal another view on the evaluation of green products than self-report measures because the IAT is assumed to register implicit rather than explicit attitudes and is assumed to be less susceptible to deception and self-presentational strategies (Dovidio & Fazio, 1992; Greenwald & Banaji, 1998, Dasgupta et al., 2000).

5. Experiment 1

The purpose of Experiment 1 was to measure implicit and explicit attitudes toward two fictitious brands of cleaning products. We also registered purchase intentions with respect to those brands and four real all-purpose cleaners.

5.1. Method

5.1.1. Participants

Sixty undergraduate students (26 women, 34 men) of the Department of Applied Economics at Ghent University participated in the experiment in exchange for a movie ticket. All respondents were between 17 and 27 years old ($M_{age}=21.53$, $SD = 1.42$).

5.1.2. Overview

The experiment consisted of four phases: (1) a learning phase, (2) an IAT, (3) an explicit measure of attitudes toward two fictitious brands, and (4) two behavioral intention measures: one with the fictitious and one with real products. The IAT precedes the explicit measures because this avoids that the explicit measure might influence the results of the IAT (see Bosson, Swann, & Pennebaker, 2000; Fazio & Olson, 2003). The computer tasks (learning phase and IAT) were completed on PC-type desktop computers with AZERTY keyboards, using Inquisit laboratory software (2002). The entire study was conducted individually and took about 40 minutes.
5.1.3. Learning phase

Using a learning phase at the beginning of the experiment offers researchers the possibility to teach respondents new attitudes. An important advantage of this approach is that idiosyncratic differences in previous experience or perception cannot interfere with attitude measurement toward these objects. Consequently, it allows the researcher to manipulate only those features that are of interest for the study, without the features being confounded with influences of familiarity or previous experiences. During the learning phase, the new attitude-object was systematically shown together with certain attributes, which resulted — over time — in an association between the attitude-object and the attributes (see De Houwer, Thomas, & Baeyens, 2001). During the learning phase of the current experiment, two fictitious brand names for cleaning products (2 non-words, Matu and Giko) were paired together with their specific characteristics (for the green product: minimal packaging, recyclable, green label and small price supplement; for the traditional product: attractive packaging, non-recyclable, extensive media-support and standard price). Respondents were told that both brands were of good quality. They were instructed to memorize the brand names and their accompanying characteristics. This was repeated ten times for each brand. Each trial in the learning phase consisted of the following sequence of events: the brand name for 2500 ms, a black screen for 1000 ms and the brand characteristics for 5000 ms. The intertrial interval (ITI) was 4000 ms. After five pairings of both names, a memory test was presented. During the memory test, respondents were asked to indicate for each characteristic to which brand name it belonged. Then the names and the characteristics appeared again five times, followed by an identical memory test. The pairing of the brand name and the characteristics (Matu is environmentally friendly or Giko is environmentally friendly) and the order of learning the brands (Matu on the first five trials or Giko on the first five trials) were counterbalanced.

5.1.4. IAT

After the learning phase, the experimenter initiated a second computer program that was used to control the IAT phase. The IAT was designed to measure implicit attitudes toward the two fictitious brands. The target stimuli were the two fictitious brand names GIKO and MATU. Two target stimuli are appropriate because Nosek, Greenwald, and Banaji (in press) demonstrated that IAT effects are robust even with few stimuli.
Moreover, Mcfarland and Crouch (2002) concluded that IAT’s with just two exemplars in each category – as compared to IATs with more exemplars in each category- are less confounded with a general cognitive ability level of how quickly one can process the compatible versus the incompatible block in the test.

As attribute stimuli, we used positive (love, peace, funny, honest, beautiful, happiness) and negative (death, cancer, hatred, ugly, false, imprudent) words. Letter case (upper or lower case) for the attribute stimuli and letter case and color (white, yellow and pink) for the target concept stimuli were varied in order to reduce the possibility that participants responded on the basis of a simple visual feature of the names. Stimuli were presented in the center of the computer screen and the respondents’ task was to assign each stimulus to one of the two categories. The interval between pressing the correct response key and presentation of the next stimulus was 150ms.

The IAT consisted of seven classification tasks. During the first task, only positive and negative words were presented. Positive words were always assigned to the right key (M) and negative words to the left key (Q). Each positive and negative word was presented 12 times. The second task consisted of categorizing the brand names: GIKO was assigned to the left key, MATU to the right key. Each brand name appeared 12 times on the screen. Task three and four (practice and data collection trials) combined both categorization tasks: GIKO and the negative words were assigned to the left key, MATU and the positive words to the right key. Each stimulus was presented 6 times on the practice trials and 12 times on the data collection trials. The fifth task consisted of classifying the brand names once again, but now MATU was assigned to the left key and GIKO to the right key (=the reverse of task 2). Again, MATU and GIKO appeared 12 times on the screen. During block six and seven (practice and data collection trials) the reversed categorization task was combined with task 1. Consequently, MATU and the negative words were assigned to the left key and GIKO and the positive words to the right key. During the practice trials, each stimulus was presented 6 times, while this amounted to 12 times during the data collection trials. Before and during each phase, the name of the target and/or attribute concept (MATU, GIKO, POSITIVE and/or NEGATIVE) that was assigned to the left key was printed in the top left corner of the screen, whereas the name of the target and/or attribute concept that was assigned to the right key was written in the top right corner of the screen. Participants were asked to respond as quickly but also as accurately as possible. Summary feedback was given in the form of mean response latency in seconds and percentage correct following each block. All blocks were respondent-initiated. In case of an incorrect response, a red cross appeared on the screen.
Implicit Attitudes toward Green Consumer Behavior

for 400ms. The IAT effect was computed by subtracting the mean response latency for performing the ‘ecological product combined with positive words’-task (Combination 1) from the ‘ecological product combined with negative words’-task (Combination 2). Thus, positive difference scores reflected more positive implicit attitudes toward the green product as compared to the traditional product.

5.1.5. Explicit measures

After the computer tasks, respondents completed paper-and-pencil measures of attitudes and behavioral intentions. The explicit measure consisted of two parts: (1) explicit measure of attitudes and behavioral intentions toward the two fictitious brands, and (2) behavioral intention measure toward real cleaning products.

Attitudes toward the two fictitious brands were measured by means of a six-item seven-point semantic differential scale (Geuens & De Pelsmacker, 2002: pleasant, unsatisfactory, nice, worthless, unattractive and good) (Cronbach’s Alpha=.88 which is sufficiently high to allow to calculate an average across the items); Behavioral intention was measured by asking the respondents which of the two fictitious brands they would buy.

A second measure of behavioral intention presented the respondents with the pictures and prices of four well-known brands of all-purpose cleaners: one ecological brand, two A-brands and one private label. The A-brands were about 10% cheaper than the green brand; the private label was 34% cheaper. Respondents were asked to indicate which product they would buy. Price-related information was included to make the experiment more realistic as a price premium is an inherent feature of most ecological products.

As described above, the explicit attitude measure did not include leading questions and both the attitude and behavioral intention measure related to concrete cleaning products. For half of the respondents the explicit measures started with the behavior and the behavioral intention questions, for the other half the first questions were related to attitudes.
5.2. Results

5.2.1. Explicit attitudes

Attitudes toward the ecological ($M_{\text{ecological}} = 4.80$) and traditional cleaning product ($M_{\text{traditional}} = 4.72$) did not differ significantly, $t(60)<1$. Both scores were significantly more positive than the scales mid-point, showing that the participants had a positive attitude toward both products. In order to be able to compare explicit and implicit attitude measures in further analyses, we related both explicit measures in a difference score. The difference score was calculated by subtracting the ratings for the traditional product from ratings for the green product, resulting in a relative explicit attitude measure ($M_{\text{difference}} = .08$). Positive values on the difference score indicate a favorable rating of the green product, negative scores a favorable rating of traditional products.

5.2.2. IAT measure

In accordance with Greenwald et al. (1998) reaction times shorter than 300 ms and larger than 3000 ms were recoded into 300 ms and 3000 ms respectively. Also, the first two trials of each block were dropped because of their typically longer latencies, as were reaction times and trials with an incorrect response. Next, reaction times were log-transformed. However, for reasons of clarity, response latencies in terms of ms will be reported in further analyses (See Greenwald et al., 1998). The average error rate was 2.75% (range 0%-12.5%).

Results showed that respondents had on average significantly shorter reaction times when the green product was paired with positive words ($M = 832$ ms) than when the traditional product was paired with positive words ($M = 883$ ms), $t(57) = 2.38$, $p = .02$. This indicates that respondents in general had more positive implicit attitudes toward the green than toward the traditional product.
5.2.3. *Relationship between explicit attitudes, implicit attitudes, and behavioral intention.*

Table 1 shows implicit and explicit attitudes toward ecological products (relative to traditional products) as a function of behavioral intention. The results of two independent samples *t*-tests indicate that the IAT effect, but not the explicit difference score, differentiated between respondents intending to buy the real ecological all-purpose cleaner and those intending to buy the real traditional all-purpose cleaner. With respect to the fictitious brands (see Table 2), the independent samples *t*-tests showed that the explicit difference score significantly differentiated between respondents preferring the ecological brand and those preferring the traditional brand. The IAT was related to behavioral intention toward the fictitious brands in the expected direction: respondents willing to buy the ecological brand showed more positive implicit attitudes toward the green brand as compared to those willing to buy the traditional brand. However, the difference was not significant. Finally, the IAT was not correlated with the explicit difference score (*r* = .19, *p* = .15).

Table 1: Explicit and implicit attitudes toward the fictitious products as a function of purchase intention for real products in Experiment 1.

<table>
<thead>
<tr>
<th>Attitude measure</th>
<th>Green all-purpose cleaner</th>
<th>Traditional all-purpose cleaner</th>
<th><em>p</em></th>
<th><em>t</em> (60)</th>
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<td></td>
<td>(<em>n</em>=12)</td>
<td>(<em>n</em>=48)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explicit difference measure</td>
<td>.63</td>
<td>.06</td>
<td>.27</td>
<td>1.12</td>
</tr>
<tr>
<td>IAT effect (ms)</td>
<td>132</td>
<td>29</td>
<td>.05</td>
<td>1.99</td>
</tr>
</tbody>
</table>
Table 2\textsuperscript{9}: Explicit and implicit attitudes toward the fictitious products as a function of purchase intention for fictitious products in Experiment 1.

<table>
<thead>
<tr>
<th>Attitude measure</th>
<th>Green cleaning product ((n=40))</th>
<th>Traditional cleaning product ((n=20))</th>
<th>(p)</th>
<th>(t(60))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit difference measure</td>
<td>.85</td>
<td>-1.48</td>
<td>&lt;.001</td>
<td>-5.48</td>
</tr>
<tr>
<td>IAT effect (ms)</td>
<td>75</td>
<td>2</td>
<td>.14</td>
<td>-1.51</td>
</tr>
</tbody>
</table>

5.3. Discussion

The results of Experiment 1 confirm findings of previous research as the explicit attitude measure showed strong positive attitudes toward the green product. Because these positive explicit attitudes might be distorted by typical drawbacks of explicit measurement, we expected that an implicit attitude measurement might give a less optimistic view on consumers’ green attitudes. Surprisingly, the reverse was true. Whereas explicit attitudes toward the green and traditional product did not differ, the implicit attitude toward the green product was significantly more positive than the implicit attitude toward the traditional product. This means that we did not find support for the hypothesis that implicit attitudes are less positive toward green products as compared to traditional products.

Finding positive implicit attitudes does, however, not indicate that implicit attitudes play no role in the purchase of green products. This first experiment showed that interindividual differences in implicit attitudes as measured by the IAT were significantly related to interindividual differences in purchase intentions of real green brands. Those participants who said that they would purchase an existing ecological all-purpose cleaner had a more positive implicit attitude toward the environmentally friendly brand (as compared to the traditional brand) than participants who said that they would buy the traditional product. What is even more interesting is that implicit attitudes were related to purchase intentions when explicit attitudes were not. That is, purchase intentions with

\textsuperscript{9}The differential distribution of respondents over the two types of products in Table 1 and Table 2 can be ascribed to the fact that the results in Table 1 reflect respondents’ choice out of four alternatives (one environmentally friendly all-purpose cleaner and three traditional all-purpose cleaners), whereas the results in Table 2 reflect respondents’ choice between on the one hand an environmentally friendly cleaning product and on the other hand a traditional cleaning product.
Implicit Attitudes toward Green Consumer Behavior

regard to real products were related to implicit but not explicit attitudes toward the fictitious ecological and traditional brands. Further, the IAT was related in the expected direction to purchase intentions toward the fictitious brands, although not significantly. These findings strongly suggest that implicit attitudes and behavioral intention are interrelated and that implicit attitudes may provide a unique insight in green consumer behavior.

However, the use of fictitious products in the current experiment might have led to an underestimation of the (automatic) processes operative when evaluating and buying real cleaning products (at the time of purchase). That is, when using fictitious brands in the attitude measure, 'traces of past experience' with the concrete product might not moderate its evaluation. Although past experience with green products in general is likely to have influenced the evaluation of the fictitious brands, we believe that including both attitude and behavioral intention measures toward real, concrete products might evoke to a larger extent processes active at the time of purchase. Evoking processes active at the time of purchase might be important because the data in Experiment 1 suggest that the IAT has registered a more general affective reaction toward ecological cleaning products in general rather than a rational weighting of the characteristics of the fictitious brands. That is, implicit attitudes toward the fictitious products related to purchase intention toward the real, but not the fictitious products. We will elaborate on this conclusion in the general discussion.

Further, on the basis of the current experiment, we cannot conclude that only implicit attitudes are related to purchase intention toward real environmentally friendly products. It is for instance possible that explicit attitudes toward the fictitious brands are not associated with behavioral intention toward real products because of a mismatch in the level of specificity of both measures. After all, according to Ajzen (1991) and Ajzen and Fishbein (1977), attitude and behavior measures should match in their levels of specificity in order to find a relationship. This means, for instance, that attitudes that are measured toward environmentally friendly consumer behavior in general will not relate to behavior with respect to specific products or vice versa.

In order to address the remarks emerging from Experiment 1, Experiment 2 included attitude measures toward real cleaning products.
6. Experiment 2

The purpose of Experiment 2 was to measure implicit and explicit attitudes toward two assortments of real cleaning products. Further, purchase intentions with respect to the assortment were registered.

6.1. Method

6.1.1. Participants

Thirty-one university students (15 women, 16 men) between 18 and 29 years old ($M_{age} = 22.39, SD = 2.95$) participated in Experiment 2 in exchange for a movie-ticket.

6.1.2. Overview

The experiment consisted of four phases: (1) inspection of the products displayed on the table, (2) an IAT, (3) an explicit measure of attitudes toward the two assortments (displayed on the table), and (4) a behavioral intention measure. The experiment was conducted individually and took about 25 minutes.

6.1.3. Exposure

Upon arrival in the laboratory, respondents were asked to look at two product assortments displayed on a table. The first assortment was labeled ‘ecological assortment’ and contained four environmentally friendly cleaning products sold in Belgium: Two products of the brand ‘Ecover’ (bathroom-cleaner and all-purpose-cleaner) and two products of the brand ‘Froggy’ (abrasive cream and toilet-cleaner). The other – ‘traditional’- assortment included the same four types of cleaning products, but now of the (environmentally harmful) Cif and Bref brands. Participants were confronted with these products and labels in order to be sure that each respondent knew that the products in the one assortment had environmentally friendly characteristics, while the products in the other assortment did not (and so avoiding high error rates in the IAT). Further, the presence of the products was expected to evoke conscious (and unconscious) representations of previous experiences with this type of products, processes that might direct evaluation.
Implicit Attitudes toward Green Consumer Behavior

6.1.4. IAT

After looking at both assortments for a few seconds, respondents were asked to perform the IAT. The IAT was designed to measure implicit attitudes toward the two assortments displayed on the table. The target stimuli consisted of pictures of the products belonging to the two assortments. All pictures had the same format, size and brightness. Pictures were used because earlier research demonstrated that pictures could be evaluated automatically and even faster than words (De Houwer & Hermans, 1994; Giner-Sorolla, Garia & Bargh, 1999; Hermans, De Houwer & Eelen, 1994). As attribute stimuli, the positive and negative words of Experiment 1 were used. The target category labels (displayed in the top corners of the screen) were ‘ecological’ versus ‘traditional’, the attribute category names again ‘positive’ versus ‘negative’. The task instruction was to assign the pictures and words to the appropriate category. Besides this, the IAT was similar to the one in the first experiment.

6.1.5. Explicit measures

The explicit attitude measures were six-item seven-point scales measuring attitudes toward the two assortments as a whole (and not toward the individual products belonging to the assortments). The behavioral intention measure determined intentions toward the two assortments.

6.2. Results

6.2.1. Explicit attitudes

As in experiment 1 and in line with the expectations, the results revealed attitudes toward the ecological assortment that were significantly more positive than the scales’ mid-point \( p < .001 \) and that did not differ from the attitudes toward the traditional assortment \( M_{\text{green}} = 4.75, M_{\text{traditional}} = 4.53, t(31) = 1.15 \). Again, we calculated a difference score to enable a comparison between explicit and implicit measures in further analysis. The difference score was obtained by subtracting the ratings for the traditional assortment from the ratings for the green assortment, which resulted in a relative explicit attitude measure with a mean score of .22.
6.2.2. *Implicit attitudes*

IAT effects were calculated in the same way as in Experiment 1. The average error rate was 3% (range 0%-19%). The implicit attitude measure revealed response latencies that did not differ when the ecological assortment was combined with positive attributes ($M_{\text{combination 1}} = 959$ ms) as compared to when the traditional assortment was combined with positive attributes ($M_{\text{combination 2}} = 949$ ms), $t(31) = -.21, p = .83$. This means that respondents hold similar implicit attitudes toward the ecological and the traditional product, a finding that does not support the expectations formulated in section 4.

6.2.3. *Relationship between explicit or implicit attitudes and behavioral intention*

The results of an independent samples $t$-test showed that both the IAT and the explicit difference score were related to the behavioral intention measure. Respondents who chose the ecological products demonstrated significantly more positive scores on the IAT and the explicit difference measure as compared to respondents choosing the traditional products (see Table 3). This finding is in line with our expectations because both the implicit and explicit attitude measures are related to the purchase intention measure, indicating that both spontaneous and deliberative processes are related to purchase intentions for environmentally friendly products.

Finally, we found a positive but far from perfect correlation between the implicit and explicit attitude measures ($r=.40, p<.05$).

<table>
<thead>
<tr>
<th>Table 3: Explicit and implicit attitudes toward the assortments as a function of behavioral intention toward the assortments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assortment choice</td>
</tr>
<tr>
<td><em>Attitude measure</em></td>
</tr>
<tr>
<td>Ecological assortment</td>
</tr>
<tr>
<td>Traditional assortment</td>
</tr>
<tr>
<td>$(n=23)$</td>
</tr>
<tr>
<td>$(n=8)$</td>
</tr>
<tr>
<td>Explicit difference measure</td>
</tr>
<tr>
<td>.43</td>
</tr>
<tr>
<td>.40</td>
</tr>
<tr>
<td>.06</td>
</tr>
<tr>
<td>1.98</td>
</tr>
<tr>
<td>IAT effect (ms)</td>
</tr>
<tr>
<td>51</td>
</tr>
<tr>
<td>-186</td>
</tr>
<tr>
<td>.02</td>
</tr>
<tr>
<td>2.55</td>
</tr>
</tbody>
</table>
6.3. Discussion

The results of the IAT showed similar implicit attitudes toward the ecological and traditional assortment. Further, interindividual differences in implicit attitudes were significantly related to interindividual differences in purchase intentions. Respondents intending to buy ecological products, showed significantly more positive implicit attitudes toward the ecological products as compared to respondents intending to buy traditional products. Moreover, the same differentiation was found for the explicit attitude measures, a finding that indicates that both implicit and explicit processes guide the purchase of cleaning products.

7. Experiment 3

The purpose of Experiment 3 was to examine whether the use of neutral (instead of concrete) labels in the IAT would affect the IAT effect found in Experiment 2. De Houwer (2001) argued that the labels used to represent the target concept determine IAT effects rather than the individual stimuli. However, by using concrete labels, task instructions in the IAT already force respondents to evaluate the stimuli in terms of 'traditional' versus 'ecological' products. In order to examine whether respondents would use (automatically) the same categorization when encountering the stimuli used in the IAT, we measured implicit and explicit attitudes toward the two assortments of real cleaning products introduced in the IAT as 'Assortment I' and 'Assortment II'.

7.1. Method

7.1.1. Participants

The respondents were 72 undergraduate students (35 women, 37 men) recruited from several departments of Ghent University. All participants were between 18 and 27 years old ($M_{age} = 22.03$, SD = 2.13).
7.1.2. Overview

The experiment consisted of five phases: (1) inspection of the products displayed on the table, (2) a learning phase, (3) an IAT, (4) an explicit measure of attitudes toward the two assortments (displayed on the table), and (5) a behavioral intention measure. The experiment was conducted individually and took about 25 minutes.

7.1.3. Exposure

Similar to Experiment 2, respondents were asked upon arrival in the laboratory to have a thorough look at the two product assortments displayed on the table. The products in the assortments were identical to the ones in Experiment 2. The assortments were labeled ‘Assortment I’ and ‘Assortment II’. For half of the respondents ‘Assortment I’ contained the four environmentally friendly products, while ‘Assortment II’ consisted of the traditional cleaning products. For the other respondents ‘Assortment I’ represented the traditional cleaning products while ‘Assortment II’ introduced the environmentally friendly products. Respondents were randomly assigned to the two treatment groups.

7.1.4. Learning phase

The purpose of the learning phase was to be certain that respondents associated each product with the correct assortment. During the learning phase, both assortment labels were presented together with each of its four products on one trial. Respondents were instructed to memorize the assortment labels and their accompanying products. Each trial in the learning phase consisted of three sub events: the assortment label for 2500 ms, a black screen for 1000 ms and a picture of a cleaning product for 5000 ms. The inter trial interval was 4000 ms. In the memory test following the learning phase, respondents had to indicate to which assortment the product presented on the computer screen belonged by pressing the appropriate key. When the memory test was error free (which was the case for all respondents), the IAT was instigated.
7.1.5. IAT

The IAT measured implicit attitudes toward the two assortments displayed on the table. The target stimuli consisted of pictures representing the cleaning products. The pictures were identical to the pictures in experiment 2. Contrary to Experiment 1 and 2, the attribute stimuli were pictures (and not words) of positive and negative valence. All pictures had an average valence score that was higher than 7 on the International Affective Picture System (Lang, Bradley & Cuthbert, 1999). The target category labels were ‘Assortment I’ and ‘Assortment II, the attribute category labels were ‘positive’ and ‘negative’. Participants were instructed to assign the pictures to the corresponding categories as fast and accurately as possible. In all other respects, the IAT was identical to the one in previous experiments. After the computer-aided tasks, respondents filled in a paper-and-pencil questionnaire.

7.1.6. Explicit measures

We used the same explicit attitude and behavioral intention measures as those in Experiment 2, which measured attitudes and behavioral intentions toward the two assortments. Half of the respondents first dealt with the behavioral intention questions followed by the attitude measure, while for the other half of the respondents the reverse was true.

7.2. Results

7.2.1. Explicit attitudes

In line with previous findings and hypothesis 1, the explicit measures showed attitudes toward the ecological assortment that were significantly more positive than the scales’ mid-point \(p<0.001\) and that were of equal level as the attitudes toward the traditional assortment \(M_{\text{ecological}} = 4.56, M_{\text{traditional}} = 4.71, t(71) <1, p=0.434, M_{\text{differencescore}} = -0.16\).

\(^{10}\) The IAPS numbers of the picture used in Experiment 3 are: 1710, 2340, 2540, 4641, 8380, 8461 (positive pictures) and 3100, 3350, 6010, 6313, 9040, 9433 (negative pictures).
7.2.2. Implicit attitudes

The IAT effect was calculated in the same way as in the previous experiments. One respondent had to be excluded from the analyses because of an average error rate higher than 30% in the incompatible block (cf. Maisen et al., 2001). The high error rate suggested that the respondent either misunderstood the task or did not carry it out seriously. The average error rate of the other respondents was 2.45% (range 0%-22.92%). The implicit attitude measure revealed a non-significant negative IAT effect ($M=4$ ms), indicating that the response latencies did not differ when the ecological assortment was combined with positive words ($M=948$ ms) as compared to when the traditional assortment was combined with positive words ($M=944$ ms), $t(69)<1$. This result is in contrast with expectations and in line with the results found in Experiment 2.

7.2.3. Relationship between explicit and implicit attitudes and behavioral intention

Both the implicit and explicit attitude measures differentiated between respondents choosing for the ecological products and those choosing for the traditional products on the behavioral intention measure (Table 4).

Table 4: Explicit and implicit attitudes toward the assortments as a function of behavioral intention for the assortments in Experiment 3

<table>
<thead>
<tr>
<th>Assortment choice</th>
<th>Ecological (n=38)</th>
<th>Traditional (n=31)</th>
<th>$p$</th>
<th>$t$ (69)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attitude measure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explicit difference measure</td>
<td>.63</td>
<td>-1.15</td>
<td>&lt;.001</td>
<td>5.12</td>
</tr>
<tr>
<td>IAT effect (ms)</td>
<td>65</td>
<td>-88</td>
<td>.003</td>
<td>3.04</td>
</tr>
</tbody>
</table>

Again, a positive correlation was found between the IAT and the explicit difference score ($r=0.33$, $p<.01$).
7.2.4. Logistic regression\textsuperscript{11}

Experiment 3 replicated the findings of Experiment 2. And perhaps this may not be that surprising. More specifically, it is possible that the learning task in Experiment 3 created the following associations: Assortment I = ecological products, and Assortment II = traditional Products (and visa versa based on counterbalanced design). Thus, respondents did not have to remember the assortments per se – it is possible that they just learned the mnemonic device and then they could correctly perform the memory task. Taking into account that (1) both studies show the same results, (2) the design of Experiment 3 en 2 is very much alike and (3) the small sample sizes in the two experiments, we decided to combine the two samples in order to perform a hierarchical logistic regression analysis on these combined samples. Such an analysis should provide insight in the relationship between explicit and implicit measures and their ability to predict choice. The criterion for the logistic regression analysis was the dichotomous behavioral intention variable 'choosing the ecological or the traditional assortment'. The explicit and implicit predictors (attitude measures) were the standardized values of the explicit and implicit differences scores (positive scores indicated preference for the ecological assortment). The correlation between the explicit and implicit predictors was 0.33 (**p** = .001). In the stepwise logistic regression, the explicit difference score was entered in the first step and the IAT in the second step.

\[
\text{'Intention to choose the ecological assortment'} \approx \\
Z = B_0 + B_1 \text{Explicit attitudes} + B_2 \text{Implicit attitudes}
\]

The logistic regression analysis enabled us to estimate the additional predictive value of the implicit attitude measure beyond the influence of the explicit measure. The analysis yielded a significant positive relationship between the dependent variable on the one hand and the explicit ((Exp(B)=5.30, B=1.67, **p**<.001) and implicit difference score ((Exp(B)=4.51, B=.59, **p**=.03) on the other hand (Nagelkerke $r^2$=.44). The overall $-2 \log$ likelihood difference for the fitted logistic model indicated a significant fit (**p**<.001). Moreover, we found a significant decrease of the $-2 \log$ likelihood in the transition from

\textsuperscript{11} We thank the anonymous reviewer of Journal of Consumer Psychology for suggesting us that perhaps Experiment 2 en 3 may not be that different and that performing a logistic regression analysis on the combined samples would provide a more insightful analysis.
the first model to the full model ($p=.03$). This result implies that the IAT accounts for 18% unique contribution to the prediction of behavior (see Table 5).

Table 5: Logistic regression analysis

<table>
<thead>
<tr>
<th></th>
<th>-2LL</th>
<th>$\chi^2$</th>
<th>df</th>
<th>Nagelkerke $r^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDS</td>
<td>100.49</td>
<td>34.24**</td>
<td>1</td>
<td>.26</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IAT</td>
<td>95.57</td>
<td>4.92*</td>
<td>2</td>
<td>.44</td>
</tr>
</tbody>
</table>

$\Delta=4.92$  Tot$=39.17**$  $\Delta=.18$

EDS = explicit attitude difference score; IAT = implicit attitude difference score (for both measure positive scores indicate preference for ecological products); ** = $p < .001$; * = $p < .05$

7.3. Discussion

Experiment 3 replicated the findings in Experiment 2, despite the use of neutral category labels and pictures in both the attribute and target concept category. The explicit attitude measures revealed strong positive attitudes toward the ecological assortment. Implicit attitudes toward both assortments did not differ. Further and more importantly, interindividual differences on both attitude measures were related to interindividual differences in behavioral intentions. Respondents intending to buy ecological products held implicit and explicit attitudes that were significantly more positive than the attitudes held by respondents intending to buy traditional products. That was further confirmed in a logistic regression analysis based on the data of Experiment 2 and 3. Moreover, the regression analysis demonstrated that the IAT provides unique contribution to the prediction of behavior after the influence of the explicit measure was controlled for.

8. General discussion

The purpose of this research was to examine the usefulness of implicit attitude measures with respect to environmentally friendly products. In line with previous research, the three experiments revealed equally positive explicit attitudes toward environmentally friendly low-involvement products. In Experiment 1, implicit attitudes toward the ecological brand were significantly more positive as compared to those toward
the traditional brand, whereas in Experiment 2 and 3 implicit attitudes toward the ecological assortment did not differ from those toward the traditional assortment. These findings are contrary to expectations as they suggest that implicit attitudes toward environmentally friendly products are not as negative as could be expected on the basis of previous research and actual consumer behavior (Kardes et al., 1993; La Trobe & Acott, 2000; Roozen & De Pelsmacker, 1998). This implies that we did not find support for the hypothesis that positive explicit attitudes result from drawbacks of explicit measurement such as social desirability bias or impression management formation. By exclusion, it thus seems that the weak attitude-behavior relationships often found in green consumer behavior research can be ascribed to intrinsic features of environmentally friendly products such as their discordant character or the fact that the ethical aspect is just not taken into account rather than to measurement problems of explicit attitude measures.

However, the conclusion that implicit attitudes toward environmentally friendly products are equally or even more positive does not imply that implicit attitudes are unrelated to purchase intention. On the contrary, when real products were involved, implicit attitudes related significantly with purchase intention, even when the explicit attitude measure did not. For the three experiments, we found that respondents intending to buy real ecological product(s) held more positive implicit attitudes toward the ecological product(s) than toward the traditional product(s) and vice versa. This conclusion cannot be drawn for explicit attitude measurement, as in Experiment 1 explicit attitudes were only related to purchase intention toward the fictitious brands and not to real products. This suggests that purchase intention toward real products relates more consistently with implicit than explicit attitudes toward fictitious brands. Finally and most importantly, a logistic regression analysis based on the data of Experiment 2 and 3 further confirmed that -when real products are involved- both explicit and implicit attitudes relate to behavior. Moreover, the analysis showed that the IAT independently contributed to the prediction of behavior.

A possible explanation for the explicit attitude measure being related to behavioral intention toward assortments of real products in Experiment 2 and 3, but not to the real all-purpose cleaner in Experiment 1, is that attitude and behavior measures did not have the same level of specificity. These findings confirm previous research (Ajzen, 1991; Ajzen & Fishbein, 1977) suggesting that explicit attitude and behavioral intention measures should match on level of specificity in order to find a relation between both. Further, finding a relationship between the explicit attitude measure and the purchase
intention measure when both measures relate to real products (in Experiment 2 and 3), but not when the explicit attitude measure relate to fictitious brands and the purchase intention measure to real products (Experiment 1), suggests that the evaluation of fictitious brands differs from the evaluation of concrete products. Because explicit attitudes are by definition a rational weighting of explicit product characteristics (Ajzen & Fishbein, 1977), it is likely that in case of fictitious brands, evaluation is the result of rationally weighting characteristics such as ‘green label’, ‘recyclable’, ‘minimal packaging’, etc listed (but not visualized) at the beginning of the experiment. However, when real products are involved, it can be presumed that other (more) product characteristics are included in the weighting, such as previous experience with the concrete product(s), concrete price indications, a less (more) attractive packaging, the scent the product gives out, familiarity with the product (e.g. due to commercials on television), etc.

From this perspective, it is interesting to note that our data suggest that implicit attitude-behavioral intention relationships will be found for real products, even when the level of specificity of both measures differs. This could be due to the fact that the IAT captures an overall spontaneous affective reaction toward the ‘ecological cleaning products’ rather than a rational weighting of explicit product characteristics (Rudman 2004).

In sum, the current paper shows positive or neutral implicit attitudes toward environmentally friendly products (as compared to traditional products) that do relate to environmentally friendly consumer behavior, even more consistently than explicit attitudes when real products are involved. Furthermore, implicit attitudes were shown to contribute to the prediction of behavior independently of explicit attitudes. In other words, implicit attitudes account for variations in green consumer behavior over and above those explained by explicit measures. However, several questions on the relationship between explicit and implicit attitudes remain unanswered and lay beyond the scope of this article. Therefore, future research should concentrate on the conditions under which implicit versus explicit attitudes are more/less related to behavioral intentions or when one type and not the other (and visa versa) is related to intentions. Related to the latter questions is that more insight is needed on the malleability of implicit attitudes and their sensitivity to social norms. Are implicit attitudes indeed expressed
without intention or control$^{12}$ (Dasgupta et al. 2003) and therefore less sensitive to social norms? Or, on the contrary, are implicit attitudes— as Wittenbrink et al. (2001) and Blair and colleagues (2001) indicate— context dependent, malleable and thus just like explicit measures subject to social desirability bias? Further, it remains unclear whether the IAT measures individual attitudes rather than cultural associations. Banaji (2001) and Lowery et al. (2001) for instance have emphasised the difficulty of distinguishing cultural associations from personal ones because attitudes are likely to stem from learning experiences in a particular culture. In racial prejudice research for instance, it is argued that the strong associations between Blacks and negativity for both Black and White respondents can (at least) partly be ascribed to the fact that Blacks have been historically portrayed in a negative manner by American society (Nosek, Banaji and Greenwald, 2002; Fazio and Olson, 2003). In this respect, the fairly positive implicit attitudes toward green products could be the result of culturally imposed associations between green products and positivity.

The current study could be extended to other product categories, for instance a hedonic instead of an utilitarian product. As the purchase of hedonic products is especially driven by affective motives, implicit attitudes may reach rich insights in the attitude-behavior relationship concerning those products. Finally, it remains valuable to look for areas of consumer behavior for which implicit measurement may be more accurate since it is suggested that explicit measurements are influenced by social desirability biases or other distortions. Examples of such areas are attitudes toward controversial ads, containing for example sex, nudity, or homosexual elements (Maison et al., 2004). Similar, the IAT could be used to better understand (implicit) attitudes toward risky behaviors such as drinking and driving, drug abuse, etc.

Another range of applications for the IAT is the study of brand attitudes and the role of brands in consumer decisions. Because brand attitudes often operate through brand images that are not necessarily conscious, explicit measurement may not be sufficient. Finally, the IAT has potential in new product development and in advancing research concerning brand relationships (Fournier, 1998), brand community (McAlexander, Schouten, & Koenig, 2002) and consumer identity.

$^{12}$ According to Dasgupta et al. (2003), for the IAT, the emphasis is on controllability and not on 'automaticity': 'IAT responses are considered automatic because they are expressed without intention or control, although perceivers may become aware of the attitude under scrutiny during the task'
9. Addendum

In Chapter 4 (section 3.3 and 4) we discussed some problems and disadvantages related to the IAT. One disadvantage is that the IAT is only a relative measure of implicit associations, that is, the IAT can not reveal respondents’ implicit attitudes to one single attitude-object (e.g. environmentally-friendly products). Further, there is the problem of task-recoding. Respondents may recode task instructions in order to simplify the categorization task. In response to these problems, De Houwer (2003) developed the Extrinsic Affective Simon Task (EAST). To meet the principles of method triangulation and to gain more insights in consumers’ implicit attitudes toward green consumer behavior, we added to Experiments 1 and 3 an EAST measure. In a typical EAST, white and colored words have to be classified in one and the same task. Respondents are told that for the white words valence is important and that for the colored words color is important (with the colored words representing the attitude-objects). Subsequently, they are instructed to press one key for positive white words and e.g. green words and to press another key for negative white words and e.g. blue words. The idea is that by assigning one response key (e.g. the left response key) to positive white words and the other (e.g. the right response key) to negative white words, the response keys become extrinsically associated with positive or negative valence.

9.1. The EAST in experiment 1

The purpose of the EAST included in Experiment 1 was to measure consumers’ implicit attitudes toward the two fictitious brands of cleaning products separately. Further, because in the EAST respondents have to classify stimuli within one and the same task, bias due to task recoding could be avoided. In the discussion, we will draw some conclusions and compare the results with the scores on the IAT and the explicit attitude measure.

9.1.1. Method

9.1.1.1. Materials

During the EAST task, the two fictitious brand names ‘Matu’ and ‘Giko’ were presented on the colored trials, while six positive (love, peace, funny, honest, beautiful,
happiness) and six negative words (death, cancer, hatred, ugly, fake, impudent) were presented on the white trials. The brand names appeared either in a pink or purple color. We created the pink color by setting the red, blue, and green values in the Inquisit program at 250, 120 and 210 respectively. The red, blue and green values for the purple color were 210, 120, and 250 respectively. Consequently, the pink and purple colors were quite similar. All words were presented on a black background.

9.1.1.2. Procedure

Half of the respondents completed the EAST immediately after the learning phase, that is, before both the IAT and the questionnaire; the other half of the respondents conducted the EAST after completing the IAT and before the questionnaire. The respondents received written instructions on the computer screen. Each time a word was presented on the computer screen, respondents were asked to classify the words by pressing the good key (i.e. key M) or the bad key (i.e. key Q) depending on the meaning or color of the presented word. For white words (i.e. not colored) the meaning of the words was important; for colored words color was the most important attribute. We instructed respondents to press the good key (M) when white words with a positive meaning or pink words (irrespective of their meaning) appeared on the computer screen. The bad key (Q) had to be pressed in response to white words with a negative meaning or purple words. Further, we informed respondents that a red cross would appear on the screen in case the response was not correct. Respondents were asked to respond as quickly but also as accurately as possible.

The experiment started with a practice block (16 trials) during which respondents had to classify white words that were presented in a random order. During the second practice block (16 trials) each of the two brands were presented four times in the pink and four times in the purple color. Three test blocks of 48 trials each followed the two practice blocks. During a test block, 8 positive and 8 negative words appeared on the screen, next to the two brand names. Both brand names (‘Matsu’ and ‘Giko’) were presented 8 times in the pink and 8 times in the purple color. We included task instructions at the beginning of each block. In all blocks, stimuli were presented in a random order with the restriction that the same word could not be presented on two or more consecutive trials and that the required response could not be the same on four or more consecutive trials. Each trial
consisted of the following sequence: a white fixation double point for 500 ms and the word until a response was given. The intertrial time was 1500 ms.

9.1.2. Results

We analysed the data of the test trials on which the brand names ‘Giko’ and ‘Matu’ were presented in color. For half of the respondents ‘Giko’ referred to a fictitious environmentally-friendly cleaning product and ‘Matu’ referred to a fictitious traditional cleaning product. In the other condition ‘Giko’ represented the traditional cleaning product and ‘Matu’ the environmentally-friendly one. Thereby, only the response time and accuracy of trials with a correct response were taken into account. In accordance with the analysis of the IAT data, we recoded reaction times below 300 ms and above 3000 ms into 300 ms and 3000 ms respectively (Greenwald et al., 1998). Next, latencies were log-transformed, however, for reasons of clarity response latencies in ms will be reported. We excluded four respondents out of the analysis because of extreme high reaction times. Following De Houwer (2003) we calculated the mean log-transformed reaction time and the percentage of errors separately for (1) trials on which the brand name of the traditional product was presented and an extrinsically positive response was required (M, i.e. the response that was assigned to positive white words), (2) trials on which the brand name of the traditional product and an extrinsically negative response (Q, i.e. the response that was assigned to the negative white words) were paired, (3) trials with the brand name referring to the environmentally friendly product and an extrinsically positive response was required, and (4) trials with the brand name referring to the environmentally-friendly product and an extrinsically negative response were assigned to the same response key. We analysed the mean log-transformed reaction times and errors 13 (see Table 6) in a 2 (type of product: traditional or environmentally-friendly) x 2 (extrinsic response: positive or negative) ANOVA with repeated measures on both variables. The results showed a significant main effect of extrinsic response valence in the analysis of reaction times, F(1, 51)=48.40, p<.001 but not in the analysis of errors, F(1, 51)=.32, p=.58. Respondents were faster when the response associated with positive valence was required and equally accurate for both type of responses. Further, we found a marginal significant interaction effect between type of product and extrinsic response valence for the error data F(1,

13 Error data were also analysed because standard affective Simon effects also emerge in error data (e.g. De Houwer & Eelen, 1998)
Respondents made significantly fewer errors when the traditional cleaning product and positive words shared the same response key as compared to when the environmentally-friendly and positive words shared the same response key ($t(51)=-2.03, p=.05$). We did not find an interaction effect for the reaction time data $F(1,51)=.79, p=.38$. We calculated an EAST score separately for the traditional cleaning product and the environmentally friendly cleaning product by subtracting the mean log-transformed reaction time and percentage of errors on trials with an extrinsically positive response from the mean log-transformed reaction time and percentage of errors on trials with an extrinsically negative response. This implies that a positive EAST score signifies a positive attitude. On trials with a colored brand name referring to the traditional cleaning product, respondents reacted faster when positive responses as compared to negative responses were required ($t(51)=-3.38, p=.001$, mean EAST score=51 ms), and equally accurately ($t(51)=-1.33, p=.19; M=1.45\%$). On trials with the colored brand name of environmentally-friendly product, positive responses were faster ($t(51)=-5.93, p<.001$, mean EAST score=86 ms) and equally accurately ($t(51)=-.77, p=.45, M=0.61\%$).

**Table 6: Mean untransformed reaction times in ms and percentage of errors (SD in parentheses) on target stimulus trials as a function of stimulus valence and extrinsic response valence in Experiment 1**

<table>
<thead>
<tr>
<th>Stimulus Valence</th>
<th>Extrinsic Response Valence</th>
<th>Reaction Time</th>
<th>Percentage of Errors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional product</td>
<td>Positive</td>
<td>772 ms (187)</td>
<td>1.65% (2.94)</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>822 ms (203)</td>
<td>3.10% (7.03)</td>
</tr>
<tr>
<td>Environmentally-Friendly product</td>
<td>Positive</td>
<td>741 ms (140)</td>
<td>2.93% (4.19)</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>827 ms (182)</td>
<td>2.32% (4.66)</td>
</tr>
</tbody>
</table>

Table 6 indicates that respondents held a positive attitude toward both traditional and environmentally-friendly products.
9.1.2.1. Relationship between EAST scores, IAT- and Explicit difference scores and behavioral intention.

We found a significant positive correlation between the IAT difference score and the EAST difference score \(^{14}\) based on reaction times (for both measures positive scores indicate a preference for the environmentally-friendly brand, \(r=.42, p=.002\)) and a marginal significant correlation between the IAT and the EAST difference score based on errors (\(r=.26, p=.06\)). No correlation was found between the EAST difference scores and the explicit difference score (\(r_{\text{reaction times}}=-.04, p=.78; r_{\text{error}}=-.01, p=.93\)). Further, the EAST difference scores did not relate to neither purchase intention with respect to the fictitious brands (\(t_{\text{reaction times}}(50)=.02, p=.98, t_{\text{error}}(50)=-.72, p=.48\)) nor purchase intention related to the real cleaning products (\(t_{\text{reaction times}}(50)=-.11, p=.92, t_{\text{error}}(50)=-.75, p=.46\)). However, the EAST error score for both the traditional (\(t(50)=2.59, p=.01\)) and environmentally-friendly products (\(t(50)=-2.38, p=.02\)) discriminated between respondents intending to buy the fictitious environmentally-friendly cleaning product that was presented in the experiment and those intending to buy the fictitious traditional cleaning product (Table 7).

<table>
<thead>
<tr>
<th>EAST error scores</th>
<th>Green cleaning product</th>
<th>Traditional cleaning product</th>
<th>(p)</th>
<th>(t(50))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional product</td>
<td>-.49</td>
<td>5.11</td>
<td>.01</td>
<td>2.59</td>
</tr>
<tr>
<td>Environmentally-friendly product</td>
<td>1.93</td>
<td>-1.88</td>
<td>.02</td>
<td>-.238</td>
</tr>
</tbody>
</table>

For both EAST error measures positive scores indicate positive attitudes for the respective product.

The EAST scores based on reaction times for both type of products did not relate to behavioral intention with respect to the products in the experiment (EAST\(_{\text{envir}}\) \(t(50)=-.20, p=.84\); EAST\(_{\text{trad}}\) \(t(50)=.35, p=.73\)). Finally, no relation could be found between the EAST scores and EAST error scores on the one hand and purchase intention with respect to real all-purpose cleaners (EAST\(_{\text{trad}}\) \(t(50)=-.12, p=.91, \text{EAST}_{\text{error}} \approx (50) = .38, p=.7\); EAST\(_{\text{envir}}\) \(t(50)=.14, p=.89, \text{EAST}_{\text{error}} \approx (50) = .68, p=.5\)).

\(^{14}\) The EAST difference scores are calculated by subtracting (what we defined as) the incompatible trials (traditional product+negative/environmentally friendly product+positive) from (what we defined as) the compatible trials (traditional product+positive/environmentally friendly product+negative)
9.1.3. Conclusion

The results of the EAST indicate positive implicit attitudes towards both types of products. That is, respondents reacted faster when both brand names and words with a positive valence required the same response as compared to when the brand names and words with a negative valence were assigned to the same response key. However, on average, respondents made more errors when classifying the environmentally-friendly brand. This suggests that the association between positive and the traditional brand name is stronger than the association between positive and the environmentally-friendly brand, a conclusion that cannot be drawn based on the results of the IAT. Further, the analysis of the EAST errors was related to the purchase intention of the fictitious all-purpose cleaner. Finally, the EAST difference score based on reaction times related to the IAT in the expected direction. This is in support of the internal and convergent validity of both measures. Thus, both implicit measures indicate that positive explicit attitudes typically found in research into green consumer behavior are likely to stem from the discordant character of environmentally friendly products, but not from drawbacks of explicit measurement such as social desirability bias. Further, the lack of correlation between the explicit difference score and the EAST scores suggests that both methods measure different constructs.

9.2. The EAST in experiment 2

9.2.1. Method

9.2.1.1. Materials

In line with the IAT of Exp. 3 and different from the EAST in Exp 1, the EAST included mere pictorial stimuli to represent the target and attribute concepts. The reasoning behind this is that pictures are easier to process than words (De Houwer & Hermans, 1994; Kroeber-Riel, 1984). Moreover, when attribute and target categories both exist of pictures, the EAST can be completely processed semantically, a manipulation that might increase reaction speed. In the EAST task, black-and-white pictures of the two assortments with a color filter (pink or purple) placed over them, were presented on the colored trials. The content of the pictures was identical to the picture contents used in the IAT (i.e. four pictures of the traditional and four pictures of the environmentally-friendly
cleaning products). During the white trials, 12 black-and-white pictures with a positive or negative valence (the pictures were identical to the ones used in the IAT) appeared on the screen. All pictures were presented on a black background.

9.2.1.2. Procedure

The procedure was similar to the procedure of the EAST used in Exp. 1. Respondents were instructed to press the good key (M) when black-and-white pictures with a positive meaning or pink pictures (irrespective of their meaning) appeared on the computer screen. The bad key (Q) had to be pressed in response to black-and-white pictures with a negative meaning or purple pictures. A red cross appeared on the screen in case of an incorrect response and respondents were asked to respond as quickly but also as accurately as possible.

9.2.2. Results

We analysed the data of the test trials on which coloured pictures of the traditional and environmentally friendly products were presented. Thereby, only the response time and accuracy of the first response on those trials were taken into account. We excluded reaction times on trials with an incorrect response and we recoded reaction times below 300 ms and above 3000 ms into 300 ms and 3000 ms respectively (Greenwald et al., 1998). Next, latencies were log-transformed, however, for reasons of clarity response latencies in ms will be reported. We excluded one respondent out of the analysis because of extreme high reaction times. Following De Houwer (2003) we calculated the mean log-transformed reaction time and the percentage of errors separately for (1) trials on which a picture of traditional products was presented and an extrinsically positive response was required (M, i.e. the response that was assigned to the positive black-white pictures), (2) trials with a picture of traditional products and an extrinsically negative response (Q, i.e. the response that was assigned to the negative black-white pictures), (3) trials with a picture of environmentally friendly products and an extrinsically positive response, and (4) trials with a negative word and an extrinsically negative response. We analysed the mean log-transformed reaction times and errors (Table 8) in a 2 (type of product: traditional or environmentally-friendly) x 2 (extrinsic response: positive or negative) ANOVA with repeated measures on both variables. The results showed a significant main
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effect of extrinsic response valence in both the analysis of reaction times, $F(1, 70)=60.93$, $p<.001$ and the analysis of errors, $F(1, 70)=6$, $p=.02$. Respondents were faster and made fewer errors when the response associated with positive valence was required. Further and most importantly, the interaction between type of product and extrinsic response valence was significant for the reaction time data $F(1, 70)=19.13$, $p<.001$, and the error data $F(1, 70)=5.47$, $p=.02$. These results suggest that respondents have more positive implicit attitudes towards the environmentally-friendly assortment as compared to the traditional assortment.

Table 8: Mean untransformed reaction times in ms and percentage of errors (SD in parentheses) on target stimulus trials as a function of stimulus valence and extrinsic response valence in Experiment 3

<table>
<thead>
<tr>
<th>Stimulus Valence</th>
<th>Extrinsic Response Valence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
</tr>
<tr>
<td>Traditional product</td>
<td></td>
</tr>
<tr>
<td>Reaction Time</td>
<td>766 ms (166)</td>
</tr>
<tr>
<td>Percentage of Errors</td>
<td>3.7% (8.78)</td>
</tr>
<tr>
<td>Environmentally-Friendly product</td>
<td></td>
</tr>
<tr>
<td>Reaction Time</td>
<td>736 ms (161)</td>
</tr>
<tr>
<td>Percentage of Errors</td>
<td>2.98% (7.41)</td>
</tr>
</tbody>
</table>

We calculated an EAST score separately for the pictures of traditional products and the pictures of environmentally friendly products by subtracting the mean log-transformed reaction time and percentage of errors on trials with an extrinsically positive response from the mean log-transformed reaction time and percentage of errors on trials with an extrinsically negative response. This implies that a positive EAST score signifies a positive attitude. On trials with colored pictures of traditional products, respondents reacted faster when positive responses were required ($t(70)=-4.33$, $p=.001$, mean $\text{EAST}_{\text{trad}}$ score=46 ms), but equally accurately (mean $\text{EAST}_{\text{trad, error}}$=.79%) $t(70)=-.85$, $p=.397$). On trials with colored pictures of environmentally-friendly products, positive responses were faster, $t(70)=-6.45$, $p<.001$, mean $\text{EAST}_{\text{envir}}$ score=123ms and more accurately, mean $\text{EAST}_{\text{envir, error}}$=3.16%, $t(70)=-3.17$, $p=.002$. Thus, the same conclusion as in Experiment 1 can be drawn: respondents have more positive implicit attitudes toward environmentally-friendly products as compared toward traditional products.
9.2.2.1. Relationship between EAST scores, IAT- and Explicit difference scores and behavioral intention.

The results show a marginal significant positive correlation between the IAT and the EAST error difference score (for both measures positive scores indicate preference for the traditional assortment; $r = .23$, $p = .05$), but no correlation could be found between the IAT and the EAST difference score based on reaction times ($r = .069$, $p = .57$). We also did not find a correlation between de EAST difference scores and the explicit difference score (positive score indicates preference for environmentally-friendly cleaning products; $r_{reaction\ times} = -.09$, $p = .44$; $r_{error\ %} = -.05$, $p = .66$). Further, no relation could be found between the two EAST scores (EAST$_{trad}$: $t(69) = .08$, $p = .94$; EAST$_{env}$: $t(69) = .54$, $p = .59$) or the two EAST error scores (EAST$_{trad\ error\ %}$: $t(69) = .62$, $p = .54$; EAST$_{env\ error\ %}$: $t(69) = .64$, $p = .52$) on the one hand and the choice between the traditional versus environmentally-friendly assortment at the end of the experiment on the other hand. Finally, the EAST difference score and the EAST error difference did not relate to either purchase intention ($t_{reaction\ times}(67) = 1.41$, $p = .13$; $t_{error\ %}(67) = .07$, $p = .92$) or assortment choice ($t_{reaction\ times}(69) = .009$, $p = .99$; $t_{error\ %}(69) = .25$, $p = .80$).

9.2.3. Conclusion

As in Experiment 1 the results show that respondents have positive implicit attitudes towards both types of products. However, the ANOVA analysis indicated that the association between positive words and environmentally friendly products was stronger than the association between positive words and traditional products. Moreover, respondents made fewer errors when positive words and pictures of environmentally-friendly products required the same response as compared to when positive words and pictures of traditional products shared a response key. Further, we found a positive correlation between the IAT and the EAST, suggesting convergent validity for both measures. No correlation with the explicit difference score was found, a result that is in support of the EAST’s discriminative validity. We did not find a relation between the EAST scores and behavioral intention toward the assortments included in the experiment.
9.3. General conclusion

Although the EAST measures in the two experiments do not exactly match the scores on the IAT, still some important conclusions from the results on the implicit measures on the one hand and the explicit measures on the other hand can be drawn. In both the experiments we see a significant correlation between the IAT and the EAST, with the implicit measures suggesting that the attitude-behavior gap often found in green consumer behavior research using self-reports can not be attributed to more negative implicit attitudes to environmentally-friendly products. Thereby, our conclusion that the attitude-behavior gap may be the result of the discordant character of environmentally-friendly products is reinforced. Further, the consistent correlation between the IAT and the EAST is in support of the convergent validity of both measures.

10. References


Implicit Attitudes toward Green Consumer Behavior


CHAPTER 7

EXPLICIT AND IMPLICIT DETERMINANTS OF FAIR TRADE BUYING BEHAVIOR
Chapter 7

Explicit and Implicit Determinants of Fair Trade Buying Behavior

1. Abstract

The purpose of the current study was twofold. In a first experiment, we examined the usefulness of an implicit attitude measure (IAT) to explain the weak attitude-behavior relationships often found in research about ethical consumer behavior. We conclude that users of Fair Trade products showed more positive explicit and implicit attitudes toward Fair Trade products as compared to traditional products. By contrast, non-users of Fair Trade products showed no explicit preference for either Fair Trade products or traditional products, while implicitly a significant preference for the traditional products was found. Further, the IAT unique contributed to the prediction of behavior, even when the influence of the explicit attitude measure was controlled for. Consequently, not only explicit, but also implicit attitudes need to be enhanced to raise ethical consumer behavior. Therefore in a second experiment, the influence of different forms of communication on the implicit attitudes of non-users of Fair Trade products was examined. The results did not show any impact of exposure to either affective experience or cognitive information on the evaluation of Fair Trade products.

2. Introduction

Although the consumers' concern about environmental issues, animal testing, working conditions, fair trade, and other ethical issues has gained more attention in recent years (Nicholls, 2002), ethical consumer behavior remains a relatively under
researched consumer domain (Folkes & Kamins, 1999; Uusitalo & Oksanen, 2004). Evidence of a growing market for ethical products is often inferred from the results of opinion polls (e.g. Tallontire, Rentsjendorj & Blowfield, 2001). Hines and Ames (2000) found that 51% of the population had the feeling of being able to make a difference to a company’s behavior and 68% claimed to have bought a product or a service because of a company’s responsible reputation. On average, 46% of European consumers also claimed to be willing to pay substantially more for ethical products (MORI, 2000). For instance, American consumers agreed with a price increase of 6.6% for green products (The Roper Organization, 1990), while French consumers wanted to pay 10–25% more for apparel not made by children (CRC-Consommation, 1998). De Pelsmacker, Driessen and Rayp (2005) found that Belgians were prepared to pay on average 10% more for fair-trade labeled products whereas Loureiro, McCluskey and Mittelhammer (2002) concluded that the willingness to pay for an eco-labelled food product was an extra 5%. Shaw and Clarke (1999) concluded that in the UK fair trade was the most important ethical issue of concern. Maietta (2003) found that the consumers in his study were willing to pay a price premium of 9% for fair-trade coffee and of 25% for organic (biologically grown) coffee. With these studies in mind, one would expect a high and growing demand for ethical products. However, several authors have identified an attitude-behavior gap in the context of ethical consumer behavior (Bird & Hughes, 1997; Boulstridge & Carrigans’, 2000; Carrigan & Attalla, 2001; Cone/Roper, 1994; Folkes & Kamins, 1999): most of the ethical labeling initiatives with respect to, for instance, organic food, products free from child labor, legally logged wood, and fair-trade products, often have market shares of less than 1% (MacGillivray, 2000).

The purpose of this study is to propose and test a measurement technique of implicit attitudes that might partly account for the attitude-behavior gap in ethical consumer behavior, to investigate to what extent implicit attitudes determine ethical buying behavior, and to discuss the societal and public policy implications of the findings.

The study is applied to fair-trade buying behavior in Belgium. Fair trade can be defined as an alternative approach to trading partnerships that aims for sustainable development of excluded and/or disadvantaged producers in the Third World. It seeks to achieve this by providing better trading conditions, by raising awareness and by campaigning (Krier, 2001). In a narrow sense, fair trade is defined on the basis of its best-known component: fair prices for the products of producers in developing countries. In
this context a ‘fair price’ means a price that is higher than would be the case in a free-market situation. Fair trade means buying products from producers in developing countries on terms that are more favorable than free-market terms, and market them in developed countries at an ‘ethical price premium’ (Bird & Hughes, 1997). This higher price to the consumer is warranted by the higher price that producers receive for their products and by the fair-trade control mechanisms in the trade channel. EFTA, the European Fair Trade Association, estimates that worldwide more than 800 producer groups (mainly in Asia, Africa and Latin America) are involved and that sales of fair-trade products (mainly in North-America and Europe) exceed 0.5 billion euros and are quickly growing: 22% in 2001 and 2002, and over 42% in 2003. Switzerland and the UK are the largest markets in volume; Belgium, France, Italy and the U.S. are the fastest growing markets (Worldshops, 2005). According to EFTA (1998) 60% of fair-trade and other sustainable products are food products, about half of which is coffee. Indeed, coffee is by far the most well developed ethical market internationally, with an estimated average market share of 1.7% of European coffee sales.

In the next section the reasons for the attitude-behavior gap in ethical consumer behavior and the role of implicit attitudes are explored.

3. The attitude-behavior gap and implicit attitudes

There are two plausible explanations for the reoccurring discrepancy between attitudes towards ethical issues and buying behavior as measured in survey research and actual buying behavior. The first relates to characteristics of ethical products, while the second is related to measurement problems. Primarily, the low attitude-behavior consistency in ethical consumer behavior may be ascribed to the fact that ethical products may well be desirable because they are environmentally friendly or serve a social cause, but still a premium price has to be paid or extra effort has to be exerted to find the products (Hurtado, 1998). Previous research indicates that higher prices and efforts are the main reasons that ethically-oriented consumers mention when their attitude-behavior inconsistency is pointed out to them (De Pelsmacker, Driessen, & Rayp, 2005). Moreover, while some consumers refuse to buy products with an unethical background (Crane, 2001), the majority of people evaluate product attributes jointly in making purchase decisions. Price, quality, convenience, availability in regular supermarkets, and brand
familiarity are often still the most important factors affecting the buying decision (Boulstridge & Carrigan, 2000; Carrigan & Attalla, 2001; CRC-Consommation, 1998; De Pelsmacker et al., 2005a; Norberg, 2000; Roberts, 1996; Tallontire, Rentendorj & Blowfield, 2001). Thirdly, consumers may still need to be convinced that their purchase behavior can make a difference in ethical terms in order to be persuaded to buy them (Bird & Hughes, 1997).

With respect to the measurement problems in ethical consumer research, there is the heavy reliance on self-report measures that assume that people are aware of their attitudes and that they are able and willing to reveal them if asked appropriately (Kihlstrom, 2004). However, these assumptions are not always valid (Greenwald & Banaji, 1995). Ulrich and Sarasin (1995) somewhat cynically claimed not to do any research and not to ask the public any question on ethical buying behavior, because the answers are never reliable, and often useless if not misleading. Especially in situations in which respondents want to make a good impression on the researcher or want to conform social norms, attitudes measured tend to be more positive than actual behavior (King & Bruner, 2000). Typically in questionnaires on sensitive topics such as ethical issues this could be the case. (La Trobe, Helen, & Acott, 2000; Roozen & De Pelsmacker, 1998).

Another problem is that respondents often overstate the importance of ethical issues. In most surveys, respondents are not asked to trade-off ethical product features against traditional product features, but to score or rank a list of ethical issues, which often results in overrating their importance (Auger, Burke, Devinney, & Louviere, 2003). In the few examples of studies in which also other relevant attributes for the buying decision are embedded in the trade-off task, the ethical product attribute is certainly not the most important one. For instance, in a study on fair-trade coffee buying behavior, De Pelsmacker and colleagues (2005) found that the fair-trade attribute was only the third most important attribute, after the brand and flavour.

Furthermore, self-report attitude measures operate on the assumption that people have a-priori attitudes towards all attitude-objects or that they are able to form them on the spot (Schwarz & Bohner, 2001). Consequently, even when respondents are unfamiliar with the attitude-object, they will still answer the question in order not to seem hesitant. Especially, the presence of an interviewer, monetary and physical incentives or the expectation of knowledge may motivate respondents to provide uninformed responses or ‘guessing’ at answers (Hawkins & Coney, 1981). In other cases, previously formed
attitudes may not be easily accessible to the individual (Fazio et al., 1986). Thus, even when individuals have a previously formed attitude, they may report a newly created one.

Finally, substantial research on social cognition suggests that a large portion of our daily activities is the result of cognitive processes that occur outside conscious awareness and control (Bargh, 2002; Greenwald & Banaji, 1995). As a result, traditional self-report measures are not well suited to capture these implicit processes. The latter point is related to the renewed interest in the ‘unconscious’ (Greenwald, 1992; Weinberger, 2000) and the distinction between explicit and implicit attitudes. Explicit attitudes are attitudes that operate in a controlled conscious mode and are typically measured by self-report tasks. Implicit attitudes can be defined as ‘introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action towards social objects’ (Greenwald & Banaji, 1995, p. 8). Given these insights, several authors have argued that automatic processes should also be considered in order to fully understand consumer attitudes and decisions (Brunel, Tietje, & Greenwald, 2004; Maison, Greenwald, & Bruin, 2004; Pham 1998; Shiv & Fedorikhin, 1999).

The arguments discussed above suggest that the discrepancy between ethical consumer behavior and self-reported attitudes could partially be due to problems with self-report tasks. Recently, researchers have developed a number of alternative measures that do not rely on self-report. These measures are assumed to register implicit attitudes and to be less sensitive to social desirability effects. One of these measures, the Implicit Association Test (IAT), is perhaps the most promising upcoming solution to these measurement problems. In the next sections we first review the properties and relevance of the IAT as a measure of implicit consumer social cognition (Brunel et al., 2004). Then, in the first experiment we will examine (1) the use of the IAT to better understand implicit attitudes towards ethical products and (2) whether the use of the IAT in combination with explicit measures may lead to a better understanding of the determinants of ethical consumer behavior than would be possible with self-report measures alone. In the second experiment we will investigate the impact of different types of communication on the implicit attitudes of non-users of Fair Trade products.
4. Implicit attitude measurement

4.1. The Implicit Association Test

The IAT, developed by Greenwald et al. (1998), is presumably the most well-known implicit measurement technique in psychology (Fazio & Olson, 2003). The IAT as a measure of attitudes is based on two key premises (1) an attitude is stored in memory as the association between an attitude-object and a valence concept (Fazio et al., 1986) and (2) respondents should find it easier to map two concepts on the same response key (computer key) when those concepts are associated in memory as compared to when those concepts are not or less associated in memory. The IAT is a computerized task that assesses the strength of association between target concepts and an attribute dimension by interpreting reaction speed. The respondents’ task is to categorize stimuli that represent the target and attribute concepts by pressing the corresponding (left or right) computer key as fast and accurately as possible. For instance, in the IAT concerning attitudes towards flowers relative to insects (Greenwald, McGhee, & Schwartz, 1998), respondents were first instructed to categorize attribute items (valenced items such as ‘poison’, or ‘birthday’) as pleasant or unpleasant. Then, they had to categorize items (e.g., flower and insect names such as rose and spider) that represent the target concepts (i.e. flowers and insects) as ‘flowers’ or ‘insects’ (=practice phases). In the data collection phase of the experiment the two categorization tasks were combined. Respondents performed the combined task twice: in the first task ‘flowers/pleasant’ were assigned to the left (or right) key, while ‘insects/unpleasant’ were allocated to the other response key; in the second task the reverse was true: the right (or left) key represented ‘flower/unpleasant’ and the left (or right) key was labeled ‘insect/pleasant’. If the target concepts are differentially associated with the attribute dimension, respondents should find one of the two combined tasks easier. In the Greenwald et al. (1998) experiment superior performance was found for the ‘flower/pleasant’ combinations (= evaluative compatible combinations) as compared to the ‘insect/pleasant’ combinations (= evaluative incompatible combinations). These differences in response latency indicate more positive implicit attitudes towards flowers as compared to insects. Substantial evidence exists for the IAT’s convergent and discriminant validity (Greenwald & Nosek, 2001). Further, the IAT has shown to be a useful tool for research on different topics such as racial attitudes (Dasgupta, McGhee & Greenwald, 2001), stigmatized behavior such as smoking (Swanson, Rudmand, &

4.2. IAT in consumer research

According to Bargh (2002) ‘the realm of consumer research would seem to be the ideal playing field on which to establish whether the new models of automatic goal pursuit and automatic evaluation processes do, indeed, apply to the real world, [...]’. However, only a few researchers have accepted this challenge by introducing the IAT into consumer research. Maison, Greenwald and Bruin (2004) examined implicit attitudes towards different types of products (juices and sodas; low and high calorie products) and brands (brands of yoghurt, fast food restaurants and cola). The results showed positive correlations between implicit attitudes and both explicit attitudes and behavior (self-reported and observed). Generally, heavy users of a particular product or brand demonstrated more positive implicit attitudes towards that product or brand than light users. Further, in the experiment measuring implicit attitudes toward Coca Cola versus Pepsi, a multiple regression analysis showed that IAT provided evidence of unique contribution to the prediction of behavior (i.e. frequency of drinking Coca Cola or Pepsi) after the influence of the explicit measure was controlled for. In the other two experiments the IAT showed positive, but insignificant beta coefficients in the multiple regression analysis. The authors conclude from these results that even in a context were the IAT and explicit attitude measure are expected to converge, the IAT may provide independent contribution to the prediction of behavior (Maison, Greenwald, & Bruin, 2004).

Brunel, Tietje, and Greenwald (2004) obtained similar results. On the basis of the results of their first study, they concluded that in situations where implicit and explicit attitudes were expected to converge (attitudes towards Macintosh versus PC Windows based machines), IAT measures of brand attitude and brand relationship showed strong, positive correlations with explicit measures of brand attitude, ownership, and usage. Moreover, they found that the IAT effectively discriminated between consumers with more favorable explicit attitudes, ownership, and usage of one brand versus those with
unfavorable explicit attitudes, ownership and usage of the same brand. In a second study on the race of advertising spokespeople, they demonstrated that under some conditions the IAT could uncover consumers’ attitudes that traditional measures did not detect. In this second study, explicit and implicit attitudes towards ads for sportswear advertisements portraying African-American (Black) and European-American (White) athlete-spokespersons were measured. The results showed that at the explicit level there was no difference between attitudes towards the ads with White spokespersons compared to ads with Black spokespersons. However, the IAT revealed a strong preference for ads containing White spokespersons. Also, no significant correlation between the explicit and implicit measures could be found. When analyzing White and Black participants’ subgroups, divergent results arose. White participants showed an in-group (=pro-White) IAT preference, but no significant explicit preference. Opposite results were found for the Black group: Black respondents showed a pro-Black preference at the explicit level, but no significant implicit preference. However, in consumer research, it has until now not yet been examined whether the use of the IAT in combination with explicit measures predicts behavior more accurately than self-report measures alone in situations where consistently weak explicit attitude-behavior relationships have been found. This is the main purpose of this study.

5. Experiment 1

In the first experiment we measured explicit and implicit attitudes towards Fair Trade and traditional (non-Fair Trade) products in participants who did (buyers) or did not (non-buyers) regularly buy Fair Trade products. Explicit attitudes were measured using semantic differential scales whereas implicit attitudes were measured using the IAT. The specific attitude-objects were coffee and rice, two commonly used fast moving consumer goods. This allowed us to examine whether implicit measures can differentiate between buyers and non-buyers. More specifically, we expected that IAT scores would reveal less positive implicit attitudes towards Fair Trade products (as compared to traditional products) in non-buyers than in buyers. Because we also included explicit measures, we could examine whether implicit measures have explanatory power for actual consumer behavior over and above the influence of explicit attitudes.
5.1. Method of analysis

5.1.1. Participants

Eighty-six people (52 women, 34 men) participated in the experiment in exchange for a coupon with a monetary value of approximately 6 euro (a coupon for purchases in Fair Trade shops for the ‘buyers’ of fair trade and a movie ticket for the ‘non-buyers’ of fair trade). Thirty-seven participants were recruited at the time of a fair-trade purchase and conducted the experiment in a room next to a Fair Trade shop. The other participants (N=49) were selected by means of street interviews and completed the experiment in a meeting room of the University. All participants questioned at the Fair Trade shop and 11 participants questioned at the University reported to buy Fair Trade products at least a few times a year, whereas the remaining participants indicated never to buy Fair Trade products. As a result, we labelled the former participants ‘Buyers of Fair Trade products’ (N=48), while the latter participants were considered ‘Non-buyers of Fair Trade products’ (N=38). All respondents were between 18 and 64 years old ($M_{buyers}=29.79$, $SD=11.84$; $M_{non-buyers}=30.66$, $SD=13.10$, $F(1, 85)=0.103$, $p=0.749$).

5.1.2. Data collection

The experiment consisted of three phases: (1) a learning phase, (2) an IAT and (3) a paper-and-pencil questionnaire. The IAT preceded the explicit measure to minimize potential, if any, carry-over effects (Egloff and Schmukle 2002). Different authors indicate that performing a self-report task before an implicit task might bring the latter task under greater conscious control. This could artificially inflate the correlations between implicit and explicit measures (Bosson, Swann, and Pennebaker 2000; Nosek, Greenwald and Banaji 2003). The computer tasks (learning phase and IAT) were completed on PC-type laptop computers with AZERTY keyboards, using Inquisit laboratory software (2002). The entire study was conducted individually and each individual session took about 20 minutes.

5.1.3. Learning phase

The purpose of the learning phase was to ensure that every respondent knew the products in the experiment as well as the category that a product was meant to represent (‘Fair Trade’ versus ‘traditional, open market’). During the learning phase, the assortment
labels ‘Fair Trade’ and ‘traditional’ were paired together with their (1) specific characteristics (fair price for the producer and control of production and trade, price premium due to the fair price and restricted number of outlets [Fair Trade], or striving for maximum profit, normal price and large number of outlets [traditional]) and (2) four illustrative (pictures of) Oxfam products (the best known fair-trade brand in Belgium): coffee ‘dessert’, coffee ‘mocha’, ‘white’ rice, and ‘basmati’ rice; and the two leading coffee and rice brands in Belgium respectively). Respondents were instructed to memorize the assortment labels, characteristics and products. There was one trial for the fair trade label and one trial for the traditional label. Each trial in the learning phase consisted of four sub-events: the assortment label (‘Fair Trade’ or ‘Traditional’) for 3500 ms, a black screen for 500 ms and a picture of the four products for 6000 ms. While the picture of the products was on the screen, every 1500 ms a new product characteristic appeared below the picture. One trial was finished when the last product characteristic had remained 1500 ms on the screen. The inter-trial interval was 4000 ms. In the memory test following the learning phase, respondents had to indicate to which assortment the product presented on the computer screen belonged by pressing the appropriate key. When the memory test was error free (which was the case for all respondents), the IAT was initiated. The order of learning the concepts and/or products (Fair Trade products on the first five trials or Traditional products on the first five trials) was counterbalanced.

5.1.4. IAT

The IAT was designed to measure implicit attitudes towards the Fair Trade and traditional products in the experiment. The target stimuli were the individual pictures of the Fair Trade and traditional products shown during the learning phase. The attribute stimuli were positive (smile, good, paradise, friendly, love, pleasure, miracle, happy, peace, healthy) and negative (impudent, dirty, pain, pollution, murder, poison, accident, rotten, prison and stink). Stimuli were presented in the centre of the computer screen and the respondents’ task was to assign each stimulus to one of four categories. The IAT procedure comprised seven blocks. In the first block, respondents discriminated between positive and negative words on 20 trials. For half of the respondents positive words were assigned to the right response key (P) and negative words to the left key (A). For the other respondents, a reversed assignment was implemented. Block 2 consisted of a target discrimination task (20 trials) in which respondents had to classify the pictures of the products in ‘Fair Trade’ and ‘traditional’ categories. In Blocks 3 and 4 (24 practice and 48
data collection trials) respondents were asked to categorize items by pressing one of the two keys (pictures of Fair Trade products and positive words assigned to one key versus pictures of traditional products and negative words assigned to the other key). Block 5 included once again a target discrimination task, but now with a reversal of the side of the screen on which the two category labels appeared (20 trials, the reverse of task 2). Blocks 6 and 7 (24 practice and 48 data collection trials) consisted of the reversed combined categorization task of block three and four (pictures of Fair Trade products and negative words assigned to one key versus pictures of traditional products and positive words assigned to the other key). Half of the subjects did the seven tasks in the order presented above; for the other half Blocks 2, 3, and 4 were interchanged with Blocks 5, 6, and 7. Only the data of Blocks 4 and 7 were used for analysis. Before and during each phase, category labels were displayed on the left and right sides of the screen. Respondents were asked to respond as quickly but also as accurately as possible. Summary feedback was given in the form of mean response latency in seconds and percentage correct following each block. All blocks were respondent-initiated. In case of an incorrect response, a red cross appeared on the screen for 400 ms. The interval between pressing the correct response key and the presentation of the next stimulus was 150ms.

5.1.5. Explicit measures

A four-item seven-category semantic differential scale measured explicit attitudes towards the Fair Trade and traditional products (Bruner and Hensel 1996: good, expensive, worthless and attractive, Cronbach’s Alpha = 0.66). Buying frequency of Fair Trade products was determined by means of a seven-category Likert scale asking people ‘How often do you buy Fair Trade?’. 

5.2. Results

5.2.1. Explicit attitudes

Overall, explicit attitudes towards Fair Trade products (M_{Fair Trade} = 5.43, SD = 1.08) were significantly more positive than towards traditional products (M_{traditional} = 4.79, SD = 1.07, t (85) = 3.96, p < 0.001). An ANOVA with type of consumer (buyers or non-buyers) as a between subjects variable and type of product Fair Trade products or
traditional products) as a within-subjects variable revealed a main effect of type of product and a significant interaction effect between type of consumer and type of product (See Table 1). Moreover, t-tests indicated that buyers of Fair Trade products showed explicit attitudes towards these products ($M_{\text{Fair Trade buyers}} = 5.93$, $SD = 0.93$) that were significantly more positive than towards traditional products ($M_{\text{traditional buyers}} = 4.55$, $SD = 1.18$), while non-buyers ($M_{\text{Fair Trade non-buyers}} = 4.79$, $SD = 0.90$, $M_{\text{traditional non-buyers}} = 5.09$, $SD = 0.93$) only showed a trend in the opposite direction (See Figure 1).

Figure 1: Explicit attitudes: two way interaction of type of product x type of consumers

![Graph showing explicit attitudes](image)

5.2.2. Implicit attitudes

Prior to analysis, IAT data were treated following the procedure outlined by Greenwald et al. (1998): (1) reaction times shorter than 300 ms and larger than 3000 ms were recoded into 300 ms and 3000 ms respectively, (2) the first two trials of each block were dropped because of their typically longer latencies, as were reaction times and trials with an incorrect response and (3) reaction times were log-transformed prior to averaging. However, for reasons of clarity, response latencies in terms of ms will be reported (see Greenwald, McGhee, and Schwartz 1998). The average error rate was 2.28% (0%–12%).

We conducted an ANOVA with type of consumer (buyers or non-buyers) as a between subjects variable and IAT task (fair trade-positive or fair trade-negative) as a within-subjects variable. The ANOVA revealed a main effect of IAT task and a significant interaction between type of consumer and IAT task (See Table 1). Further t-tests showed that buyers performed significantly better in the fair trade-positive block ($M = 841$, $SD = 165$) than in the fair trade-negative block ($M = 1012$, $SD = 210$), whereas non-buyers were
faster in the fair trade-negative block ($M = 850$, $SD = 174$) than in the fair trade-positive block ($M = 935$, $SD = 214$) (See Figure 2). These results indicate that buyers had a more positive implicit attitude toward fair trade products than toward traditional products whereas the reverse was true for non-buyers.

<table>
<thead>
<tr>
<th></th>
<th>ANOVA analysis 1</th>
<th>ANOVA analysis 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Explicit</td>
<td>Implicit</td>
</tr>
<tr>
<td>Type of Task</td>
<td>$F(1, 84)$</td>
<td>$F(1, 82)$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td>$p = .02$</td>
</tr>
<tr>
<td>Type of Task x Type of Consumer</td>
<td>$F(1, 84)$</td>
<td>$F(1, 82)$</td>
</tr>
<tr>
<td></td>
<td>$p &lt; .001$</td>
<td>$p = .001$</td>
</tr>
</tbody>
</table>

Type of Task (explicit)= attitude towards Fair Trade products versus attitude towards traditional products; Type of Task (Implicit)= task in which Fair Trade + positive/Traditional + negative versus task in which Fair trade + negative/Traditional + positive; Type of consumer = Buyer of Fair Trade versus Non Buyer of Fair Trade.

Figure 2: Implicit attitudes: two way interaction of type of consumer x IAT task

![Diagram showing mean response time (ms) for buyers and non-buyers with t-tests results](image)

* Shorter response times indicate more positive attitudes
5.2.3. Logistic Regression Analysis

In order to assess the explanatory power of implicit and explicit attitude measures, a logistic regression analysis was carried out. The criterion for the logistic regression analysis was the dichotomous behavioral variable ‘buying or not buying Fair Trade products’, which is identical to the earlier split up of respondents into ‘Buyers’ vs ‘Non-buyers’ of Fair Trade products. For the explicit and implicit predictors (attitude measures) we calculated two difference variables that were scored in such a way that higher values indicated preference for Fair Trade products. The explicit attitude difference score (EDS) was computed by subtracting the standardized score of ‘attitude towards traditional products’ from the standardized score of ‘attitude towards Fair Trade products’. We used a similar procedure for the implicit attitude difference score: standardized values of the mean response time for performing the ‘Fair Trade-positive’ (same key for fair trade products and positive words; Combination 1) were subtracted from the ‘Fair Trade-negative task (same key for fair trade products and negative words; Combination 2). The correlation between the explicit and implicit predictors was 0.43 ($p < 0.001$). In the stepwise logistic regression, the explicit difference score was entered in the first step and the IAT in the second step.

$$\text{Buyer of Fair Trade} = z = B_0 + B_1 \text{Explicit attitudes} + B_2 \text{Implicit attitudes}$$

The logistic regression analysis enabled us to estimate the additional predictive value of the implicit attitude measure beyond the influence of the explicit measure. The analysis yielded a significant positive relationship between the dependent variable on the one hand and the explicit ((Exp(B)=3.89, B=1.36, $p<.001$) and implicit difference score ((Exp(B)=3.72, B=1.32, $p<.001$) on the other hand (Nagelkerke $r^2=.63$). The overall −2 log likelihood difference for the fitted logistic model indicated a significant fit ($p<.001$). Moreover, we found a significant decrease of the −2 log likelihood in the transition from the first model to the full model ($p<.001$). The result implies that the IAT accounts for 15% unique contribution to the prediction of behavior (i.e. increase in Nagelkerke $r^2$; see Table 2). In fact, the full model was able to classify 83.5 % of the respondents correctly, while the model based on the explicit measure alone assigned only 76.5 % of the respondents to the right category.
Table 2: Logistic regression analysis

<table>
<thead>
<tr>
<th>Step</th>
<th>-2LL</th>
<th>(\chi^2)</th>
<th>df</th>
<th>Nagelkerke (r^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>EDS</td>
<td>78.43</td>
<td>37.98**</td>
<td>1</td>
</tr>
<tr>
<td>Step 2</td>
<td>IAT</td>
<td>62.23</td>
<td>16.20*</td>
<td>2</td>
</tr>
</tbody>
</table>

\(\Delta=16.20\) \(\text{Tot}=54.18^{**}\) \(\Delta=.15\)

EDS = explicit attitude difference score; IAT = implicit attitude difference score (for both measure positive scores indicate preference for Fair Trade products); \(* = p < .001, * = p < .05\)

5.3. Discussion

The purpose of Experiment 1 was to examine the usefulness of implicit attitude measurement with respect to ethical consumer behavior and to better investigate its relevance for the prediction and establishment of ethical buying behavior in society. Our results support the relevance of implicit measures such as the IAT as a useful tool in this context. First, we found that the IAT effects for buyers and non-buyers of Fair Trade products were significantly different, showing that the IAT can be used to differentiate between buyers and non-buyers. Secondly, the logistic regression analysis demonstrated that IAT effects partially predicted ethical consumer behavior even when the influence of the explicit measure was controlled for. In other words, the IAT provided an independent contribution to the prediction of behavior. Taking into account that (1) for non-users explicit and implicit attitudes are dissociated and that (2) both explicit and implicit attitudes uniquely attribute to the prediction of behavior, it is suggested that to incite non-users to consume in a socially responsible way, not only explicit, but most importantly implicit attitudes need to be changed. As a result, the purpose of Experiment 2 was to examine the impact of different forms of communication on implicit attitudes as measured by the IAT.

5.4. Addendum

In line with our first series of experiments (cf Chapter 6), we extended Experiment 1 by including, next to the IAT, another implicit attitude measure: the Go/No go Association Task (GNAT; cf Chapter 4, section 4.2.; Nosek and Banaji, 2001). All non-users of Fair Trade products completed after the IAT and the questionnaire two
GNATs, with a first GNAT measuring implicit attitudes toward the traditional products and a second GNAT determining implicit attitudes toward the Fair Trade products. In both measurement instruments the attitude-objects consisted of the same pictures that were used in the IAT. In the following, we will not discuss the design of the GNAT and the procedure because the GNAT measures appeared of very poor quality. More specifically, only 7 respondents could be included in the analysis. The other 31 respondents were either unable to discriminate signal from noise or were not performing the task as instructed. The elimination of more than 80% of the respondents suggests that interpretation of the results would be invalid and meaningless. The full transcription of the procedure and the results are enclosed in appendix 7.1

6. Experiment 2

On the basis of experiment 1 we concluded that users of Fair Trade products preferred both explicitly and implicitly Fair Trade products to traditional products. However, non-users showed a discrepancy between explicit and implicit attitudes. That is, on the explicit level non-users of Fair Trade products held equally positive attitudes towards both types of products, while implicitly they preferred traditional products to Fair Trade products. Therefore, the purpose of Experiment 2 was to examine the effect of different types of product communication on non-users’ implicit attitudes toward Fair Trade products as measured by the IAT. In the next sections we will first review how implicit attitudes can be formed and changed according to contemporary literature, and then we will discuss the experiment and draw conclusions.

6.1. Implicit attitude formation and change

Before attempting to change people’s implicit attitudes, we first need to know how they are formed\textsuperscript{15}. Wilson et al. (2000) argued that implicit attitudes are formed through direct experience with an attitude-object. Moreover, the authors believe that both implicit and explicit attitudes are summary evaluations based on a variety of sources of information and that there is no reason to assume that the one is more affective or cognitive than the other. By contrast, Rudman and Heppen (2003) propose that explicit

\textsuperscript{15} See also Chapter 3 section 2.6. on attitude formation and change.
and implicit attitudes stem from *different sources*. Thereby, it is assumed that implicit attitudes are more than explicit attitudes influenced by early experiences, affective experiences, cultural bias, and cognitive consistency principles (Rudman, 2004). Rudman and Heppen (2003) found that the negative implicit attitudes toward smoking among smokers, correlated with *early* negative (childhood) *experiences* related to smoking, whereas explicit attitudes correlated with more recent experiences related to smoking. Moreover, they demonstrated that affective experiences influence implicit attitudes more than explicit attitudes. That is, smokers held more negative implicit attitudes towards smoking after reading an affective newspaper article on the effects of smoking on family life as compared to a control group. Explicit attitudes were not affected by reading the newspaper article or not. Thirdly, implicit attitudes may be more affected by one’s *cultural environment*. That is consistent with the suggestion of Karpinski and Hilton (2001) and Olson and Fazio (2004) that implicit attitudes reflect more the societal views that one is exposed to throughout lifetime rather than the personal evaluations of the individual. Finally, based on numerous empirical findings, Rudman (2004) concluded that implicit attitudes, identity, self-esteem, self-concept conform the cognitive *consonance principle* (i.e. people want consonant evaluations toward related attitude-objects), whereas the self-reported constructs do not. For example, in studies on implicit gender stereotyping, it was found that people associating themselves more with warmth as compared to power also associated their gender more with warmth provided that they identified with their gender (Rudman, Greenwald and McGhee, 2001). Finally, Olson and Fazio (2001) provided evidence that attitudes can be formed implicitly via a classical conditioning procedure. In sum, the studies discussed above suggest that implicit attitudes may be changed through direct contact with the attitude-object and classical conditioning. Further, it is suggested that implicit attitude *change* in a consumer context is most likely to occur after an affective experience with the attitude-object. By this we mean that it is very hard or even impossible for a researcher or marketer to manipulate respondents’ early experiences, cultural environment or the need to conform to cognitive dissonance.

Further, Loewenstein (1996) suggested that the intensity of affective reactions of a consumer is determined by the mode of representation of the affect-inducing stimuli. He proposed that the intensity of the affective reactions will be higher when representation is real rather than symbolic, that is, for instance, when the consumer is exposed to a photograph rather than to a description of the attitude-object. The reason for this may be that a real representation enhances the vividness of the attitude-object and consequently evokes reactions comparable to those evoked when encountering the real attitude-object.
Based on the work of Loewenstein (1996), Shiv and Fedorikhin (1999) reasoned that the mode of representation would have a bigger impact on choice when lower-order affect (i.e. automatic, spontaneous reactions) plays a major role in the decision process (i.e. when cognitive resources are restrained) as compared to when cognitions play the largest role. Their results met expectations: the choice for the affect-laden object (i.e. chocolate cake) as compared to a cognitive-laden object (i.e. apple) was higher when cognitive resources were restrained, but only when the attitude-object was real (and the level of consumer impulsivity was high).

An example of a study that integrates the elements discussed above is the work by Verhulst, Hermans, Baeyens, Spruyt and Eelen (2005). They have found that the Affective Priming Paradigm (APP; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Bargh, Chaiken, Govender, & Pratto, 1992; Hermans, De Houwer & Eelen, 1994, 2001) is able to detect recently acquired food attitudes. More specific, they concluded that the APP can be used to assess food attitudes (1) that were only recently acquired by means of an evaluative conditioning procedure\(^\text{16}\) and (2) that are based on both sensory liking and verbal positive and negative health–relevant information. To put it differently, the findings of Verhulst et al. (2005) suggest that APP can measure recently acquired implicit food attitudes resulting from a consistent and repeated pairing of the attitude-object with either sensory information (taste) or verbal positive and negative information (i.e. indirect experience, positive and negative consequences of using the product). As a consequence, it is suggested that not only sensory information, but also indirect cognitive information may influence implicit attitudes.

6.2. Research objectives and hypotheses

As mentioned earlier, the purpose of the current experiment is to examine the effect of two types of product communication on non-users' implicit attitudes. That is, building on the literature discussed earlier and in line with Verhulst et al. (2005), we

\(^{16}\) In an evaluative conditioning procedure an unconditional stimulus (US, e.g. positive or negative taste) is systematically paired with an attitude-object (e.g. cookies). The reasoning behind this is that the contingent pairing of an attitude-object (e.g. cookies) with a positive or negative US (e.g. taste) will lead to a shift in valence of the attitude-object in the direction of the US (De Houwer et al. 2001).
wanted to test the effect of sensory (real) affective information (i.e. taste) and indirect (symbolic) cognitive information (i.e. newspaper article) on the implicit attitudes toward Fair Trade products of non-users (of Fair Trade). To that end, we compared the affective and cognitive conditions with a neutral condition. The difference between our study and the study of Verhulst et al. (2005) is twofold. First, while Verhulst et al. (2005) examined recently acquired (implicit) food attitudes toward new attitude-objects, we considered recently acquired food attitudes toward existing attitude-objects toward which already less positive implicit attitudes exist (i.e. in our first experiment non-users of Fair Trade products showed less positive implicit attitudes toward Fair Trade products as compared to users). Secondly, Verhulst et al. (2005) used an evaluative conditioning procedure to learn implicit attitudes. However, in order to stay close to marketing practice where it is unlikely that a consumer will have, for instance, numerous sensory experiences with a product before first purchase, we wanted to test whether implicit attitudes can already be acquired after one sensory experience or one contact with sensory-unrelated cognitive information.

Based on the findings of Rudman and Heppen (2003) that showed that affective experiences affected implicit attitudes more than explicit attitudes, and the findings of Verhulst et al. (2005) that both affective (sensory) and cognitive (symbolic) information may influence implicit attitudes, our first hypothesis was formulated as follows:

H1: implicit attitudes toward Fair Trade products of non-users will be more positive in the affective and cognitive condition as compared to the neutral condition.

Because (1) implicit attitudes are likely to be influenced more by affective than by cognitive resources (Rudman, 2004; Verhulst et al., 2005), and (2) Shiv and Fedorikhin (1999) showed that lower-order affective reactions are moderated by the mode of representation of the stimulus, that is, real representations elicit stronger affective reactions than symbolic representations, we expect that the implicit attitudes will be more affected by the sensory affective information than by the symbolic cognitive information. As a result our second hypothesis is:
H2: implicit attitudes towards Fair Trade products of non-users will be more positive in the affective condition as compared to the cognitive condition.

6.3. Method of analysis

6.3.1. Participants

One hundred twelve students of Ghent University (55 men, 57 women) participated in the experiment in exchange for a 6-euro participation fee. Eventually only sixty-seven students (26 men, 36 women) could be retained for analysis because others reported to use at least one of the Fair Trade products included in the experiment. Thus, all respondents were self-reported non-users of Fair Trade rice and Fair Trade coffee. Respondents’ age ranged from 18 till 24 ($M=20.7$, $SD=1.83$). We had to exclude two respondents from the analysis because they indicated not to know what Fair Trade products were.

6.3.2. Procedure

Upon arrival in the lab, respondents were randomly assigned to one of three conditions: (1) the affective condition ($N=26$), (2) the cognitive condition ($N=27$) or (3) the neutral condition ($N=11$).

In the affective condition, respondents were asked to participate in a blind taste test with respect to chocolate before completing the pc-task and the questionnaire. We use a taste test as source of affective product information because sensory liking is shown to be an important determinant of food attitudes (Eertman, Baeyens, & Van den Bergh, 2001). Moreover, tasting a product can be considered as an extreme personal, subjective and affective experience (‘de gustibus non est disputandum’) and it allowed the respondents to have real contact with the attitude-object. During the taste test respondents were blindfolded and asked to taste two pieces of milk chocolate. We choose to use chocolate because the IAT is assumed to measure attitudes toward the target concept labels (i.e. Traditional versus Fair Trade; De Houwer, 2001) rather than toward the individual stimuli. Thus, we assumed that the IAT measured attitudes toward the Fair Trade concept in general and that chocolate as one of the most well-known Fair Trade
products would elicit attitudes toward the chocolate as well as Fair Trade products in general. Respondents were instructed to rinse out their mouth in between the two taste sessions to optimize taste sensitivity. Each respondent had to taste one piece of Fair Trade chocolate and one piece of Belgian (high quality) chocolate. Both types of chocolate had a distinctive flavor and the order of tasting the chocolates was randomized between respondents. After eating the two pieces of chocolate we asked respondents which piece they preferred. Next, we told them that the product they preferred was a piece of Fair Trade chocolate - irrespective whether their preference really concerned the Fair Trade chocolate rather than the Belgian chocolate. After the taste test, respondents completed the IAT before filling in the questionnaire. At the end of the questionnaire, we checked the trustworthiness of the taste test. Respondents were asked to complete next sentence ‘I believe that the taste test at the beginning of the experiment was...’ by means of a four item 7-point semantic differential (items were dishonest/honest, unreliable/reliable, untrustworthy/trustworthy, and not fake/fake, cronbach’s alpha= .88; high scores indicate a reliable test). The results suggested that the test was trustworthy (M=6.04, SD=.95). Thus, all respondents in the affective condition experienced a positive experiential contact with a Fair Trade product.

In the second (cognitive) condition, before completing the IAT and the questionnaire, respondents had to read a fictitious newspaper article reporting that the market share of Fair Trade chocolate had risen till 9%. The article consisted of objective information on fair trade chocolate and the fair trade concept in general to make the contrast with the affective condition as large as possible. After reading the articles, we asked the respondents to conduct the IAT and to fill in the questionnaire. At the end of the questionnaire respondents had to complete the sentence ‘I believe that the newspaper article at the beginning of the experiment was...’ by the same semantic differential as in the affective condition. Again, the respondents rated the article as trustworthy (cronbach’s alpha= .92, M=6.12, SD=.90). Next, respondents had to complete a five-item 7-point semantic differential with items such as ‘the article mainly provides subjective knowledge vs the article mainly describes objective facts’ and ‘the article is rather informal, familiar vs the article is rather formal’, etc (high scores indicate that the article provides objective information). The sores suggested that the article was perceived as objective and informing rather than subjective and emotional (cronbach’s alpha=.56, M=6.09, SD=.62).

In the neutral condition the experiment started with reading a real newspaper article on the revival of the flower-patterned dress for women. After that, they completed the IAT and a questionnaire. Again respondents believed that the article was trustworthy
Explicit and Implicit Determinants of Fair Trade Buying Behavior

(cronbach's alpha=.88, $M=5.70$, $SD=.64$). But most importantly, they indicated on two 7-point questions that the article was not about the products included in the experiment ($M=6.7$, $SD=.67$).

6.3.3. Measures

We used the same IAT as in the first experiment. In a questionnaire, we asked respondents on a 7-point scale how often they use the Fair Trade products included in the experiment and Fair Trade products in general (i.e. product use beyond Fair Trade rice en coffee).

6.4. Results

Prior to analysis, we treated the data of the IAT task in a similar way as in experiment one (see also Greenwald et al. 1998). The average error rate of the IAT was acceptable (2.98% (0%-15.2%)) and we excluded one respondent because of extreme high response latencies.

First, we analyzed the data of the neutral condition to determine the baseline implicit attitudes towards Fair Trade products in the current sample. A paired-samples t-test showed that the respondents in the neutral condition had equally positive implicit attitudes towards the Fair Trade and the traditional products in the experiment ($M_{Fair\ Trade}=768$ ms; $M_{Fair\ Trade}=816$ ms; $t(10)=-.73$, $p=.48$). These results are different from the results in our first experiment. However, one should be cautious when interpreting the data. The results are based on the implicit attitudes of 11 respondents, of which only 3 persons claimed to never buy Fair Trade products in general (as opposed to 38 respondents in the first experiment). This suggests that the respondents in the neutral condition of the current experiment are more socially sensitive and think and behave more ethically than the respondents in the first experiment. Two additional paired samples-t-tests showed that (1) respondents in the affective condition held equal positive implicit attitudes toward both types of products ($M_{Fair\ Trade}=742$ ms; $M_{Fair\ Trade}=782$ ms; $t(25)=-1.40$, $p=.18$), while (2) respondents in the cognitive condition showed more positive implicit attitudes toward Fair Trade products as compared to toward traditional products ($M_{Fair\ Trade}=712$ ms; $M_{Fair\ Trade}=852$ ms).
770 ms; t(25)=−3.27, p=.003). Thus, the cognitive condition is the only condition in which implicit attitudes were more positive toward Fair Trade products as compared to traditional products.

An One Way ANOVA with IAT-task (FairTrade+positive/ Traditional+negative vs Fair Trade +negative/Traditional+positive) as dependent variable and condition (taste test, newspaper article on Fair Trade or newspaper article on dresses) as factor showed no significant effect of condition (F(1, 61)=.17, p=.84) (See table 3). Also, all post hoc test were not significant (e.g. Scheffe taste/cognitive condition, p=.90; taste/neutral condition, p=.99; cognitive/neutral condition, p=.98). Thus, although in an ANOVA analysis with repeated measures the scores for the cognitive condition are significant and higher than for the experiential and neutral condition, no significant effect of type of persuasion attempt on respondents' implicit attitudes could be found.

**Table 3: Results of an ANOVA analysis with IAT effect as independent variable and condition as dependent variable**

<table>
<thead>
<tr>
<th>Condition</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affective condition</td>
<td>.05</td>
<td>.17</td>
</tr>
<tr>
<td>Cognitive condition</td>
<td>.07</td>
<td>.10</td>
</tr>
<tr>
<td>Neutral condition</td>
<td>.04</td>
<td>.18</td>
</tr>
</tbody>
</table>

* Positive score indicates more positive implicit attitudes toward Fair Trade products as compared to the traditional condition.

**6.5. Discussion**

The data of the current experiment does not support our hypothesis that people in the experiential condition and cognitive condition would have more positive implicit attitudes toward the Fair Trade products as compared to the neutral condition. Further, we also fail to support the second hypothesis: the experiential and the cognitive condition did not differ significantly. Despite the lack of a significant interaction effect between IAT effect and type of condition, there are some indications for an effect in the cognitive condition. More specific, in the latter condition (but not the other conditions) more
positive implicit attitudes toward the Fair Trade products as compared to the traditional products were found. This finding suggests that, contrary to expectations, implicit attitudes were influenced by cognitive (symbolic) but not affective (sensory) information. Further, it is possible that we did not find the hypothesized interaction effect because our manipulation with respect to the affective and cognitive condition was not strong enough. By this we mean that the mere tasting of Fair Trade chocolate or reading a newspaper article about Fair Trade chocolate is not sufficient to `learn' strong implicit attitudes. In the experiment of Verhulst et al. (2005) an evaluative conditioning procedure was used to teach respondents new food attitudes. In their experiment, the conditioning of sensory liking of cookies consisted of rating six times two `good' cookies (i.e. 12 tasting, with cookies differing in color and shape) and six times two `bad' cookies. Each time after eating a cookie (i.e. 24 times in total) respondents had to rate the cookie by means of 21-point scales that probed sensory liking. After all the cookies were eaten, participants were asked to rate the cookies again but now without the taste information. A similar procedure was used in the `verbal information' condition. However, in a marketing setting it is difficult to realize such an intense evaluative conditioning procedure. Therefore, it would be interesting for future research to examine how many sensory or cognitive contacts (pairings) would be necessary to make implicit attitudes change.

7. General discussion

Experiment 1 demonstrated that the IAT is a useful tool to measure implicit attitudes with respect to ethical consumer behavior. More specifically, the IAT proved to be able to discriminate between users and non-users of Fair Trade products and to contribute independently from the explicit measure to the prediction of Fair Trade buying behavior. This conclusion is consistent with previous research that suggested independence in predictions of behavior by IAT and explicit measures (e.g. Egloff and Smukle 2002; Maison, Greenwald, and Bruin 2004; McConnell and Leibold 2001). Although Maison et al.'s (2004) study 3 already indicated significant positive beta-coefficients for the IAT in multiple regression analysis, so far no formal statistical test, such as hierarchical regression analysis, was used to validate a predictive pattern of behavior (Nosek 2004; Perugini 2005). The present study demonstrates of the usefulness of implicit attitude measurement for the prediction of consumer behavior in general, and ethical buying behavior in particular.
The findings of the first experiment have a number of implications for governments and non-profit organizations, and for society as a whole. In many countries governments and fair-trade organizations, sponsored by governments, devote substantial resources to the study of ethical consumption, with the explicit purpose of raising societal awareness and attitudes with respect to ethical consumption and enhancing ethical buying behavior. As already indicated, the conclusion that is often reached, namely that societies are increasingly ethical-aware and ethical behavior-oriented, is likely to be less accurate, as are the policy decisions and strategies that are based upon it, as long as implicit attitudes are not taken into account.

Previous studies usually offered suggestions to improve explicit attitudes. For instance, in an explanatory model of fair-trade buying behavior, De Pelsmacker et al. (2005) found that as well the perceived quality as the quantity of information had a substantial indirect effect on buying behavior, through the influence these factors had on fair-trade concern and skepticism. Therefore, several researchers have emphasized the importance of intensive communication about and promotion for ethical products (Nilsson, Tunçer and Thidell 2004; Wessels, Johnston and Donath 1999; Zadek, Lingayah and Forstater 1998). Although we agree that the above mentioned suggestions are highly relevant and deserve a close follow up, the results of the current study suggest that the problem of negative implicit attitudes is at least as prevalent as that of explicit attitudes. Thus, to raise societies’ ethical awareness and behavior the focus of research and action should be on improving consumers’ implicit attitudes. Therefore, in a second experiment we examined the effects of affective experiential contact with and symbolic information about Fair Trade products. Although the results of this experiment do not indicate a significant difference between the neutral condition and the experiential affective or the symbolic informative condition, there is a non-significant tendency that implicit attitudes slightly improved after being exposed to both types of information. Further, respondents in the cognitive condition showed more positive implicit attitudes toward Fair Trade products as compared to traditional products, while in the other conditions equally positive implicit attitudes toward both types of products were found. As such the results seem to suggest that implicit attitudes are influenced more by communication based on cognitive processes rather than sensory based communication.

The marketing implications of the results of the second experiment are that a single (positive) experiential contact with a product in for instance a supermarket (e.g. an in-store tasting stand) is not likely to result in the change of non-users’ implicit attitudes.
Further, the data also suggest that even when non-users cognitively process a message, their implicit attitudes will only slightly improve. As a result, both marketers and researchers should continue examining the determinants of consumers’ implicit attitudes and search for procedures to manipulate these determinants in such way that the effect can be detected by the IAT or another implicit attitude measure. Therefore, maybe the most interesting suggestion for further study is (1) to try to identify the relative importance of factors such as the type of information and product experience to diminish negative implicit attitudes and (2) the frequency of exposure required to change implicit attitudes.

As a limitation, we should point to the fact that this study was conducted in a relatively small exploratory group of Belgian consumers. Moreover, the study focused on only two product categories in one specific ethical buying situation (fair trade). Further research in different cultures and for different ethical products and issues should be conducted to corroborate our findings. Indeed, implicit attitude measurement in general and the IAT in particular could also be useful to study reactions to other social marketing issues, such as smoking, drinking alcohol, speeding, not wearing a seatbelt… Further research could also try to clarify what kind of variance it is exactly that is uniquely predicted by the IAT or focus on the potential moderating effects of, for instance, the amount of experience with the product and the intensity of product use, and perceived consumer effectiveness.

8. References


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www.fairtrade.net, accessed 15 October 2004

www.worldshops.org, accessed 2 February 2005

Appendix 7.1

The full transcription of the procedure and the results of GNAT analysis in Experiment 1

In line with our first series of experiments (cf chapter 6), we extended current study by including, next to the IAT, another implicit attitude measure: the Go/No go Association Task (GNAT; Nosek and Banaji, 2001). Likewise the IAT, the GNAT measures implicit attitudes or beliefs by assessing the strength of association between a (single) target category and two poles of an attribute dimension. The strength of association is determined by the ease respondents can discriminate items belonging to the target category (e.g. flowers) and attribute (e.g. good) from distracter items not belonging to these concepts. In one task respondents are asked to press the space bar when stimuli that represent the target category (e.g. flowers) and an attribute (e.g. positive) appear on the screen and to do nothing if items that do not belong to the categories pop up. In a second task respondents receive similar instructions, but now they have to press the space bar for the target category (e.g. flowers) and an alternative attribute (e.g. negative). The difference in accuracy (‘sensitivity’) between the two tasks is taken as a measure of implicit attitudes (Nosek and Banaji, 2001).

Participants and design

31 non-users of Fair Trade products participated in a sub-experiment at the time the main experiment was running. We asked respondents to conduct two GNATs in between completing the IAT and the questionnaire. We had to include two GNATs in the experiment because the GNAT typically measures implicit attitudes towards one single category. As a result, one GNAT was designed to measure implicit attitudes towards the Traditional products, while the other was assumed to measure implicit attitudes towards the Fair Trade products. To raise comparability, we designed the GNATs in such way that they were conceptually analogue to the IAT. Therefore, in the GNATs, the evaluations of one category (e.g. Traditional products) were assessed in relative contrast to a second category (e.g. Fair Trade products). That is, the distracters in any given block (e.g. when Traditional + positive are the target concepts and required hitting the space bar) were members of the opposing category or evaluation (e.g., Fair Trade products + negative). Although the two implicit measures resembled conceptually, their measurement of automatic evaluations with respect to both type of products differed. For the GNATs the
dependent variable was not response latency, but the ability to respond within a response deadline. The final score indicated the accuracy with which categorizations were made in the two pairing conditions.

**Materials**

In the categorization tasks, we used the same target concept and attribute stimuli as the ones used in the IAT. That is, for the target concepts, we used the pictures of the Fair Trade and Traditional products represented in the experiment. The attribute stimuli were the same 10 positive (laugh, good, paradise, friendly, love, pleasure, miracle, freedom, peace, healthy) and 10 negative (impudent, dirt, pain, destroy, murder, accident, poison, rotten, prison, stench) words that were used in the IAT.

**Procedure**

**Trail Blocks**

Each GNAT consisted of two test blocks. In one block the target concept (Traditional or Fair Trade product) was paired with an attribute of positive valence. In the other block, the same target concept was paired with an attribute of negative valence. Each block consisted of 72 trials (24 practice trials and 48 test trials). Trials started with the appearance of a single stimulus item from one of the categories (Traditional product, Fair Trade product, positive word, negative word). Target category and target attribute labels at the top of the screen reminded respondents of the categories for that block. Stimuli appeared in the center of the screen. For each block, an equal number of items were selected from the four concepts (Traditional products, Fair Trade products, positive words, negative words). We asked respondents to either (a) press the space bar as quickly as possible for items belonging the one of the two labeled categories (go), or (b) do nothing for items not belonging to the categories (no go). The next trial began when the respondent hit the space bar, or the response deadline was reached, depending on what came first. In our experiment the distracter trials ( = noise) were items from the contrasting category (i.e. when Fair Trade was signal, Traditional was noise) and attribute (i.e. when positive was signal, negative was noise).
Explicit and Implicit Determinants of Fair Trade Buying Behavior

Response deadline

The most effective response deadlines for measuring implicit attitudes are those fast enough to eliminate perfect responding but not so fast as to lower accuracy substantially. Nosek and Banaji (2001) conclude that response deadlines falling in the range of 500 and 850 milliseconds are appropriate. We used a fixed response deadline of 833ms.

GNAT procedure

Respondents completed two GNATs measuring implicit attitudes towards Fair Trade and Traditional products respectively. Each GNAT began with practice blocks in which respondents learned to discriminate between two categories: Traditional from Fair Trade products and positive from negative words. The practice blocks consisted each of 24 trials. For all respondents the GNAT measuring attitudes towards Traditional products came first, but the blocks within each GNAT were randomized. A red cross appeared on the screen for noise items that were incorrectly categorized as signal (false alarms) and for signal items that were not categorized (misses). This enabled us to provide continuing feedback about performance accuracy. After completing the GNATs, respondents filled in the questionnaire.

Analysis of SDT

Before calculating the d-prime (d') we first corrected for empty cells in accordance with the approach outlined by Banaji and Greenwald (1995). Therefore, we used a correction of .35, divided by the number of trials to empty cells. Following Nosek and Banaji (2001) and Green and Swets (1966) we calculated sensitivity by means of the algorithm applied in signal detection research. That is, we first converted the proportion of hits (correct ‘go’ response for signal items) and false alarms (incorrect ‘go’ response for noise items). Next, we calculated the d-prime by subtracting z-score values for false alarms from z-score values for hits. Greater sensitivity indicates a stronger association between the target category and an attribute.
Results

Only 7 respondents could be included in the analysis because for the others the d' prime value was 0 or below. Such a small d' suggest that the respondents were either unable to discriminate signal from noise or were not performing the task as instructed. The elimination of more than half the numbers of subjects suggests a GNAT measurement of poor quality.

The results indicated that respondents showed greater sensitivity when Fair Trade products and positive words were signal (d'=.66) than when Fair Trade products and negative words were signal (d'=.42; t(6)=2, p=.09). However, when the target concept was Traditional product, no difference in sensitivity could be found (d'_positive=.54, d'_negative=.56, t(6)=.17, p=.87). Further, an ANOVA with type of product (traditional vs Fair trade) and valence (positive vs negative) as within subjects variables showed no significant main effect of product (F(1,6)=.009, p=.93) nor valence (F(1,6)=1.69, p=.24) and no significant interaction effect between type of product and valence (F(1,6)=2.59, p=.16). To examine the correlations between the GNAT and the other attitude measure we calculated a GNAT difference score. This score indicates the difference of d' scores between the category + positive condition and the category + negative condition (e.g. GNAT Fair Trade effect= [d' for Fair Trade+positive] −[d' for Traditional + negative]).

We did not find a correlation between the two GNAT measures (r=.06, p=.91) nor between the GNAT measure with respect to Fair Trade products\(^{17}\) and the IAT (r=.09, p=.88) or the explicit difference score (r=-.21, p=.74).

Conclusions

The elimination of more than 80% of the respondents suggests that interpretation of the results would be invalid and meaningless. Further, these deprived results further suggest that response latency based indirect attitude measures other than the IAT still possess inferior psychometrical qualities as compared to the IAT.

\(^{17}\) There were not enough observations (N=4) to calculate a correlation between the GNAT with respect to traditional products and the IAT or the explicit difference score.
References


CHAPTER 8

EXPLICIT AND IMPLICIT EVALUATIONS OF ADS DEPICTING DIFFERENT GENDER ROLES
Chapter 8

Explicit and Implicit Evaluations of Ads Depicting Different Gender Roles

1. Abstract

The purpose of the third study was to gain more insight in the evaluation of advertisements containing different gender role portrayals (stereotypical/a-stereotypical) by examining explicit and implicit processes of ad evaluation. The results of three experiments showed an explicit preference for ads containing a-stereotypical images. Implicitly, we found a preference for ‘warm’ ads irrespective of the degree of gender stereotypicality of the ad. These findings suggest that complex stimuli such as ads may inhibit implicit gender stereotype activation. At an implicit level, warmth seems a better predictor of ad evaluation.

2. Introduction

In most Western societies, public opinion reflects the growing belief in gender equality. Decades after the onset of the feminist movement, women increasingly participate in the workplace and occupy almost as diverse jobs as men do. Although to a lesser extent than women, men too have changed their behavior. Men do more household chores and spend more time with the children. Thus, gender-related responsibilities and expectations that once were distinct have become mixed and blurred (Hupfer, 2002). The question is what these huge societal changes possibly imply for advertisers. Do consumers expect ads to represent these changing gender roles? Or, do they take stereotypical roles in ads for granted and can advertisers continue using them to communicate to an intended target group?
Explicit and Implicit Evaluations of Ads Depicting Different Gender Roles

Ad strategies frequently switch from traditional to modern and back. For instance, during the eighties, advertisers have put forward ads that showed men ‘fussing over what dinner they should prepare for their dates’, while Marketing News of the nineties headlined: ‘Forget the sensitive men!’ and reported that marketers have decided that the ‘manly man’ and ads ‘oozing testosterone’ were back (Miller, 1993). Also with respect to female role portrayals, opinions have been divided and variable. While some marketers have ditched the old gender stereotype and do not take the risk of offending their female customers, others subscribe that magazine covers like Cosmopolitan should be close to porn. Further, we are still seeing advertisements that continue to primarily target women as the cleaners and the caretakers (Martin, 2001). Finally, practitioner journals reiterate the need to better understand male and female attitudes in order to develop effective advertisements that ‘translate’ across gender lines (Dortch, 1994). This suggests that practitioners are still puzzling on how to portray gender roles in ads.

Academic knowledge also fails to provide satisfactory answers. The results of different studies on the evaluation of gender role portrayals in advertising are not only inconsistent and contradictory (Orth & Holancova, 2004; Whipple & Courtney, 1985), but they are also restricted to standard copytesting using self-reports (Hazlett & Hazlett, 1999). Self-reports have been shown to be less appropriate to capture automatic and spontaneous processes in consumer evaluations and decisions (e.g. Brunel, Tietje, & Greenwald, 2004). The recently acknowledged role of emotional and spontaneous responses in ad evaluation suggests that contemporary copy testing unravels people’s ad evaluation only partly (Cramphorn, 2004). The purpose of the current study was to gain more insight in the evaluation of gender role portrayals (stereotypical versus a-stereotypical) in print advertisements. Therefore, we addressed both deliberative (explicit) and spontaneous (implicit) processes of ad evaluation by using a measure of implicit attitudes (the Implicit Association Test, IAT) next to self-report measures. Moreover, this research goes beyond previous studies by taking into account both sexes, both as portrayals in ads (Orth & Holancova, 2004) and as respondents.

3. Gender stereotypes in advertising or not: the ongoing debate

For a long time advertisers have been using gender stereotypes in advertising because it was generally assumed that gender roles could explain sex differences in ad evaluation. They presumed that the male agentic role is characterized by concern for the

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self, while the communal female role typically embraces concern for both the self and others (Meyers-Levy, 1988). The advertising strategy implications of this distinction were that marketers should make use of longstanding stereotypes that attribute independence to men and affiliation to women. Accordingly, recent research concluded that men and women are likely to respond more favorably to messages that are in tune with their respective gender-role expectations and information processing styles, in spite of recent social-cultural trends (Andsager, Austin, & Pinkleton, 2002; Putrevu, 2004). Orth and Holancova (2004) reported that females had less favorable attitudes toward ads featuring female models in roles superior to males than toward ads with male models in superior roles to females and toward single sex ads. These findings suggest that the use of stereotypes in ads is consistent with general preferences.

However, different researchers have questioned the usage of gender stereotypes in ads. Back in 1979, Scheibe believed that the usage of a-stereotypical images could broaden existing markets without destroying old ones. She demonstrated that people were much more likely to remember commercials that showed new roles for men and women than those that perpetuated stereotypes. Further, Whipple and Courtney (1985) and later Latour (1993) found that for a female audience, modern, liberated female role depictions might be more effective than traditional role portrayals. Hupfer (2002) concluded that practitioners are in danger of alienating the working female audience when constructing advertising messages containing gender stereotypes. She believes that with changing gender roles the relationship among sex and agentic or communal traits is unsettled.

In summary, the empirical and practical arguments in favor of using stereotypes in ads are mixed. Further, the debate seems to have neglected portrayal of men in ads. This paper attempts to add information to this debate in two important ways. Investigating how men and women react to ads depicting men and women in stereotypical versus modern roles is our first contribution. Going beyond standard copy testing, which typically relies on self-reports, is our second contribution. We now argue why considering implicit ad evaluation measures is important for the marketing field.

4. Beyond standard copy testing

Because standard copy testing is mainly based on self-report measures (Hazlett & Hazlett, 1999), the studies discussed in the previous section fail to meet recent sighs to take into account automatic and implicit processes next to the more deliberative forces.
when examining consumer attitudes and decisions (Shiv & Fedorikhin, 1999; Brunel, Tietje, & Greenwald, 2004; Maison, Greenwald, & Bruin, 2004; Cramphorn, 2004). Several arguments can be formulated to enrich advertising research with implicit measures.

A first argument is that self-reports are susceptible to social demand influences. In self-report tasks people do not always tell what they really feel in order to impress the researcher or to hide personally or socially undesirable opinions (e.g. Fisher & Katz, 2000). This may be especially true for the evaluation of controversial ads such as ads containing gender role portrayals. A second argument is that self-reports provide only part of the total ad evaluation. Because emotions typically precede cognition (LeDoux, 1989), people have to think back on how they felt about the ad when filling in a questionnaire. The lag between the experience and the report allows other information than the primary affective reaction to influence the self-report. Consequently, these evaluations and opinions are often ‘artificial’ and do not reflect the real spontaneous evaluation (Kardes et al., 1993). In addition, social cognition researchers have recently documented that unconscious processes are intrinsically involved with all people’s emotional responses. A large portion of consumers’ daily activity seems to result from processes that occur outside conscious awareness and control (Greenwald et al., 2002; Bargh, 2002). Several researchers concluded that most processing of product attributes and advertising messages is subconscious, implicit and intuitive (Olshavsky & Granbois, 1979; Hoyer, 1984; Haley & Baldinger, 1991). Also, consumers are unaware of how ideas from an advertisement affect their feelings toward a brand (Heath, 2001; 2002).

The recognition of the important role of automatic processes in (consumer) behavior, is related to the recent distinction in social cognition research between explicit and implicit attitudes. Explicit attitudes are conscious attitudes that are measured by self-report tasks; implicit attitudes are ‘introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward social objects’ (Greenwald & Banaji, 1995) and are assessed by means of implicit measures that are often based on the interpretation of reaction times (Greenwald, McGhee, & Schwarz, 1998).

Implicit measures

One of the most promising solutions to the shortcomings of self-report measures is the Implicit Association Test (IAT). The IAT is a computerized task that measures
strengths of associations between concepts by comparing response times. The respondents’ task is to categorize stimuli that represent four concepts by pressing just two computer keys, which each combine two out of the four concepts, as fast and as accurately as possible. The basic assumption of the IAT is that respondents should have faster reactions when mapping two similar or associated concepts to the same response key than when these associated concepts require different responses. The difference in reaction times between these two tasks is taken as an indication of the degree of association between the concepts (Greenwald, McGhee, & Schwartz, 1998). For instance, Brunel et al. (2004) assessed implicit attitudes toward ads containing Black models versus White models by combining the two types of ads with a discrimination task between words with positive versus negative meaning. Individuals with implicit prejudice against black models in ads were assumed to react slower when ads with Black models and positive words shared the same response key as compared to the reversed configuration (ad with Black model and negative words). A substantial number of studies have demonstrated the reliability and validity of the IAT (overview in Greenwald & Nosek, 2001).

5. Implicit stereotypes

Closely related to the implicit attitude concept are implicit stereotypes. As a ‘special case’ of implicit attitudes, implicit stereotypes are defined as ‘the introspectively unidentified (or inaccurately identified) traces of past experience that mediate attributions of qualities to members of a social category’ (Greenwald & Banaji, 1995). Applied to gender stereotyping, it is suggested that all people will implicitly stereotype genders (e.g. Devine, 1989). Furthermore, Banaji and Greenwald (1995) found that implicit gender stereotypes are very similar for men and women. This result is contrary to earlier findings based on self-report that suggest more egalitarian gender beliefs and reduced sex-stereotyping among women than men (e.g. Ashmore, Del Boca, & Bilder, 1995; Glick & Fiske, 1996). Banaji and Greenwald’s (1995) ‘judgment of fame’ study showed that both sexes assigned fame more to male than to female names (Banaji & Greenwald, 1995). These results were later confirmed and extended (e.g. Rudman & Kilinski, 2000; Rudman, Greenwald, & McGhee, 2001; Rudman & Glick, 2001; Rudman & Goodwin, 2004): men and women alike implicitly associate men more with agency related traits and women with communal related traits, despite differences in explicit attitudes. This implies
that implicit gender beliefs and attitudes are less likely to show differences based on participant’s sex or conscious beliefs, compared to self-report counterparts (Rudman et al., 2001). Further, it is suggested that implicit and explicit stereotypes may operate independently from each other. Like implicit attitude measurement, implicit stereotypes are assessed using implicit measures. Several researchers have recently successfully broadened the use of the IAT by extending the attitude-object category (e.g. self, gender, etc.) and using nonevaluative attributes (e.g. strong, large, etc.), making it suitable to measure stereotypes (Rudman, Greenwald, & McGhee, 1996; Rudman & Kilianski, 2000; Rudman et al., 2001).

At first sight, the existence of implicit gender stereotyping might be considered as further support for the usage of stereotypes in ads. However, different authors have shown that automatic gender stereotyping is not ubiquitous but conditional. Gilbert and Hixon (1991) showed a moderating effect of cognitive busyness on automatic gender stereotyping. They found that when exposed to an Asian person, non-busy respondents showed spontaneous stereotype activation whereas busy respondents did not. But when respondents had to rate an Asian person on stereotypical traits, which stimulated stereotype activation, the pattern reversed. Busy respondents were more likely to apply these activated stereotypes than were non-busy respondents. Apparently, when cognitively loaded, stereotype activation occurs only when the category is salient and relevant enough for the goal at stake. Further, different studies indicated that automatic beliefs and attitudes can be modified by changing the social context that people inhabit (e.g. Dasgupta & Greenwald, 2001; Wittenbrink, Judd, & Park, 2001). With respect to gender stereotyping, Dasgupta and Asgari (2004) found that exposure to female leaders temporarily reduced women’s automatic gender stereotypical beliefs. Finally, Moskowitz, Salomon, and Taylor (2000) demonstrated a positive effect of the level of explicit stereotype endorsement on automatic stereotype activation. The underlying idea is that the prejudice level as measured through questionnaires, is directly related to the associative strength between the category node and the stereotypic content in the individuals’ mind. Individuals who display higher levels of prejudice should also have stronger associative links, so that the activation from the category node to the stereotypic traits should spread more easily. The generality of automatic gender stereotyping may be further questioned as current knowledge on its activation and operation is limited to reactions to language-based stimuli (Rudman et al., 2001) and schematic drawings (Rudman & Kilianski, 2000). Whether or not gender stereotyping would spontaneously
occur when consumers perceive ads depicting men or women is therefore an open and important question.

6. Summary of the research objectives and hypotheses

This paper has two purposes. The first and most important purpose of the study was to examine whether IAT might provide information beyond the information available from self-reports. We expect that explicit evaluation of gender role portrayals in advertising may be different from spontaneous evaluation due to the influence of social norms or the inability of people to access and report the information that guides automatic evaluation of ads. On top of this, there is also the question whether implicit gender stereotyping will be activated in consumers who are confronted with complex stimuli such as ads depicting different gender roles. The second aim was to gain more insight in the evaluation of gender role portrayals (stereotypical versus a-stereotypical) in print advertisements. In doing so, both sexes, both as portrayals in ads and as respondents were taken into account.

Although substantial research suggests that automatic gender stereotyping is quite omnipresent (e.g. Rudman & Kilianski, 2000; Rudman et al., 2001), different authors have set boundaries to the generality of the phenomenon (Gilbert & Hixon, 1991; Dasgupta & Asgari, 2004; Moskowitz et al. 2000). Further, self-reports measuring attitudes toward social sensitive topics are likely to be influenced by social norms (Fisher & Katz, 2000). As a result, we hypothesized that if implicit gender stereotyping indeed applies to ad evaluation we should find that:

H1: A dissociation emerges between explicit and implicit attitudes toward ads portraying gender roles, with respondents showing explicitly relatively more modern and implicitly relatively more stereotype-consistent ad evaluations.

Following the evidence that women show more egalitarian explicit gender attitudes than men (Glick & Fiske, 1995) but that genders do not differ implicitly (Banaji & Greenwald, 1995), we hypothesized that:
H2: The dissociation between implicit and explicit measures is larger for women than for men.

7. Experiment 1

In the first experiment we examined explicit and implicit attitudes toward ads depicting women in stereotypical and a-stereotypical roles in advertisements for both men and women. Further, the relationship between the ad attitudes and implicit gender role beliefs was examined.

7.1. Participants and procedure

Seventy-four undergraduate students (31 women, 43 men) voluntarily participated in the experiment. All respondents were between 18 and 24 years old (\(M_{\text{age}}=20.73, SD=2.15\)). Upon arrival in the lab, respondents first completed a questionnaire followed by two 5-block computer-based IATs\(^{18}\). The questionnaire contained measures of ad attitudes and demographic questions. The order of the different ads was counterbalanced so that half of the respondents first had to rate the stereotypical ads followed by the a-stereotypical ads. The other half of the respondents received inversed instructions. Respondents were randomly assigned to one of the orders. Next, respondents first completed the IAT that measured implicit attitudes toward the ad and subsequently the IAT designed to measure implicit gender stereotypes. The experiment was conducted individually and took about 15 minutes.

7.2. Stimuli

We developed 4 ads (See appendix 8.1) with a simple layout that allowed quick processing and classification. Each of the four ads consisted of the (same) fictitious brand identifier for a mobile phone company (brand name, image of a mobile phone, slogan)

\(^{18}\) We chose to use this fixed order because the IAT is less sensitive than explicit measures to influences of prior measures (Brunel et al., 2004; Nosek, Greenwald, & Banaji, 2003), although we are aware that the order of implicit versus explicit measures has inconsequential effects on the results (Greenwald & Farnham, 2000).
and a picture of (the same) woman in different (stereotypical or a-stereotypical) roles. Two ads portrayed a sensual woman and two ads a career woman. This selection relied on a study showing that sensual women (stereotypical) and career women (a-stereotypical) were most prevalent and on the rise in print advertisements from 1974-1994 (Mortelmans, 1997). To make the pictures resemble an ad, we added a slogan to the pictures. The slogan (‘you can only be yourself, my sigma, my personality, me’) was assumed to be neutral and relevant because it fits with both roles and mobile phones are often used to express aspects of one’s personality (Carroll, Howard, Peck, & Murphy, 2002).

7.3. Measures

We used a six-item semantic differential (interesting/boring, good/bad, unpleasant/pleasant, dislike/like, favorable/not favorable, not irritating/irritating; Mackenzie & Lutz, 1996; Brunel et al., 2004) to measure the explicit attitudes toward the stereotypical ads on the one hand and the a-stereotypical ads on the other hand. Scale reliability was high (Cronbach’s α (stereotypical ads)=0.89; Cronbach’s α (a-stereotypical ads)=0.81). Further, we also added two items (stereotypical/a-stereotypical and modern/not modern) to the semantic differential in order to check our manipulation.

A first IAT was designed to measure implicit attitudes toward the four ads in the experiment, further called the Aad IAT. The target stimuli were the stereotypical and a-stereotypical advertisements, with ‘ad with a sensual woman’ and ‘ad with a career woman’ as target labels. As attribute stimuli, we used positive (gift, peace, laughter, honest, rainbow, loyal) and negative (death, cancer, hatred, disaster, poison, accident) words (all words were copied from a validated list of positive and negative words in Greenwald et al., 1998). Letter case of the verbal stimuli was varied in order to prevent participants from using a simple visual feature of the words as response cues. Stimuli were presented individually in the center of the computer screen and the respondents’ task was to assign each stimulus to one of the two categories. The IAT procedure comprised five blocks. In the first block, respondents discriminated between positive and negative words on 24 trials. Block 2 consisted of a target discrimination task (24 trials) in which respondents had to assign the four ads to the right category: ‘ad with a sensual woman’ versus ‘ad with a career woman’. In block 3 (24 practice and 48 data collection trials) respondents were asked to categorize items by pressing one of the two keys: ads with a
sensual woman and positive words were assigned to one key while ads with a career woman and negative words were assigned to the other key. Block 4 included once again a target discrimination task, but now with a reversal of the side of the screen on which the two category labels appeared (24 trials, the reverse of task 2). Block 5 (24 practice and 48 data collection trials) consisted of the reversed combined categorization task of block three: ads with a sensual women and negative words were assigned to one key and ads with a career woman and positive words to the other key. The order of performing block 3 and 5 was counterbalanced between subjects. Before and during each phase, category labels were displayed on the left and right sides of the screen. Respondents were asked to respond as quickly but also as accurately as possible. Summary feedback was given in the form of mean response latency in seconds and percentage correct following each block. All blocks were respondent-initiated. In case of an incorrect response, a red cross appeared on the screen for 400 ms. The interval between pressing the correct response key and the presentation of the next stimulus was 150 ms. The IAT effect was calculated so that positive scores indicate a preference for the a-stereotypical ads.

The second IAT was similar to the gender role IAT as used in the Rudman and Kilianski (2000) study to assess respondents’ implicit beliefs on gender roles. In the current experiment the IAT used 28 stimulus words: 7 male names (e.g., Tom, Jan, Bart), 7 female names (e.g. An, Ellen, Sofie), 7 career-meaning words (career, job, salary, office, promotion, finances, and occupation), and 7 domestic meaning words (household, family, marriage, child care, cooking, kitchen, and shopping). Task instructions, test blocks and intertrial interval were similar to the Aad IAT. A positive gender role IAT effect reflects implicit stereotyping, which means that respondents associate career-meaning words more with male names and domestic-meaning words more with female names. This gender role IAT will be further called the ‘career-domestic IAT’.

7.4. Results

7.4.1. Manipulation check

The manipulation check showed that the ads with the career woman were perceived as less stereotypical ($t(71)=-2.6; p=.010$) and more modern ($t(71)=2.91; p=.005$) as compared to the ads with the sensual woman ($M_{career\_stereotypical}=3.63$; $M_{career\_modern}=6.74$).
\( M_{\text{sensual\_stereotypical}} = 4.30; M_{\text{career\_modern}} = 2.77; M_{\text{sensual\_modern}} = 2.30 \). The control items were presented after the crucial Aad items.

### 7.4.2. Explicit attitudes

An ANOVA with ‘type of advertisement’ (stereotypical versus a-stereotypical) as within subjects-variable indicated that explicit attitudes toward the a-stereotypical advertisements \((M_{\text{a-stereotypical}} = 4.94, SD = .97)\) were significantly more positive than explicit attitudes toward the stereotypical advertisement \((M_{\text{stereotypical}} = 4.39, SD = 1.30), F(1,74)=20.58, p<.001\). In subsequent analyses we found a significant interaction effect between type of advertisement and gender \((F(1,72)=4.88, p=.03)\). Although both genders significantly preferred the a-stereotypical ad, women \((M_{\text{difference women}} = .86; \tau(31)=4.40, p<.001)\) held even more positive attitudes toward the a-stereotypical as compared to the stereotypical ad than men \((M_{\text{difference men}} = .33; \tau(42)=2.23, p=.03)\).

### 7.4.3. Implicit attitudes

Prior to analysis, data of both IAT tasks were treated following the procedure outlined by Greenwald et al. (1998): (1) reaction times shorter than 300 ms and larger than 3000 ms were recoded into 300 ms and 3000 ms respectively, (2) the first two trials of each block were dropped because of their typically longer latencies, as were reaction times and trials with an incorrect response and (3) reaction times were log-transformed prior to averaging. However, for reasons of clarity, response latencies in terms of ms will be reported (see Greenwald et al. 1998). The average error rate of the ad evaluation IAT was 5.01\% (0\%-25.5\%), so no respondents had to be excluded from the analysis.

An ANOVA with ‘IAT task’ (stereotypical ad-positive, stereotypical ad-negative) as within-subjects variable showed a significant preference for the stereotypical ads \((M_{\text{stereotypical-pos}} = 811 \text{ ms}, SD = 187; M_{\text{stereotypical-neg}} = 850 \text{ ms}, SD = 203, F(1, 72)=4.35, p=.04)\). This means that respondents hold more positive implicit attitudes toward the stereotypical ad than toward the a-stereotypical ad. No differences in implicit attitudes were found according to gender \((F(1, 71)=.093, p=.761)\).

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\(^{19}\) The explicit difference score (here and in the remainder) is the result of subtracting the explicit attitude towards the stereotypical ad from the explicit attitude towards the a-stereotypical ad. Thus, positive scores indicate preference for the a-stereotypical ad.
For the analysis of the ‘career-domestic IAT’ only one subject had to be excluded because she had extreme high mean latencies. The average error rate was acceptable (5.62%; 0%-28.3%). The IAT effect was calculated so that positive scores indicated implicit gender stereotyping. The results replicated Rudman and Kilianski’s (2000) findings: male names were associated significantly more with career related words and women with domestic related words (\(M_{\text{difference score}} = 90\) ms, \(t(72) = -4.99, p < .001\)). An ANOVA with repeated measures with IAT-task as within subjects variables and gender as between subjects variable, did not show an interaction effect between IAT and gender (\(F(1, 71) = 1.99; p = .16\)).

7.4.4. Relationship between explicit and implicit attitudes

In order to statistically compare the results of implicit and explicit measures, we first standardized both types of attitude scores.\(^4\) Secondly, we reversed the scores of the implicit z-variables so that high scores indicate more positive attitudes than low scores. We analyzed the standardized attitudes scores using an ANOVA with type of advertisement (stereotypical vs a-stereotypical) and measurement method (explicit vs implicit) as within subjects variables. The ANOVA revealed a significant interaction effect of type of advertisement and measurement method (\(F(1, 71) = 34.43, p < .001\)), which indicated the expected dissociation between the explicit and implicit Aad measures. That is, respondents explicitly preferred the a-stereotypical ads, while implicitly, they liked the stereotypical ads more than the stereotypical ads. Further, we found a marginally significant three-way interaction between type of advertisement, measurement method and gender (\(F(1, 71) = 3.84 p = .054\)), resulting from the weaker explicit preference for a-stereotypical ads for men (see above) that was not replicated on an implicit level. In sum, the results of Experiment 1 support both hypotheses. Consistent with previous research on implicit attitudes (e.g. Greenwald et al. 1998) a significant weak positive relationship was found between the explicit and implicit attitude measures (\(r = .27, p = .023\)).

\(^4\)For the IAT, z-transformation of each test block (stereotypical-positive and stereotypical-negative) was based on the mean and standard deviation of the reaction times in both blocks; for the explicit measures, z-transformation of each measure (attitude towards ad with stereotypical gender depictions and attitude towards ads with a-stereotypical gender role portrayals) was based on mean and standard deviation of all explicit scores (see Brunel et al., 2004, for a similar approach).
7.4.5. *Relationship between attitude measures and ‘career-domestic IAT’*

We did not find a significant correlation between the ‘career-domestic IAT’ on the one hand and either the Aad IAT (r=-.113, p=.34) or the explicit difference score (r=.040, p=.74) on the other hand.

7.5. *Discussion*

The *current* experiment shows a dissociation between explicit and implicit attitudes toward ads that portray women in stereotypical and a-stereotypical gender roles. Explicitly, respondents preferred the a-stereotypical ad to the stereotypical ad, while explicitly the reverse pattern was found. Whereas men and women held equal implicit attitudes, explicit preference for the a-stereotypical ad was stronger for women than for men. The explicit preference for the a-stereotypical ad seems to reflect the socio-cultural trend toward more gender equality. Given the social sensitiveness of the ads’ content, the explicit results may also reflect social norms rather than people’s spontaneous attitudes. In striking contrast, scores on the implicit attitude measure indicated an automatic preference for the stereotypical ad, irrespective of gender.

These results seem to imply that implicit gender stereotyping interferes with spontaneous ad evaluation. Our data suggest that ads are evaluated less positively on an implicit level when the woman is pictured in an a-stereotypical way. However, the lack of correlation between the Aad IAT and the ‘career-domestic IAT’ suggests that other processes than implicit stereotyping may account for the implicit preference for the stereotypical ads. In addition, a second look at our ads suggests another, more basic distinction that might have been used to categorize the four ads into the assigned pairs: warmth (ads with sensual woman) versus potency (ads with career woman). As a result, the positive implicit attitudes toward stereotypical depictions of women may indicate a primary preference for warmth over potency rather than an implicit preference for the stereotypical ads. However, because the feminine stereotype and words related to warmth are entangled (Rudman et al., 2001), the current experiment cannot decide between the two interpretations. Therefore, we tried to disentangle warmth from the stereotypical gender role in a second experiment. Note that this alternative explanation does not reduce the relevance of our findings in the debate about the use of stereotyping in ads. Rather, it suggests that the implicit evaluations of stereotypical gender roles might be related to other aspects than its stereotypicality. If warmth versus potency is that important aspect,
stereotyping might have opposing effects depending on the sex of the person depicted in the ad. That is, implicitly, stereotypical women and a-stereotypical men should be preferred to the extent that they are warmer than their respective counterparts (i.e. a-stereotypical women and stereotypical men).

8. Experiment 2

In this experiment we measured attitudes toward ads depicting different male roles because for men, warmth and stereotypes are dissociated. Therefore, pictures of men should allow disentangling the explanation in terms of stereotyping versus warmth for the findings of Study 1. If the implicit preference for the stereotypes that we found in the previous experiment is due to implicit stereotyping, we expect an implicit preference for the masculine man. If, however, the implicit preference is due to the warmth of the pictures, then we expect an implicit preference for the a-stereotypical ads in this experiment. In addition to the ‘career-domestic IAT’ (like in Experiment 1), we added a gender stereotype IAT in order to determine to what extent people stereotype men as more potent and women as warmer.

8.1. Participants and procedure

One hundred and seven students (61 women, 46 men) participated in the experiment in exchange for a 6-euro participation fee. All respondents were between 18 and 33 years old ($M_{age} = 21.84$, $SD=2.60$). The procedure of Experiment 2 was similar to the one in Experiment 1: Respondents first completed a questionnaire, followed by three IATs in a fixed order.

8.2. Stimuli

Again, we created 4 ads (See appendix 8.2) with a simple layout, but now the main character in the ad was a man in a stereotypical or a-stereotypical role. Because men are most often portrayed in professional occupations in ads (Vigorito & Curry, 1998) we chose to portray the same male model in rather female versus rather male occupations for reasons of credibility. We assumed that the ‘sensual man’ as the counterpart of the
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‘sensual woman’ would be less appropriate because the sensual man is not common in advertising nor in daily life (Rohlinger, 2002).

According to recent figures of the governmental statistics board, the most typical female occupations are ‘nurse’ and ‘nursery school teacher’, while the most typical male occupations are ‘construction worker’ and ‘mechanic’. Accordingly, we developed 2 a-stereotypical ads (warmth) and 2 stereotypical (potency) ads portraying men in the most common occupations for the two categories. The four ads had the same brand identifier for the same fictitious brand of male deodorant (brand name, image of a bottle of deodorant, slogan) and a picture of the same man in four different occupations. The slogan ‘Degree deo keeps you going on’ was selected as it was neutral and appropriate.

8.3. Measures

Explicit Aad was measured using the same semantic differential scale as in Experiment 1 (Cronbach’s α (stereotypical ads)=0.84; Cronbach’s α (a-stereotypical ads)=0.91) and we included three items (stereotypical/a-stereotypical and modern/not modern, tender/moving/not tender/moving) in the semantic differential in order to be able to check our manipulation.

To measure implicit Aad we used a methodology similar to that used in Experiment 1. The target stimuli were the stereotypical and a-stereotypical advertisements, with ‘ad with a strong man’ and ‘ad with a caring man’ as target labels. As attribute stimuli, we used the same positive and negative words as in Experiment 1. For half of the respondents the first combined categorization task consisted of assigning positive words and ‘ads with strong man’ to one response key and negative words and ‘ads with caring men’ to the other response key. In the second combined categorization task they were instructed to combine the positive words with the ad depicting a strong man and the negative words with the ad depicting a caring man. The other half of the respondents received reversed instructions. The IAT effect was calculated in a way that positive scores indicated preference for the a-stereotypical ads over the stereotypical ads. Next to the Aad-IAT, respondents completed a ‘career-domestic IAT’ identical to the one in Experiment 1 (a positive IAT effect indicates that respondents associate men more with career-related words and women with domestic-related words) and a ‘potency-warmth IAT’ in which male and female names had to be combined with words referring to
potency and warmth (cf Rudman, Greenwald, & McGhee 2001, Experiment 4). In other words, the ‘warmth-potency IAT’ was designed to measure implicit gender stereotyping, that is the extent to which people implicitly stereotype men as more potent and women as warmer. Positive scores on the ‘warmth-potency IAT’ suggest implicit gender stereotyping.

8.4. Results

8.4.1. Manipulation check

The manipulation check showed that the ads with the caring man were perceived as less stereotypical ($t(105)=13.59; p<.001$) and more modern ($t(105)=2.91; p=.005$) as compared to the ads with the strong potent man ($M_{\text{caring, stereotypical}}=2.34$; $M_{\text{potent, stereotypical}}=5.33$; $M_{\text{caring, modern}}=4.54$; $M_{\text{potent, modern}}=2.36$). Also, the ads with the caring man were judged to be more tender/moving than the ads with the strong man ($M_{\text{caring, tender}}=4.75$; $M_{\text{potent, stereotypical}}=2.58$; $t(105)=-14.9; p<.001$). Again, the control items were presented after the crucial Aad items.

8.4.2. Explicit attitudes

In line with the first study, respondents had a significantly more positive attitude toward the a-stereotypical ads ($M_{\text{a-stereotypical}}=4.15, SD=1.29$) than toward the stereotypical ads ($M_{\text{stereotypical}}=3.71, SD=1.05, F(1,102)=10.68, p=.001$). Further, we again found a significant interaction effect between type of measure (Aad$_{\text{stereotypical}}$ vs Aad$_{\text{a-stereotypical}}$) and gender ($F(1,101)=5.28, p=.024$). Women held significantly more positive attitudes toward the a-stereotypical ads as compared to stereotypical ads ($M_{\text{difference, women}}=.71, t(58)=-3.91, p<.001$), while men showed no preference ($M_{\text{difference, men}}=.10, t(45)=-.5, p=.62$).

8.4.3. Implicit attitudes

We excluded four respondents from the analysis because of extremely high response latencies. The average error rate was 3.96% (0%-27.9%) and did not require further removal of respondents. The ANOVA with ‘IAT task’ (stereotypical ad-positive, stereotypical ad-negative) as within-subjects variable showed a significant preference for
the a-stereotypical ads ($M_{a-stereotypical-pos}$=682 ms, $SD=129$; $M_{a-stereotypical-neg}$=790 ms, $SD=171$, $F(1,105)=66.88$, $p<.001$), suggesting that respondents hold more positive implicit attitudes toward the a-stereotypical ads than toward the stereotypical ads. These findings are inconsistent with implicit stereotyping but consistent with implicit evaluation in terms of warmth and potency. We did not find an interaction effect with gender ($M_{diff\_men}=93$ ms, $M_{diff\_women}=124$ ms, $F(1,104)=1.86$, $p=.175$).

For the remaining two IATs no respondents had to be excluded from the analysis as the maximum mean error rate over the two measures did not exceed 7.58%. The ‘career-domestic IAT’ replicated the results of experiment 1. The IAT effect indicated a stronger association between male names and career related words and between female names and domestic related words than in the reversed combination ($M_{difference}=100$ ms, $t(105)=-11.15$, $p<.001$). The ‘potency-warmth IAT’ demonstrated evidence for implicit stereotyping in both genders, with the strongest associations between men and words referring to potency and between women and words referring to warmth ($M_{difference}=118$ ms, $t(103)=-11.06$, $p<.001$). The latter results are in line with Rudman et al.’s. (2001) findings in their experiment 4. In sum, the latter results suggest evidence of implicit stereotyping.

8.4.4. Relationship between explicit and implicit attitudes

Similar to Experiment 1 we used standardized attitude scores in an ANOVA with type of advertisement (stereotypical vs a-stereotypical) and measurement method (explicit vs implicit) as within subjects variables and gender as between-subjects variable. Most importantly, the ANOVA revealed a significant main effect of type of advertisement ($F(1,101)=63.84$, $p<.001$). Both implicitly and explicitly, participants preferred a-stereotypical ads. We further found a significant interaction effect of type of advertisement and gender ($F(1,101)=7.37$, $p=.008$) consistent with that of Experiment 1: men’s preference for a-stereotypical pictures was less pronounced. Finally and tangential to our hypotheses, we found a significant interaction effect between measurement method and type of advertisement ($F(1,101)=6.82$, $p=.01$). The preference for a-stereotypical ads was larger implicitly ($M_{e-score\_implicit}=.72$) than explicitly ($M_{e-score\_explicit}=.39$). We did not find a three-way interaction effect between measurement method, type of advertisement and gender ($F(1,101)=1.96$, $p=.17$). Finally, the explicit and implicit difference scores did not correlate ($r=-.02$, $p=.87$).
8.4.5. Relationships between implicit attitude and implicit stereotype measures

We found a significant positive correlation ($r=.271, p=.005$) between the IAT Aad and the ‘potency-warmth IAT’. The ‘potency-warmth IAT’ was scored in such a way that positive scores indicated a stronger association between female names and warmth than between female names and potency. Stronger association between warmth and women (i.e. stereotyping) was related to a stronger preference for warm (i.e. a-stereotypical) ads with feminine traits. Similar to the results in Experiment 1, no correlation was found between the ‘career-domestic IAT’ and the Aad IAT ($r=.14, p=.17$).

8.5. Discussion

The results of the second experiment show that respondents prefer the ad with a-stereotypical portrayals of men, both explicitly and implicitly. Similar to Experiment 1, explicit attitudes seem in accordance with contemporary social norms. With respect to implicit attitudes, the findings seem to support the interpretation that the implicit Aad relies on a preference for warmth over potency rather than on a preference of stereotypical over a-stereotypical ads. Further, we did not find a correlation between the explicit and implicit attitude measures, which also suggests that both constructs stem from different sources (cf Rudman, 2004). We acknowledge that the target concept labels in the IAT are very important in determining the IAT effect (e.g. De Houwer, 2001) and that, as a result, the target concept labels used in current experiment (i.e. ‘ad with a strong man’ versus ‘ad with a caring man’) may have made the warmth/potency dichotomy more salient than the stereotype/non-stereotype dichotomy in the mind of the respondents. However, the results of an earlier experiment, in which neutral brand names were used as target concepts, suggest that the labels cannot explain the findings. We will discuss this earlier experiment in the next section.

To exclude order effects as an alternative interpretation for the results of current experiment we gathered some additional data at the time experiment 2 was running. That is, 27 women participated in a sub-experiment and first completed the IAT followed by the questionnaire. A comparison of the latter women with the women in Experiment 2, showed us that there was a small effect of order on the results, but the same conclusion remained. An ANOVA analysis with ‘Type of measurement’ (explicit vs implicit) and ‘Type of advertisement’ (stereotypical vs a-stereotypical) as within subjects variable and
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'Order' (women with questionnaire first vs women with IAT first) as a between-subjects variable showed a significant interaction effect of 'Type of ad' and 'Order' \( (F(1, 104)=5.13, \ p=0.03) \). The preference of the respondents for the a-stereotypical ad was larger when the IAT came first as compared to when the explicit attitude measure came first. However, no three way interaction effect of 'Type of measurement', 'Type of advertisement' and 'Order' \( (F(1, 104)=.01, \ p=0.92) \) could be found. Most importantly, a significant strong preference for the a-stereotypical ad remained \( (F(1, 104)=64.25, \ p<0.001) \) and also the smaller significant interaction effect between type of measure and type of ad \( (F(1, 104)=4.73, \ p=0.03) \) remained.

9. Experiment 3

The purpose of Experiment 3 was to replicate the findings of Experiment 2. Thereby, we used an IAT with neutral target concept labels to exclude the influence of labels as an alternative explanation for the preference found in Experiment 2. The target concept labels of the IAT consisted of fictitious brand names toward which respondents could not hold a-priori formed attitudes. Because, originally, Experiment 3 was the first experiment that we conducted with respect to the measurement of implicit attitudes toward different male role portrayals, there are some important differences between the designs of the two experiments\(^{21}\). For instance, in Experiment 3 we used ads (See appendix 8.3) different from those in Experiment 2, respondents were only men and a gender role IAT was not included in the experiment. Despite these differences, parallel conclusions could be drawn because the ads in the third experiment differed not only on the stereotypicality dimension but also on the warmth/cold and tender/moving dimension in the same way as the ads in Experiment 2. Therefore, the third experiment can be considered as a replication of the finding that warm a-stereotypical ads are preferred to cold (potent) stereotypical ads.

\(^{21}\) We acknowledge that the design of the ads has some important shortcomings. For instance, there were minor differences in the size of the cans displayed in the ads and the cans were positioned differently in the different ads. However, it seems unlikely that these minor differences would have a large impact on the results. Moreover, it is important to describe the study because it included neutral target concept labels in the IAT.

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9.1. Participants and procedure

Sixty-six male students of Ghent University participated in the experiment in exchange for a movie-ticket. The experiment consisted of three phases: (1) a learning phase, (2) an IAT and (3) a questionnaire. The IAT preceded the questionnaire to minimize potential, if any, carry-over effects (Egloff & Schmukle, 2002). Performing an explicit task before an implicit task might bring the latter task under greater conscious control. As a result, correlation between explicit and implicit tasks may be inflated artificially (Nosek, Greenwald, & Banaji, 2003; Bosson, Swann, & Pennebaker, 2000). For the computer tasks (learning phase and IAT) we used Inquisit laboratory software and PC-type laptop computers with AZERTY keyboards (2002). The experiment was conducted individually and took about 15 minutes.

9.1.1. Learning phase

During the learning phase, respondents learned about two (new) advertisements for canned soft drinks of fictitious brands. That is, two advertisements designed for this experiment were paired together with two fictitious brand names (Instacool and Instafresh). For half of the respondents the brand ‘Instacool’ was paired with a stereotypical advertisement depicting a man that is repairing the family car, whereas the brand ‘Instafresh’ was coupled with an a-stereotypical advertisement portraying a father that is ironing a shirt with the help of his little girl. For the other half of the respondents, ‘Instacool’ was linked to the a-stereotypical ad and ‘Instafresh’ to the stereotypical ad. We told the respondents that both brands were of good quality. At the beginning of the learning phase respondents were instructed to memorize the brand names together with their accompanying advertisement. The learning phase included six trials and each trial consisted of three sub-events: the brand name for 2500 ms, a black screen for 1000 ms and the advertisement (without the brand name) for 5000 ms. The intertrial interval was 4000 ms. After three pairings of both brands, a memory test was presented. During the memory test, respondents were asked to indicate for each advertisement to which brand it belonged. When the memory test was error free (which was the case for all respondents), the IAT was initiated. The order of learning the brands and their accompanying advertisement was counterbalanced: half of respondents first learned about the stereotypical advertisement, while the other half of the respondents were first taught the a-stereotypical advertisement.
9.2. Measures

Following the learning phase, the researcher started a second computer programme that controlled the IAT. The IAT was designed to measure implicit attitudes toward the stereotypical and a-stereotypical advertisements in the experiment and possessed the same methodological features as the IATs used in the previous two experiments. The target concept labels were the two fictitious brand names (i.e. the words ‘Instacool’ and ‘Instafresh’); the target stimuli were (1) the stereotypical and a-stereotypical advertisements and (2) the two fictitious brand names. As attribute stimuli, we used positive (love, peace, funny, honest, beautiful, happiness) and negative (death, cancer, hatred, ugly, false, imprudent) words. In the first combined categorization task, half of the respondents had to press the right key for the positive words and ‘Instacool’ and press the left key for negative words and ‘Instafresh’. In the second combined categorization task, the brand ‘Instacool’ was assigned to the left computer key and the brand ‘Instafresh’ was assigned to the right computer key. The other half of the respondents received the reverse instructions.

We used the same explicit attitude measures as in the other two experiments. Scale reliability was high (Cronbach’s α (stereotypical ads)=0.83; Cronbach’s α (a-stereotypical ads)=0.91). Additionally, three manipulation check items were included: stereotypical/a-stereotypical, tender/moving and warm/cold.

9.3. Results

9.3.1. Manipulation check

The manipulation check showed that the ads with the caring man were perceived as less stereotypical ($t(65)=3.48; p=.001$), more tender ($t(65)=−11.42; p<.001$) and warmer ($t(65)=−11.08; p<.001$) as compared to the ads with the strong/potent man ($M_{caring\_stereotypical}=3.85; M_{potent\_stereotypical}=5.36; M_{caring\_tender}=7.06; M_{potent\_tender}=2.56; M_{caring\_warm}=7.31; M_{potent\_warm}=2.98$). Like in the previous experiments, respondents filled in the control items after the Aad items.
9.3.2. Explicit attitudes

An ANOVA with repeated measures with ‘type of advertisement’ (stereotypical versus a-stereotypical advertisement) as within subjects-variable indicated that explicit attitudes toward the a-stereotypical advertisement (M_{a-stereotypical}= 5.34, SD= 1.55) were significantly more positive than explicit attitudes toward the stereotypical advertisement (M_{Stereotypical}= 4.84, SD=1.86), p=.03, F(1,65)=4.73.

9.3.3. Implicit attitudes

Before starting the analysis, we treated the IAT data following the procedure outlined by Greenwald et al. (1998), that is, in a similar way as in Experiment 1 and 2. The average error rate was 3.43% (0%- 21%) and we did not find extreme values for response times, so no respondents had to be excluded from the analysis. An ANOVA with ‘IAT task’ (stereotypical ad-positive, stereotypical ad-negative) as within-subjects variable showed a significant difference between the two tasks (M_{stereotypical-pos}= 993 ms, M_{stereotypical-neg}= 947 ms, p=0.04, F(1,64)= 4.49. This means that respondents hold more positive implicit attitudes toward the a-stereotypical ad as compared to the stereotypical ad.

9.3.4. Relationship between explicit and implicit attitudes

In order to statistically compare the results of implicit and explicit measures, we first standardized both types of attitude scores. Secondly, we reversed the scores of the implicit z-variables so that high scores indicate more positive attitudes than low or negative scores. Next, we analyzed the standardized attitude scores using an ANOVA with type of advertisement (stereotypical vs a-stereotypical) and measurement method (explicit vs implicit) as within subjects variables. The ANOVA revealed a main effect of advertisement (F(1, 64)=7.69, p=.007): attitudes toward the a-stereotypical advertisement were significantly more positive than attitudes toward the stereotypical advertisement. Further, the ANOVA showed no significant interaction effect between measurement method and type of advertisement (F(1, 64)=.06, p =.81), confirming that both explicit and implicit attitudes indicate a general preference for the a-stereotypical advertisement.
9.3.5. Discussion

Experiment 3 replicated the findings of Experiment 2: respondents showed an explicit and implicit preference for the warm a-stereotypical ad.

10. General discussion

The major purpose of the current experiments was to gain more insight in the evaluation of ads containing different gender role portrayals by examining both explicit and implicit ad evaluations. The results of the self-report measures suggest a preference for more modern ads with less stereotypical images. This preference was larger for women than for men. These two findings are in line with previous research on gender stereotypes in advertising (Courtney & Whipple, 1983). The results of the IAT measures show a very different picture. The results indicated that men and women spontaneously prefer warmer images, irrespective of both the ad’s model and the respondent’s gender. This suggests that, both men and women, prefer stereotypical images of women and a-stereotypical images of men to a-stereotypical images of women and stereotypical images of men. We now turn to the theoretical and managerial implications of these findings.

The data of the three studies are not in line with a consistent implicit preference for either stereotypical or a-stereotypical gender role portrayals in ads. This suggests that automatic gender stereotyping does not influence implicit ad evaluation. The replicated null correlation in Experiments 1 and 2 between the extent to which people implicitly stereotype gender on the ‘career’ versus ‘domestic’ distinction and the extent to which they implicitly prefer stereotypical ads provide additional support for this claim. The first theoretical implication of our findings therefore seems to be that automatic gender stereotyping, as demonstrated by Rudman and Kilanski (2000) and Rudman et al. (2001), cannot be extended to more complex stimuli such as advertisements. When people automatically evaluate a complex ad depicting a product, a slogan, a person, and a context, as they often do in daily life, automatic gender stereotyping does not seem to interfere with ad evaluation. When the attitude-object (e.g. ads) contains more information than mere words or drawings referring to male or female stereotypes, it is suggested that gender stereotypicality ceases to be the most accessible categorization.

Based on the frugality principle, the data of the three experiments seem to suggest consistency with a more fundamental dissociation between the explicit and the implicit
level in the case of ad evaluations involving gender role depictions. More specific, the
categorization seems to occur at a more basal, primary level based on a warm-potent
distinction rather than on the stereotypical-a-stereotypical distinction. In Experiment 1
respondents implicitly preferred the warm ad with a stereotypical female image to the
potent ad with an a-stereotypical female image. Experiments 2 and 3, where a man was
the main character in the ad, showed that the warm, but a-stereotypical ad was liked more
than the potent, but stereotypical ad. Experiment 3 ruled out the influence of target
concept labels as alternative explanation for the preference found in Experiment 2 by
replicating the effect by means of an IAT with neutral target concept labels.

As a limitation, we should point to the fact that this study was conducted in a
relatively small and homogenous group of undergraduate students. To generalize our
findings, future work should use large samples including different age categories as well
as social classes. Further, the results of current experiments only suggest a preference for
warmth over potency as a plausible explanation for the IAT-effects found. Therefore,
进一步研究设计为测试在中等典型性和
a-stereotypical roles in one and the same experiment. Thereby, it is recommended to use
neutral target labels in the IAT as demonstrated in the third experiment. Another
opportunity for future research is related to the role of the task relevance (Gilbert &
Hixon, 1991). Gilbert and Hixon’s (1991) finding that busy people are less likely to
activate stereotypes when these stereotypes are not task relevant suggests another cause
for the fact that implicit stereotyping does not influence implicit ad evaluations in our
studies. Gender stereotypes might be irrelevant for the task at hand. Consumers might not
need stereotypical gender information when engaged in processing the ad. Automatic
stereotyping is 'a handy tool in the social perceiver's kit' because it saves the individual
the trouble of thinking. In social interaction stereotypes enable people to quickly
understand new and unique individuals in terms of old and general beliefs (Andersen,
Klatzky, and Murray 1990). It is possible that the mere exposure to ads showing different
gender roles is not strong enough to make gender stereotyping interfere with ad
evaluation.

The results of the current experiments have some important implications for both
advertisers and marketing researchers. Given (1) the importance of automatic processes in
ad evaluation, (2) that self-report measures are less appropriate to measure these
processes and (3) the possible dissociation between explicit and implicit evaluation of ads depicting different gender roles, neglecting implicit ad evaluation may lead to less effective advertising strategies. Based on our data we invite advertisers and market researchers to broaden standard copy testing by including implicit measures of evaluation. Further, with respect to the debate on gender role portrayals in ads, implicit ad evaluation in our studies suggests that women, but not men, could be depicted stereotypically to the extent that warm images are used. However, keeping the explicit ad evaluation in mind that respondents generally prefer a-stereotypical images (and women even more than men), it seems appropriate to gear female stereotype usage to the type of ad. For instance, ads praising high involvement products containing information on objective product benefits (e.g. high tech products, cars, etc.) are probably wise to avoid stereotypical gender role portrayals. That is because consumers highly involved with a product are motivated to process ads recommending that product deliberatively (cf ELM, Petty & Cacioppo, 1986). Moreover, our results suggest that consumers processing ads deliberatively disapprove the endorsement of stereotypes in ads. On the other hand, ads praising low-involvement products and therefore likely to be processed spontaneously may benefit from warm stereotypical female role portrayals. In sum, we conclude that advertisers should not only mind the ad’s stereotypicality but also its warmth.

11. References


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Explicit and Implicit Evaluations of Ads Depicting Different Gender Roles


Appendix 8.1

Advertisements depicting women in a-stereotypical gender roles used in Experiment 1

Advertisements depicting women in stereotypical gender roles used in Experiment 1
Appendix 8.2

Advertisements depicting men in a-stereotypical gender roles used in Experiment 2

Advertisements depicting men in stereotypical gender roles used in Experiment 2
Appendix 8.3

Advertisements depicting men in a-stereotypical gender roles used in Experiment 3

Advertisements depicting men in a-stereotypical gender roles used in Experiment 3
CHAPTER 9

CONCLUSIONS AND DISCUSSION
Chapter 9

Conclusions and Discussion

1. Recapitulation and theoretical contributions

Since the mid 1980’s important new views on the attitude-concept, its formation and change and the attitude-behavior relationship have emerged in social psychology. Attitudes were no longer viewed as the unequivocal result of consciously weighted beliefs and intentions (Ajzen and Fishbein, 1977). Instead, a renewed interest in research on implicit memory (e.g. Jacoby et al., 1989) and the recognition that a large part of daily life is the result of spontaneous or automatic processes (Bargh & Chartrand, 1999) have led social psychologists to make a distinction between explicit attitudes on the one hand and implicit attitudes on the other hand. Explicit attitudes are conscious attitudes and measured by means of self-reports; Implicit attitudes are formally defined as ‘introspectively unidentified (or inaccurately identified) traces of past experience that mediate favorable or unfavorable feeling, thought, or action toward social objects’ (Greenwald & Banaji, 1995) and assessed by indirect measures, most often measures that are based on the interpretation of reaction times. One indirect measure that has rapidly received extensive support and that forms the connecting thread through this dissertation is the Implicit Association Test (IAT, Greenwald et al., 1998).

The purpose of this dissertation was to examine (1) the value of the implicit attitude concept and (2) the usefulness of the IAT as a measure of implicit attitudes for consumer behavior research. To put it differently, we investigated the usefulness of implicit attitudes as measured by the IAT to gain more insight in consumer attitudes and the prediction of consumer behavior. Thereby, we tried to go beyond the findings of Maison et al. (2001, 2004), which showed that the IAT can be used to measure implicit consumer attitudes for attitude-objects toward which no dissociation between explicit and implicit attitudes could be expected. As such, the focus of our research was on consumer situations in which consumers may be (1) unwilling to reveal their attitudes in self-reports.
Conclusions and Discussion

(due to e.g. influence of social norms) and/or (2) unable to reveal the attitudes that guide their behavior (d.i. when retrospective access is limited). Within this perspective, we also attempted to extend the work of Brunel et al. (2004) by replicating their finding that the IAT may unravel evaluations of ads that explicit measures cannot reveal. Further, we opted to stay close to marketing practice by tackling concrete problems found in the consumer behavior literature and that related to attitudes and/or the attitude-behavior relationship.

1.1. IAT and ethical consumer behavior

In our first series of studies, we examined implicit and explicit attitudes toward environmentally-friendly consumer products. We chose to examine environmentally-friendly products because previous research consistently reported an (explicit) attitude-behavior gap, with consumers overstating environmental awareness and corresponding behavior in self-reports. Previous research suggested two possible explanations for the attitude-behavior inconsistency: (1) attitude measurement problems (such as e.g. social desirability bias) and (2) the discordant character\textsuperscript{22} of environmentally-friendly products. In a first experiment, we investigated attitudes and purchase intentions toward fictitious environmentally-friendly and traditional cleaning products, while the second and third experiment included real (existing) environmentally-friendly and traditional cleaning products.

As expected, the results showed for the three experiments more positive attitudes toward the environmentally-friendly products or equally positive explicit attitudes toward both type of products. Implicit attitudes were, contrary to our hypothesis, also more positive toward the environmentally-friendly products or equally positive toward both types of products. These findings suggested that not social desirability or impression management, but rather the discordant character of green consumer products accounts for the attitude-behavior gap found in literature related to ecological consumer behavior. Although in this study implicit attitudes had a different valence than first was hypothesized, they were still related to purchase intention. That is, when real cleaning

\textsuperscript{22} With the ‘discordant character’ of ethical products we refer to the fact that these products may on the one hand have the benefit that they allow consumers to behave in a social responsible way, while on the other hand these products may show e.g. higher prices.
products were involved, implicit attitudes related even more consistently to purchase intention than explicit attitudes. Implicit attitudes related to purchase intention with respect to existing cleaning products, independent of whether the attitude-object under examination was a fictitious cleaning product represented by a fictitious brand name and some objective product characteristics or whether it was a real existing cleaning product. This result further supported the assumption that implicit attitudes as measured by the IAT reflect global affective reactions (Rudman, 2004) toward ecological versus traditional products. Further, the implicit attitudes appeared largely independent of the individual stimuli (De Houwer, 2001) and the target concept labels used in the IAT (in Experiment 2 we used neutral target concept labels). The explicit attitude measure in the first experiment related to the purchase intention with respect to the fictitious products, but not the real products. In the second and third study explicit attitudes did relate to the purchase intention with real products, probably because now, the level of attitude measurement and behavioral intention matched (i.e. both concerned real products, cf Ajzen, 1991). Thus, the results suggested that, while explicit attitudes seem to be the result of the rational weighting of product attributes the respondents are confronted with in the survey (i.e. a list of verbal product characteristics in Experiment 1, pictures of known products in the other experiments), implicit attitudes appear to reflect more general evaluations of the target concepts, that is environmentally-friendly products versus traditional products. Finally, a logistic regression analysis on the data of both Experiment 2 and 3 showed that the IAT provided unique contribution to the prediction of behavior after the influence of the explicit attitude measure was controlled for.

Additional to the IAT, all respondents in Experiment 1 and 3 also conducted an EAST with respect to environmentally-friendly and traditional cleaning products. In both experiments, the EAST correlated positively and significantly with the IAT, which provided convergent validity for both measures and further supported the finding that implicit attitudes toward environmentally friendly products are not less positive than toward traditional products.

Our second series of experiments related to the first studies in the sense that we measured explicit and implicit attitudes toward another form of ethical consumer products (i.e. Fair Trade coffee and rice) and that we departed for a second time from a largely described (explicit) attitude-behavior gap in literature that is likely to stem from (1) problems of attitude measurement or (2) the discordant character of Fair Trade products. Nevertheless, we went further than the first experiments because the study of Fair Trade
products allowed us not to rely on self-reported purchase intentions. That is, we were able to recruit users of Fair Trade products at the time of purchase in an Oxfam third world aid shop; Non-users were attracted on the street and self-reported to never use Fair Trade products. We assumed that the latter measure formed a valid indication of behavior because it is not social desirable to never use Fair Trade products and people have introspective access to whether they use these type of products or not.

In a first experiment measuring implicit and explicit attitudes toward Fair Trade and traditional coffee and rice, we concluded that the IAT was able to dissociate between users and non-users of Fair Trade products. That is, for users of Fair Trade products we found more positive explicit and implicit attitudes toward Fair Trade products as compared to traditional products. Non-users, however, showed equally positive explicit attitudes toward Fair Trade and traditional products, but more negative implicit attitudes toward Fair Trade products as compared to traditional products. Further, we demonstrated in a hierarchical regression analysis that the IAT provided unique contribution to the prediction of behavior after the influence of the explicit measure was controlled for.

The results of our first study suggested that the sales of Fair Trade products can be boosted by making the implicit attitudes of non-users more positive. We therefore conducted a second experiment investigating the impact of different forms of communication on the implicit attitudes of non-users. We thus replicated our first experiment with non-users only. However, before completing the IAT, one third of the respondents participated in a blind taste test in the ‘real-affective’ condition, while another third read an objective and informative newspaper article on Fair Trade products in the ‘symbolic-informative’ condition. The last third of the respondents was assigned to a neutral condition starting with reading a ‘neutral’ newspaper article that was unrelated to Fair Trade products. In the ‘real-affective’ condition respondents had a positive experiential contact with Fair Trade chocolate, that is, they were told that the piece of chocolate that they preferred in a blind taste test was Fair Trade chocolate. In the ‘symbolic-informative’ condition they were confronted with objective information on the Fair Trade concept and the raising market share of Fair Trade chocolate. The results did not meet our expectations. We only found a tendency for implicit attitudes to be more positive in the ‘real-affective’ and ‘symbolic-informative’ conditions as compared to the neutral condition. Also, implicit attitudes were not significantly more positive in the ‘real-affective’ condition than in the ‘symbolic-informative’ condition. Despite this lack of a significant difference between the conditions, respondents in the ‘symbolic-informative’
condition revealed implicit attitudes that were more positive toward Fair Trade as compared to traditional products, while respondents in the ‘real-affective’ condition showed equally positive implicit attitudes toward both types of products. This finding seem to suggest an influence from cognitive based (i.e. reading a newspaper), but not from sensory-based communication (i.e. blind taste test) on consumers implicit attitudes. Finally, we acknowledge that our manipulation might not have been strong enough to have a clear impact on the implicit attitudes of non-users.

For all the experiments in which attitudes toward real products were examined (i.e. Experiment 2 and 3 in the green consumer behavior study and Experiment 1 in the Fair Trade study), explicit and implicit measures showed moderate and significant correlations (. 33 ≤ r ≤ .40). Thus, no full dissociation of explicit and implicit attitudes could be observed. However, we recognize that this correlation is also far from perfect. In fact, these results may suggest that, although there is an overlap between the two types of measures, there may still measure different constructs.

Based on the results of the two hierarchical regression analyses we conclude that the IAT does provide new insights on the attitude-behavior relationship. That is, in ethical consumer behavior research the combined use of explicit and implicit attitude measures could lead to a better prediction of behavior than when only explicit attitude measures would be used. However, we also need to point to the fact that in both the regression analyses the explicit attitude measure had larger β values and accounted for the largest part of the variance explained in the behavioral intention variable. This means that the explicit measure predicted behavior better than the IAT. In other words, we extended the work of Maison et al. (2004) by showing that even in consumer situations where social desirability and impression formation are likely to play important roles, explicit attitude measures remain the best predictors of behavior.

1.2. IAT and different gender role portrayals in ads

The third series of experiments related to the portrayal of different gender roles in advertising. In a first experiment, we measured explicit and implicit attitudes toward ads portraying women in stereotypical and a-stereotypical roles. The results showed for both men and women an explicit preference for the ads portraying women in more modern,
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liberated and thus a-stereotypical roles, while implicit preference went out to ads depicting a sensual woman in a stereotypical role. Thus, the first experiment suggested that implicit gender stereotyping interfered with implicit ad evaluation. However, because the implicit Aad measure did not correlate with a ‘career-domestic’ IAT measuring implicit gender stereotyping, it was suggested that another, more basal dichotomy than the one based on gender stereotypicity might explain implicit preferences: a preference for warmth over potency. Because the female stereotype is entangled with words related to warmth, we conducted a second experiment to disentangle the warmth-potency from the implicit gender stereotype explanation. This was be done by measuring attitudes toward ads showing a warm man (i.e. an a-stereotypical male image) and ads portraying a potent man (i.e. a stereotypical male image). The results supported our alternative hypothesis. That is, respondents preferred both explicitly and implicitly the ads portraying men in a-stereotypical, warm roles. Again, the Aad IAT did not correlate with a ‘career-domestic’ IAT. A third experiment replicated the results of Experiment 2, but now neutral target concept labels (i.e. fictitious brand names) were used in the IAT. Because the neutral labels in Experiment 3 did not lead to differences in IAT effects as compared to those found in Experiment 2, it is suggested that the findings in Experiment 2 cannot be attributed to the labels used. Based on the three experiments, we conclude that implicit gender stereotyping does not seem to interfere with automatic ad evaluation. While explicit evaluation consistently showed preferences for ads depicting a-stereotypical gender roles, automatic ad evaluation seems to depend on warmth rather than on automatic gender stereotyping.

2. Practical implications

2.1. IAT and ethical consumer behavior

A first lesson for practitioners and researchers involved with ethical consumer behavior is that implicit attitudes as measured by the IAT do provide additional insight in the attitude-behavior relationship. We show that (1) implicit processes are involved with the evaluation of ethical consumer goods (and probably with all types of consumer goods) and (2) that implicit attitudes provide a unique contribution to the prediction of behavior after the influence of explicit measures is controlled for and (3) to make non-users of ethical products behave more ethically, not only explicit, but also implicit attitudes need
to be enhanced. As consequence we recommend practitioners to not only attune their product strategy to the influence of explicit, but also implicit attitudes. Further, we found (1) a tendency that implicit attitudes were slightly better in the cognitive and affective condition as compared to the neutral condition and (2) an indication that positive symbolic information influences implicit attitudes more than positive sensory information. Thus, to improve implicit attitudes, especially positive product information (i.e. symbolic) should be provided. This implies that practitioners should try to attract the attention and bring consumers in a mode that allows cognitive and deliberative processing of product information (e.g. on packaging). However, one should handle the above recommendation with caution. After all, we did not find a significant difference between the different conditions, which suggests that our manipulation (i.e. a blind taste test and reading a newspaper article) was not strong enough to change implicit attitudes profoundly.

A second conclusion that practitioners can derive from our findings is that not measurement problems, but most likely the discordant character of most ethical products is responsible for the attitude-behavior inconsistency. Price, quality, convenience, availability in regular supermarkets, and brand familiarity are often still the most important factors affecting the buying decision (e.g. Boulstridge and Carrigan 2000; De Pelsmacker et al. 2005a). Availability in regular supermarkets, convenience and brand familiarity can be raised by an improved and extended distribution network next to a greater visibility of the products in all kind of food shops. That is, ethical products should become part of daily life by placing them next to A-brands of the same product category in supermarkets as well as bars and restaurants. Also free samples of ethical products in the supermarket or within the framework of a direct marketing campaign could serve this goal. Price and quality are often more difficult to change. However, it is possible that quality perception is rather ‘stereotypical’ and based on what one has heard and thus also results from a lack of experience with the product. Free samples of ethical products in the supermarket could be used to alter evaluation. Therefore, future research should examine how many trials and product experience are required to change both explicit and implicit attitudes. Clearly some work needs to be done to increase the market share of ethical labeling initiatives.
2.2. IAT and different gender role portrayals in ads

A first practical implication of our study on how to portray men and women in advertisements is that standard copy testing, currently restricted to traditional questionnaires, might benefit from considering also implicit attitude measures such as the IAT next to self-reports. That implicit attitude measures may provide additional insights in how consumers evaluate ads can be concluded from the inconsistent relation between explicit and implicit attitudes in the different studies. Further, this conclusion is in line with earlier research (Janiszewski, 1990; Shapiro, 1997) demonstrating the importance of automatic processes in ad evaluation and the inability of explicit measures to capture these automatic processes.

Secondly, because our data suggested that the implicit evaluation of ads depicting different gender roles is not guided by automatic gender stereotyping, but most likely the ads' warmth, it may be wise for advertisers to not only pay attention to the degree of stereotypicality of the ad, but also its’ warmth. The data seem to suggest that men should be portrayed in warm and a-stereotypical roles, while women are liked most in warm and therefore stereotypical portrayals. However, we advise caution with these findings on implicit evaluation because (1) further research on the robustness of warmth as alternative explanation for IAT-effect is required and (2) explicit measures unanimously indicated consistent preference for more modern, liberated portrayals for both men and women. As a result, ads depicting women in stereotypical roles should especially be avoided for high involvement products or new products containing mainly information on objective product benefits. That is because consumers that are highly involved with a product are motivated to process ads deliberatively.

2.3. IAT and marketing practice in general

Based on the findings in our studies on ethical consumer behavior we do not believe that the IAT could and should replace a questionnaire when examining consumer attitudes. We base our conclusion on our robust findings that even in situations where social desirability bias or impression management were likely to disturb the attitude-behavior relationship, the explicit measure and not the IAT was the best predictor of consumer behavior. Although we acknowledge that the IAT may provide an independent and unique contribution to the prediction of behavior, the method has several other drawbacks that, for the moment, may prevent practical implementation. First of all, the
IAT can only be used to measure implicit attitudes toward pairs of attitude-objects and is thus only appropriate for attitude-objects that form natural pairs in daily life. This also implies that the IAT is always a relative measure of attitudes and therefore can not provide an attitude score toward a single attitude-object. Secondly, the IAT is a pc-based task that requires full concentration of the respondents. Thus, in the ideal setting, respondents should be invited to the lab to administer an IAT. However, inviting all respondents to lab would tremendously raise the cost of large-scale surveys and the added information coming from the IAT may not be worth all the effort. Finally, but not less importantly in keeping the IAT away from marketing practice of tomorrow, is the still ongoing and turbulent debate on what implicit methods exactly measure and what we can do with the information. For instance, different researchers (Mierke & Klauer, 2001; Rothermund & Wentura, 2001; Brendl et al., 2001) believe that IAT effects often have little to do with implicit associations. Instead, they believe that task recoding accounts for the effect. More specifically, it is believed that IAT effects are the result of respondents recoding task instructions based on, for instance, the salience of the target concepts with the purpose of simplifying the task. Others (e.g. Karpinski & Hilton, 2001) claim that the IAT does not measure individual implicit associations, but associations initiated by the context or those toward which a person has been exposed throughout his/her lifetime.

Note, however, that we recognize that the body of research on the IAT is growing very quickly and that future research may uncover the conditions in which the IAT does provide more interesting contributions to marketing practice with respect to product evaluation. Also, a new variant of the IAT may be developed that is more appropriate for practical application and as such deals with the problems related to self-report measures.

By contrast and based on our study measuring implicit and explicit attitudes toward different gender roles in ads, we believe that the IAT may already be useful in advertising research and marketing practice related to advertising. The IAT can easily be implemented in standard copy testing because of its reliance on consumer panels. When these consumers come to the lab for traditional copy testing, they can also complete an IAT in a quiet and constant setting. Moreover, when investigating the potential of ads for a campaign, the preliminary ads can be tested two by two, and as such, the condition of ‘natural’ pairs required for an IAT is fulfilled. As suggested by our own study, implicit ad measures may be valuable and important for assessing evaluations of controversial ads, containing for example sex, nudity, or homosexual elements. However, we believe that also more normal and down to earth messages may benefit from implicit ad evaluation.
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That is because the IAT is an easy and flexible instrument to detect potential problems with an ad. Even if advertisers do not have the time or the resources to find out which process drives implicit ad evaluation, choosing for an ad with a positive explicit, but negative implicit evaluation is a less safer option, than choosing for an ad toward which both explicit and implicit attitudes point into the positive direction.

Another domain in marketing practice for which the IAT may be a usefulness instrument is product development and testing of new packaging or positioning strategies for new products. A famous example of new product positioning that might have benefited from insights of implicit evaluations was the launch of the brand ‘Nescafe’ (De Pelsmacker & Van Kenhove, 2002). Initially, the product was positioned as instant coffee that is prepared in no time. However, sales were disappointing. Subsequent market research based on self-reports indicated that the bad taste of the coffee restrained consumers from buying the product. However, later on, projective techniques revealed that buyers of ‘Nescafe’ were viewed as lazy, squandering, and bad housewives in general. The interesting feature of the IAT in such situations is that a simple IAT could have indicated that there was a problem with product evaluation before the launch and as a result, the loss of money could have been prevented. Further, the IAT may also be a good instrument (next to self-reports) to measure brand image, brand personality, brand relationships, brand communities, consumer identities, etc. Several authors (Greenwald et al., 2002; Brunel et al., 2004) already demonstrated that consumers store information in mind as group concepts, person concepts and attributes that are associated to a more or lesser extent (i.e. a consumer knowledge structure) and that the IAT could be used to measure such associations. Therefore, implicit measures may unravel associations with a brand that self-reports cannot.

3. Limitations of the reported studies and suggestions for future research

A first limitation of this research is already embodied in the title of the work: ‘The Usefulness of the Implicit Association Test for Consumer Behavior Research’. More specifically, the main purpose of this dissertation was to look and search for situations in consumer behavior research in which the IAT would do better than traditional self-reports or provide at least unique insights in consumer attitudes and behavior. Although this aim still goes beyond knowledge on the possibilities for IAT in consumer behavior research up until today, it does not add solid insights on the processes that lie behind the IAT or it
does not broaden our knowledge on the conditions under which the IAT may be a better predictor of behavior.

Secondly, we should point to the fact that our studies were mainly conducted in relatively small and homogenous group of undergraduate students. To generalize our findings, future work should use large samples including different age categories as well as social classes. Further, it is possible that the IAT did not prove a better predictor of behavior as compared to explicit attitude measures because of the experimental design used in the studies. By this we mean that the spontaneous processes normally active at the time of purchase may have failed to play an important role here because of the respondents’ high involvement with the products due to the mere participation in the experiment.

Further, with respect to the alleged resistance of the IAT to influences of social pressure, it would have been interesting to test the influence of social desirability on both the explicit and implicit measures by manipulating the social pressure in the research situation of our studies on ethical consumer behavior. This could be done by using two conditions, with one condition in which respondents are asked to express their explicit attitudes verbally to the researcher and another condition in which respondents anonymously fill in a questionnaire. However, it is very likely that this would have inflated the positivity of the explicit attitudes, but not of the implicit attitudes (Greenwald and Banaji, 1995). Note, however, that most knowledge on ethical consumer behavior is based on large-scale and most often anonymous opinion polls (e.g. Yam-Tang & Chan, 1998).

Despite our more practice-oriented approach, we have tried to learn more about the sources of implicit attitudes and how implicit attitudes can be changed in the second experiment of our Fair Trade experiments. Although we did find a tendency for a minor effect of different forms of communication on implicit attitudes, our manipulation was probably too weak to result in significant changes in implicit attitudes as measured by the IAT. Therefore, future research examining exactly how much exposure and in which form (experiential, affective information, objective information) is needed to result in a change of implicit attitudes would be very interesting.

Although our experiment on ethical consumer behavior robustly showed that (1) in situations where explicit measures are likely to be distorted by social desirability bias or
impression management formation, explicit and implicit attitude measure show still moderate correlations and (2) the IAT provides unique contributions to the prediction of behavior even when the influence of explicit measures is controlled for, some important questions on the relationship between explicit and implicit attitudes and behavior remain unanswered. Therefore, future research should concentrate on the conditions under which implicit versus explicit attitudes are more/less related to behavioral intentions or when one type and not the other (and visa versa) is related to intentions. It would be particularly interesting to gain insight on the malleability of implicit attitudes and their sensitivity to social norms. Are implicit attitudes indeed expressed without intention or control (Dasgupta et al., 2003) and therefore less sensitive to social norms? Or, on the contrary, are implicit attitudes- as Wittenbrink et al. (2001) and Blair et al. (2001) indicate- context dependent, malleable and thus just like explicit measures subject to social desirability bias?

A limitation of our studies on different gender role portrayals in ads is that both stereotypicality and warmth were manipulated. As such, no impervious evidence for warmth as alternative explanation for the implicit preference could be determined. Also, future research should keep other ad features such as the slogan and product constant in all conditions. Especially the slogan ‘Originally like you’ in the third experiment might have been problematic and a confounding source. Therefore, it would be interesting to test ads that vary in stereotypicality but not in warmth. For instance, ads with men and women in the same stereotypical and a-stereotypical roles could serve this purpose. Another interesting research question would be: what happens if warm stereotypical and warm a-stereotypical ads are contrasted? If warmth is held constant, would implicit gender stereotyping interfere with ad evaluation? Another opportunity for future research is related to the role of the task relevance (Gilbert & Hixon, 1991). Gilbert and Hixon (1991), for instance, concluded that loaded people are less likely to activate stereotypes when these stereotypes are not task relevant and thus it is suggested that cognitive load may be another reason for the fact that implicit stereotyping does not influence implicit ad evaluations in our studies. More specifically, gender stereotypes might be irrelevant for the task at hand. To put it differently, consumers may not need stereotypical gender information when engaged in processing the ad. Further, it is possible that the mere exposure to ads showing different gender roles is not strong enough to make gender stereotyping interfere with ad evaluation (i.e. because no real interaction is experienced).
Finally, the results of our studies provide valid information about implicit attitudes to the extent that the measurement instrument used in the studies (i.e. the IAT) is a valid measure of implicit attitudes. Consequently, confounding factors that can bias the IAT effect may also have influenced the results of the studies discussed in the previous chapters. In the next paragraphs we will briefly review the different possible confounding factors of IAT effects and discuss how we have tried to exclude the confounding influence as much as possible by paying special attention to the design of the IATs used in the experiments.

A first possible confounding factor of the IAT is the familiarity of the items used to represent the attitude-object. Some researchers (Greenwald et al., 1998; Ottoway et al., 2001) indicated that low familiarity items may reduce the sensitivity of the IAT to measure individual differences, while others did not find an effect of varying familiarity (Rudman et al., 1999; Ashburn-Nardo et al., 2001). With respect to the studies on ethical consumer behavior, it is possible that the non-users of environmentally-friendly or Fair Trade products were unfamiliar with the examples used to represent these product categories. We have tried to overcome this problem by including a learning phase at the beginning of each experiment. In such a learning phase, respondents were asked to memorize to which category (environmentally-friendly vs traditional or Fair Trade vs traditional) a stimulus belonged. The IAT was started only when respondents did not make a mistake in the memory test following the learning phase. Of course, even after such a learning phase there may still be some differences in familiarity. But for the purpose of our research, we believe that this does not form a problem. That is, being familiar with a product or not will also determine for a large part whether you buy the product or not. Or, as the simple marketing practitioners heuristic says: 'unknown, unloved'. By this we mean that a non-user of ethical products may have negative stereotypical views about the products that is not based on real experience (i.e. unfamiliarity) and that these views may influence spontaneous behavior in a purchase situation. Further, the results of our studies demonstrate that differences in familiarity with the stimuli do not prevent the IAT from picking up individual differences in a meaningful manner. Instead, in all the experiments the IAT was related to behavior or behavioral intention in the right direction. The purpose of the studies on the portrayal of different gender roles was to measure instant reactions to new and thus unfamiliar ads. However, although the stimuli were relatively unfamiliar, there was no difference in familiarity with the stimuli representing the target concepts between the respondents. The same is true for the first experiment with environmentally friendly products (with the
fictitious brands). In sum, it is not likely that familiarity has confounded our results in an important way.

The second potential confounding factor is that the IAT may reflect societal views and not the individual’s personal associations between concepts (Karpinski & Hilton, 2001; Olson & Fazio, 2004). Different researchers (Karpinski & Hilton, 2001; Olson & Fazio, 2004) concluded that the IAT scores represent the associations a person has been exposed to in his or her environment and not the extent to which the person supports those evaluative associations. With respect to the ad evaluation studies, it is hard to formulate conclusions on the ‘societal view’ interpretation of IAT effects ads because implicit gender stereotyping did not seem to interfere with automatic ad evaluation. However, in the studies on environmentally-friendly products, it is possible that a general positive evaluation of an unpolluted environment on the one hand and the importance that is imposed to the topic in media and politics on the other hand, have influenced implicit evaluation. By this we mean that it is possible that the positive implicit attitudes toward ecological products found in our experiments reflect a general societal view and not the personal reaction of an individual toward a stimulus (product) encountered in a purchase situation. A similar mechanism may account for the results in the Fair Trade studies. That is, although we find more negative implicit attitudes toward Fair Trade products as compared to traditional products for non-users, the positive societal view with respect to those products may explain the moderate correlation between explicit and implicit attitudes that was found. Therefore, in a follow-up study, it would be interesting to replicate our experiments on ethical consumer products by means of the ‘personalized’ IAT as introduced by Fazio and Olson (2004; see Chapter 4 section 2.3.5). According to the authors, the personalized IAT reduces the contamination of ‘extra-personal associations’ such as societal views.

A third possible confounding factor is the influence of the context on IAT effects. For instance, the performance of the IAT is likely to be dictated by the task instructions to categorize the target stimuli (i.e. the target concept labels) and not by the individual stimuli representing the concepts (De Houwer, 2001). Thus, the choice of the target concept labels appears extremely important. Keeping this problem in mind, we conducted a third experiment in our study on environmentally-friendly products with a design that was very similar to the design of the second experiment, except for the target labels being used in the IAT. More specifically, in the second experiment the target concept labels
were ‘traditional assortment’ versus ‘ecological\textsuperscript{23} assortment’, while in Experiment 3 the labels ‘assortment I’ versus ‘assortment II’ were used. ‘Assortment I’ represented the ecological products and ‘assortment II’ the traditional products or vice versa because of the counterbalanced design. Despite these different target concepts labels Experiment 3 replicated the findings of Experiment 2, suggesting that the labels used in Experiment 2 did not bias the results. Therefore, we do not see problems with the labels ‘Fair Trade products’ versus ‘traditional products’ used in our second series of experiments. Also, for our experiments on the evaluation of different gender roles in ads we have indications that the labels do not form an alternative explanation for the IAT effect.

Related to context effects is the effect of the order in which the explicit and implicit measures are completed on the results of the IAT measure. Although there is no general consensus on whether order matters or not (Greenwald et al., 2003), in the experiments on ethical consumer behavior we chose to start with the IAT followed by the questionnaire. The reason for that was the concern that explicit measures preceding implicit ones, may bring implicit tasks under greater conscious control (i.e., make them less implicit) (Bosson et al., 2000). By contrast, in the first two experiments on the implicit evaluation of ads containing gender roles, we used the reversed order for practical reasons. That is, because we did not include a learning phase in this experiment, we thought that errors and response times in the IAT would be extremely high due to unfamiliarity with the stimuli. In order to reduce that problem, we asked respondents to evaluate the printed ads first by means of a questionnaire. As such, familiarity could rise slightly. Because we realized the possible confounding factor here, we reversed the order of completing the implicit and explicit tasks for a subsample in the experiment. The subsample showed the same though smaller effect, but most importantly, the effect remained significant. Thus, it is suggested that the order of the completing the two attitude measures did not confound the IAT effects found in the experiments.

A final potential confounding factor is the problem of task recoding. Different researchers (Mierke & Klauer, 2001, 2003; Rothermund & Wentura, 2001, 2004; Brendl et al., 2001) showed that respondents may (intentionally or automatically) recode task instructions in the IAT with the purpose of simplifying the categorization task. According to Rothermund and Wentura (2001, 2004) respondents may recode each pair of categories into a figure or a ground category based on the salience of the categories. Accordingly,

\textsuperscript{23} We chose for ‘ecological’ and not ‘environmentally-friendly’ because the latter term already includes a positive value judgment that might distort the classification.
stimuli will be categorized on the basis of whether they belong to the ground or figure category, with faster reaction times in response to the figure category. It is suggested that unfamiliar and negative stimuli are more salient than familiar and positive stimuli. From this perspective the implicit preference for the traditional products of the non-users of fair trade products can also be interpreted as a figure-ground effect. That is, for non-users negative items may have been the figure together with fair trade products because non-users are less familiar with Fair Trade products as compared to traditional products. The same reasoning can be made for the users of Fair Trade products. By contrast, the results are also compatible with the arguments of Kinoshita and Peek-O’Leary (2005) suggesting that the positive and familiar items are the most salient. From that perspective, being more familiar with traditional products may explain non-users of Fair Trade products’ preference for the traditional products. However, it is likely that ask recoding based on salience asymmetry does not form an important problem. That is because valence, familiarity and salience are typically confounded and therefore, salience asymmetries do not rule out an association account of the IAT that is based on valence (Rothermund & Wentura, 2004). Secondly, although salience can form the basis for IAT- effects (Rothermund & Wentura, 2004, Experiment 3b), it is not clear whether this is true in most cases (Greenwald et al., 2005). Finally, it is not lucid yet how the effects of salience and valence interact. De Houwer et al. (2005) suggested that salience may be less important if the target concepts representing the attitude-objects clearly differ in valence. Also for the other experiments we do not see important problems as a consequence of task recoding.

Clearly, future research should focus on unraveling which mechanisms drive the IAT. Meanwhile researchers must attempt to avoid the influence of possible confounding factors by watching the design of the IAT very carefully.

4. References


Conclusions and Discussion


