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ScienceDirect
Journal of Consumer Psychology 20 (2010) 259–273
Journal of CONSUMER PSYCHOLOGY

The effect of expertise on the relation between implicit and explicit attitude measures: An information availability/accessibility perspective

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Received 12 October 2009; revised 24 June 2010; accepted 30 June 2010
Available online 27 July 2010

Abstract

Three experiments investigate expertise as a moderator of the relationship between implicit and explicit attitude measures. Prior research suggests that greater expertise leads to stronger implicit–explicit relations; however, a cognitive view of expertise can also predict a weaker implicit–explicit relation. Our framework helps to resolve that seeming contradiction on the basis of the availability/accessibility of attributes versus attitudes in explicit attitude measures. We show that object specificity and contextual factors (e.g., instructions and prior evaluations in a survey) differentially affect the availability/accessibility of global attitudes and attribute information for novices versus experts, thus determining how expertise moderates the implicit–explicit relation.

Keywords: Knowledge and expertise; Attitude measurement; Implicit measures of attitudes; Implicit Association Test

The Implicit Association Test (IAT) developed by Greenwald, McGhee and Schwartz (1998) has become a prominent method for assessing automatically activated attitudes and associations in a variety of contexts in consumer psychology (e.g., Brunel, Tietje, & Greenwwald, 2004; Sprott, Czellar, & Spangenberg, 2009; Luna, Ringberg, & Peracchio, 2008; Maison, Greenwald, & Bruin, 2004; Messner & Vosgerau, 2010). Since its inception, the nature of the relationship between implicit and explicit attitude measures has been an ongoing interest in IAT research. Studies have reported diverging results for the correlation between implicit and explicit attitude measures, ranging from non-significant (e.g., Karpinski & Hilton, 2001), through moderate (e.g., Greenwald et al., 1998), to high (e.g., Greenwald, Nosek, & Banaji, 2003). In an extensive review, Fazio and Olson (2003) recognized the need for an integrative framework explaining these wide differences and proposed that "future research concerning the predictive validity of the IAT may benefit from the consideration of moderating variables" (p. 310).

Scholars have begun building such a framework by investigating a series of moderators of the implicit–explicit relation, including attitude characteristics, situational factors, affective states and research design aspects (Hofmann, Gawronski, Gschwendner, Le, & Schmitt, 2005; Hofmann, Gschwendner, Nosek, & Schmitt, 2005; Hofmann, Gschwendner, & Schmitt, 2005; Huntsinger & Smith, 2009; Karpinski, Steinman, & Hilton, 2005; Nosek, 2005). However, as Nosek (2007) pointed out, we still know very little about the role of stable individual differences in the implicit–explicit relation. The purpose of the present research is to contribute to the literature on the implicit–explicit relation by proposing domain-specific expertise as a key individual difference moderating the relation between implicit and explicit attitude measures.

We develop a framework that accommodates two different predictions about the directionality of the effect of expertise on the implicit–explicit relation. Our framework is based on the notions of accessibility and availability of different types

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doi:10.1016/j.jcps.2010.06.014

of information at the time of the explicit attitude assessment. On the one hand, greater expertise with attitude objects can lead to increased availability of detailed information (e.g., beliefs about specific attributes) upon which to base explicit evaluations; we argue that this process may lead to a lower implicit–explicit relation. On the other hand, expertise can also increase the chronic accessibility of global attitudes, thereby increasing the possibility that those attitudes will be used to make an explicit evaluation; we argue that this process may lead to a higher implicit–explicit relation. Our three experiments show that an object-related factor (object specificity) and contextual factors (type and number of evaluations) differentially affect the dominance of these two processes for novices versus experts.

Thus, this research indicates that, depending on specific characteristics of the attitude object and its evaluative context, expertise may lead to either weaker or stronger implicit–explicit relations. We discuss our findings from the perspective of alternative attitude paradigms and propose practical implications for current research on evaluative judgments in consumer psychology.

Attitudes: implicit and explicit measures

Different theoretical approaches are used in current implicit cognition research about the attitude construct (Gawronski, 2007). The present research builds on the view of attitudes as object–evaluation associations, which conceptualizes an attitude as "an association in memory between a given object and a given summary evaluation of the object" (Fazio, 1995, p. 247). A person's attitude toward the brand *Mercedes*, for example, can be represented by the association between *Mercedes* and evaluations such as *bad/good*, *unpleasant/pleasant*, as well as more affective evaluations such as *dislike/like* or *hate/love*. From a methodological view, there are two main approaches to elicit individual attitudes toward an object: explicit and implicit (Krosnick, Judd, & Wittenbrink, 2005). The specific processes by which attitudes affect the measurement outcome differ according to the type of attitude measurement implemented (De Houwer & Moors, 2007). We review the features of each of those approaches below before discussing the relation between implicit and explicit attitude measures.

Explicit measures of attitudes

Explicit attitude measures (also referred to hereafter as explicit evaluations) constitute written or verbalized evaluations of attitude objects in a specific evaluative context (Wilson, Lindsey, & Schooler, 2000). Commonly used explicit attitude measures include self-reports such as semantic differentials, Likert scales, and feeling thermometers (Krosnick et al., 2005). The standard conditions of implementation of these self-reports imply that the outcome of the measure (e.g. a "2" on a "1" to "7" *dislike/like* scale about the *Mercedes* brand) reflects a deliberative, controlled process in the form of a self-description provided by the respondent[1].

All along, researchers have been concerned about several potential problems with explicit methods to measure attitudes. Respondents may be unwilling or unable to report their own attitudes (strategic responding), and there may be a host of contextual variables that could influence their responses to the attitude questions at every stage of the responding process (Schwarz & Bohner, 2001; Wittenbrink & Schwarz, 2007). For this reason, a self-reported measurement outcome may or may not be highly influenced by the participant's own attitude toward *Mercedes*. For example, a particular evaluation context could make accessible information other than a summary evaluation from memory (e.g., specific attribute evaluations of *Mercedes* in terms of design, engine power when comparing *Mercedes* to other brands). In addition, depending on the evaluation context, explicit attitude measures may be affected by social desirability and self-presentational responding (Egloff & Schmukle, 2002). As a result of these effects, individuals may in some cases construct their explicit evaluations online (Simonson, 2008). In such situations, the self-reported, explicit attitude measure will have little or no relation with attitudes, defined as object–evaluation associations in memory.

Implicit measures of attitudes

Implicit attitude measures differ from explicit measures in that their measurement outcome is mostly affected by automatic processes, the most important features of which are uncontrollability, unintentionality, efficiency and speed (De Houwer & Moors, 2007). Over the last decades, a number of implicit attitude measures have been proposed (Fazio & Olson, 2003; Krosnick et al., 2005). The measurement tool that has attracted most attention in recent years is the IAT, developed by Greenwald et al. (1998). In essence, the IAT compares response latencies in sorting tasks involving compatible and incompatible combinations of attitude objects (e.g. *flowers* vs. *insects*) and valence attributes (e.g. *pleasant* vs. *unpleasant*). The IAT is based on the rationale that if individuals have positive attitudes toward flowers but not insects, they should more easily (i.e. more quickly) associate pleasant words with flower names rather than with insect names. In contrast with explicit attitude measures, the IAT generally reflects more automatic cognitive processes due in part to its limited controllability (Egloff & Schmukle, 2002). Although the IAT can be subject to some contextual variations, these variations do not seem to reflect intentional controlled processes (e.g. Lowery, Hardin, &

[1] *To make a parallel with the literature on judgments, we argue that explicit evaluations are in essence judgments. The literature identifies two types of judgments, stimulus-based and memory-based judgments (Hastie & Park 1986). Stimulus-based judgments are those that are made in presence of or immediately after exposure to the stimuli that can be relied on to form a judgment. Memory-based judgments are those that are made significantly after exposure to the stimuli and rely on information retrieved from long-term memory. The present paper examines the types of information that are used in making memory-based judgments; that is, memory-based explicit attitude measures.*

Sinclair, 2001). Thus, most researchers using the IAT converge to claim that this method may be seen as an approximate measure of the activation of object–evaluation associations when encountering an attitude object (De Houwer & Moors, 2007; Fazio & Olson, 2003), relatively impervious to strategic responding under standard conditions of implementation (Czellar, 2006; Wittenbrink & Schwarz, 2007).

The relation between implicit and explicit attitude measures

In light of the previous discussion, global attitudes, defined as object–evaluation associations stored in long-term memory, have arguably more influence on implicit attitude measures than on explicit attitude measures. From this perspective, investigations of the relation between implicit and explicit attitude measures seek answers to a substantive question: Under what circumstances do global attitudes drive explicit evaluations of objects? Since its inception, IAT research has reported diverging results for the correlation between implicit and explicit attitude measures (see Greenwald, Poehlman, Uhlmann, & Banaji, 2009 for a review). According to Fazio and Olson (2003), the wide range of those correlations was symptomatic of the lack of a broader theoretical framework that would accommodate varying strengths in the relation between implicit and explicit attitude measures. Consequently, there has been a steady stream of research specifically dealing with the issue of implicit–explicit consistency (Hofmann, Gawronski et al., 2005a; Karpinski et al., 2005; Nosek, 2005, 2007). A review of this literature suggests that research has investigated a host of potential moderators of the implicit–explicit relation, including factors related to research design, attitude structure, and evaluation context (Hofmann, Gschwendner, & Schmitt, 2005b). Research has also begun investigating the effect of individual differences on the implicit–explicit relation. The individual differences considered mainly focus on personal tendencies to elaborate on explicit evaluations for motives related to need for cognition (Florack, Scarabis, & Bless, 2001) and self-perception (Hofmann, Gschwendner, Nosek et al., 2005c), as well as various social and self-presentational motives (Hofmann, Gawronski et al., 2005a; Hofmann, Gschwendner, Nosek et al., 2005c; Hofmann, Gschwendner, & Schmitt, 2005b; Nosek, 2005; Olson, Fazio, & Hermann, 2007). The present research adopts a different perspective on individual differences and focuses on a more fundamental issue: How individual differences may affect the cognitive processes and underlying attitudinal structure upon which implicit and explicit attitude measures are based. We propose that one such individual difference affecting attitudinal structure is personal expertise with the attitude domain.

Expertise and its effect on the implicit–explicit relation

A framework based on information availability and accessibility

In the present research, we define expertise as "cognitive competence" (Sternberg & Frensch, 1992, p. 191). There is considerable evidence showing that experts' knowledge of a domain is more abundant, more elaborate, and more efficiently organized than novices' (e.g., Wood, Rhodes, & Biek, 1995). We focus on two aspects of expert knowledge that may determine the effect of expertise on the implicit–explicit relation: the availability and accessibility of information about the object. Availability refers to whether or not information about the object is actually stored in long-term memory, and accessibility refers to the activation potential of the available information when making an explicit evaluation of the object (Higgins, 2000). Various types of information may be available and accessible in memory about a given object. We focus our investigation on the differential accessibility and availability of two types of information, attitudes and attributes (Kardes, 1986). We now describe how existing research and theory can lead to two competing predictions of the effect of expertise on the implicit–explicit relation, depending on which type of information is available and/or accessible to individuals at the time of the explicit attitude measurement.

Expertise and the availability of detailed attribute information

Compared to novices, experts in a domain have a greater availability of detailed attribute-level information about objects belonging to that domain; consequently, when experts are requested to evaluate a domain-relevant object, they may experience a fan effect (Anderson, 1983; Cooke, 1992). The fan effect suggests that as the quantity of information stored in memory increases, the likelihood that a specific piece of information will be retrieved if the object node is activated decreases. Thus, if expertise leads to greater availability of attribute-level information, the relative weight of attitudes in the total association network diminishes. To illustrate, consider the following hypothetical examples of brand knowledge structures about BMW for a novice and an expert. When prompted to form an opinion about BMW, a novice consumer would have only very few, stereotypical attributes available (e.g., expensive and European). For this reason, the likelihood of an attitude node being activated is relatively high. However, when asked to evaluate BMW, an expert consumer may activate many available detailed attributes about that brand (e.g., a specific engine, fuel efficiency parameters, design aspects, the brand's aviation origins, etc.), thus decreasing the relative accessibility of their attitudes. Evidence for this effect has been provided in studies showing that experts tend to base their explicit brand evaluations on multiple concrete product attributes whereas novices tend to use their global attitudes to form brand evaluations (Dillon, Madden, Kirmani, & Mukherjee, 2001). Furthermore, novices seem more prone to use general stereotypes rather than attribute information in explicit product evaluations, while the opposite seems to hold for experts (Alba & Hutchinson, 1987; Maheswaran, 1994).

A possible fan effect may therefore lead experts to rely less on their attitudes and more on specific attributes to form an explicit evaluation. Because not all of those accessible attributes are necessarily attitude-consistent (Han, Czellar, Olson, & Fazio, 2010), we hypothesize that this process may lead to weaker implicit–explicit relations. In contrast to experts' knowledge, novices' knowledge is characterized by very few

attribute associations about the object. Therefore, they are likely to base their explicit evaluations on more global attitudes (e.g., first impressions and stereotypes), leading to potentially stronger implicit–explicit relations. In summary, the information availability aspect of expertise results in a prediction of a negative moderating effect of expertise on the implicit–explicit relation, such that greater expertise may lead to a weaker implicit–explicit relation.

Expertise and the accessibility of global attitudes

There are two types of accessibility: chronic, or long-term accessibility generally resulting from frequent exposure to a stimulus, and temporary, a short term readiness or activation potential of a certain construct (Han et al., 1982). Experts may experience chronic accessibility of global attitudes due to their frequent exposure to evaluative situations (Wood et al., 1995). For example, car experts may readily report their global attitudes toward different car brands because they have been expressing those attitudes many times in a variety of contexts. Empirical evidence indeed shows that prior personal experience with the attitude object plausibly leads to more accessible attitudes, suggesting a higher implicit–explicit relation for experts than novices (Marsh, Johnson, & Scott-Sheldon, 2001). Research also attests that if attitudes are elaborated and personally important, there is a stronger implicit–explicit relation than if attitudes are weaker and less relevant for the person (Karpinski et al., 2005; Nosek, 2005).

Consequently, contrary to our above conclusion that availability of detailed information can lead to the negative effect of expertise on the implicit–explicit relation, one could conclude that the accessibility of global attitudes can lead to the positive effect of expertise on the implicit–explicit relation. The purpose of our framework is to integrate these two competing mechanisms by highlighting conditions under which one or the other dominates. As explained below, these conditions pertain to the specificity of the attitude object (which can influence the nature and quantity of information available) and to the characteristics of the evaluative context (which can influence the accessibility of different types of available information).

Object specificity and information availability

Availability of attribute information can be influenced by the specificity of the attitude object being evaluated. Categorization theory holds that the number of attribute-based inferences varies depending on the specificity of the attitude object (Mervis & Rosch, 1981). The more precisely defined an object is, the more attribute-based inferences people should be able to make about it. Thus, exemplars are more likely to lead to attribute-based inferences than categories. For instance, brands within a particular product category (e.g. *Mercedes*) should generate more attribute-level inferences than the product category itself (e.g., *luxury cars*). Because of the greater availability of attribute-level information, individuals would be more likely to use it when forming evaluations about exemplars than when forming evaluations about categories. Object specificity will therefore likely affect the influence of expertise on the implicit–explicit relation. If sufficient attribute knowledge about the object is not available (i.e., if level of object specificity is low), we propose that independently of expertise level, people will be likely to make attitude-based explicit evaluations about the object (leading to a higher implicit–explicit relation). However, if sufficient attribute knowledge about the object is conceptually available (i.e., if level of object specificity is high), then, as expertise increases, so will the likelihood of engaging in attribute-based processing. So, we propose that if object specificity is high, novices will engage in attitude-based processing (leading to a higher implicit–explicit relation), but experts will engage in attribute-based processing (leading to a lower implicit–explicit relation). We test these predictions in Experiment 1.

Characteristics of the evaluative context and information accessibility

Even if object specificity is high, we argue that aspects of the explicit evaluation's context may favor either attitude-based or attribute-based evaluations. The nature of the evaluative context is of key importance to our investigation because in most real life situations, an explicit judgment is rarely context-free. For example, individuals may be requested to make an explicit evaluation of car brands with different goals or instructions, either in private or public, under low or high time pressure, under low or high cognitive load, or under varying motivational levels. In addition, the nature of the evaluation may depend on whether the evaluation bears on a single focal object (e.g., a conversation with friends about the pros and cons of *Mercedes* cars) or whether the evaluation is part of a larger set of explicit attitude measures about multiple objects (e.g. a preference survey about several products and brands). These different evaluation contexts may weaken/strengthen the temporary accessibility of attitudes/attributes, making the effect of expertise on the implicit–explicit relation conditional on the nature of the evaluation context.

We investigate two aspects of the evaluative context as potential factors leading to the temporary accessibility of different types of information (attitudes vs. attributes), and therefore leading to differential effects of expertise on the implicit–explicit relation. The first aspect is whether the evaluative context induces attitude-based or attribute-based processing through the instructions given to respondents prior to the explicit measurement task. Given experts' extensive available knowledge, inducing different types of processing through experimental instructions could have the following effect: On the one hand, instructing experts to use their global attitudes should make attitudes more temporarily accessible, leading to higher implicit–explicit relations. On the other hand, instructing experts to use attribute information in their explicit judgments should make attribute information more temporarily accessible, leading to lower implicit–explicit relations. However, we do not expect such differences to occur for novices because their attitude structures should be dominated by global attitudes. Regardless of the type of information mentioned in the instructions, novices are likely to rely only on information that is available to them (i.e., global attitudes), leading to a high

implicit–explicit relation. These predictions are investigated in Experiment 2.

The second aspect of evaluative context investigated in Experiment 3 pertains to whether the explicit evaluation of a specific object is taken in isolation (single evaluation) or after several evaluations of various unrelated objects (multiple evaluations). In a single evaluation context, we should replicate the relationships expected in Experiments 1 and 2. In a multiple evaluation context, however, we expect a different pattern to emerge. When individuals form an evaluation, information that is temporarily accessible tends to be oversampled (e.g., Lavine, Huff, Wagner, & Sweeney, 1998). Evaluations of unrelated objects along certain dimensions may therefore create a contextual influence on the ratings of the target object (Wyer, 1974). We argue, however, that this contextual effect will likely influence experts and novices in different ways.

We propose that due to their lack of knowledge and less chronically accessible attitudes about the object, novices' explicit judgments could be easily influenced by the directionality of their prior evaluations. Research suggests that information made salient by the evaluative context can have an influence on reported evaluations, especially for individuals who do not have extensive knowledge about an object (Lavine et al., 1998). Thus, their prior evaluations could bias their target evaluations and decrease the accessibility of their attitudes about the target object (e.g., if the unrelated object was given a "5" as an evaluation on a 1–5 scale, the target object would also get a "5"). Thus, novices may be more susceptible than experts to evaluating a target object in a manner consistent with their prior evaluations of unrelated objects (Fiske & Kinder, 1981). In a multiple evaluation context, we would therefore expect novices to have a low implicit–explicit relation. For experts, unrelated evaluations are unlikely to bias their chronically accessible attitudes about the target object. Rather, these prior evaluations may prime them to utilize a particular type of processing during the target task (Zbrodoff, 1999)—i.e., they may be primed to evaluate the target object based on their attitudes rather than engage in detailed attribute-based processing, just because that is what they had been doing all along. If this reasoning is correct, we should observe a stronger implicit–explicit relation for experts than for novices in the multiple evaluation context. We tested this prediction in Experiment 3.

Experiment 1

The purpose of our first experiment is to investigate whether attribute information availability determined by object specificity differentially impacts the implicit–explicit relation for individuals with varying levels of expertise with the object. Our rationale is that if limited attribute information about the object is available in memory, which is the case for general categories, then expertise level will not make a difference on the way people evaluate the object. In such situations, both novices and experts will rely on their existing global attitudes about the object, evidenced by a high implicit–explicit relation at any level of expertise.

However, if the object under consideration is more specific (such as a category's exemplar), we expect experts to have a greater quantity of attribute knowledge available than novices. Thus, experts should be more likely to retrieve information other than global attitudes and use that information to arrive at an explicit attitude report. Therefore, higher levels of expertise are expected to lead to weaker implicit–explicit relations if object specificity is high.

We chose cars as the superordinate category for our investigations. This choice was motivated by the presence of a wide range of categories (e.g., luxury cars, sports cars, SUVs) and exemplars (car brands) within categories. Object specificity was manipulated by presenting either a category or an exemplar within the category to participants, following the procedures outlined below.

Pretest

To define appropriate objects and stimuli, 101 voluntary students in a Western European business school participated in a pretest consisting of a word association task. Half of them were asked to list brands that were "most" and "least" luxurious in their view. As a result, the category *luxury cars* (vs. *common cars*) and the brand *Mercedes* (vs. *Fiat*) were chosen for the object specificity manipulation. The six most frequently cited luxury car brands and the six most frequently cited common car brands were selected as target stimulus items for the IAT in the category condition (see Appendix). The other half of the pretest sample was asked to list "any words that come to mind" about different brands, including *Mercedes* and *Fiat*. The purpose of this task was to elicit target stimulus items for the IAT in the brand condition. The six most frequently cited words pertaining to *Mercedes* and *Fiat* were selected (see Appendix).

Pilot study

The purpose of this pilot study was to verify a basic assumption about the effect of information availability on the way experts vs. novices evaluate categories vs. exemplars. We sought to check whether experts indeed elaborated more on attribute information than novices when they were asked to produce explicit evaluations of exemplars, but not when asked to evaluate categories. Ninety undergraduate students were assigned to either the category condition (*luxury cars, common cars*) or brand condition (*Mercedes, Fiat*). Each participant completed a six-item, seven-point differential scale (*unpleasant–pleasant, bad–good, dislike–like, ugly–beautiful, unfavorable–favorable* and *awful–nice*) to assess explicit judgments about each of the two attitude objects assigned to them. After each explicit attitude measure, participants wrote down the reasons for their evaluation the object. Participants were then asked to self-code their own thoughts according to thought valence (positive/negative) and whether the thought reflected an attitude (described as an "overall opinion") or an attribute (described as a "specific characteristic"). Individual expertise with cars was assessed using a four-item, seven-point scale, where higher scores meant greater expertise (Mitchell & Dacin, 1996): "How familiar are you with cars?,"

"How clear an idea do you have about which characteristics are important in providing you usage satisfaction?," "I know a lot about cars," and "How would you rate your knowledge about cars relative to the rest of the population?" ($\alpha = 0.92$). The summated score on this scale served as a global measure of expertise with cars [2].

As expected, in the category condition, level of expertise was unrelated to either the number of attitude-based thoughts (luxury cars: $r = -0.07$, $p = 0.65$; common cars: $r = 0.02$, $p = 0.85$) or attribute-based thoughts (luxury cars: $r = 0.22$, $p = 0.13$; common cars: $r = -0.02$, $p = 0.87$). In the brand condition, level of expertise was also unrelated to the number of attitude-based thoughts (*Mercedes*: $r = 0.09$, $p = 0.57$; *Fiat*: $r = 0.10$, $p = 0.51$). However, as hypothesized, the number of attribute-based thoughts was positively correlated with level of expertise in this condition (*Mercedes*: $r = 0.48$, $p = 0.001$; *Fiat*: $r = 0.47$, $p = 0.002$). These results confirm our theorizing about expertise, object specificity, and attribute information availability. Increasing levels of expertise seem to lead to the use of more attribute information when evaluating an exemplar, but not when evaluating a category.

Method

Materials

In the main experiment, all participants completed implicit and explicit measures of their attitudes toward either the categories or the brands presented to them, depending on their experimental condition. We then measured participants' expertise regarding cars using the self-reported scale described above. Finally, we assessed whether expertise exerted a differential influence on the relationship between implicit and explicit attitude measures for participants in the category condition versus participants in the brand condition.

Participants and procedure

Eighty-eight undergraduate French-speaking students in a European business school participated in the experiment as part of a course requirement. All stimuli and instructions were provided in French; stimuli were constructed in French, and relevant scales were translated from English to French using the parallel method (Malhotra, Agarwal, & Peterson, 1996). Respondents were randomly assigned to one of two conditions reflecting either low object specificity (category) or high object specificity (brand). In the category condition, automatically activated attitudes were assessed with the standard IAT procedure developed by Greenwald et al. (1998), using the stimuli featured in the Appendix. Participants completed the *luxury cars/common cars* IAT implemented on Inquisit software. They were instructed to sort words appearing in the middle of the computer screen into categories as quickly as they could. The words appeared in random order and were positive valence attributes (e.g. *joy*, *pleasure*), negative valence attributes (e.g. *tragedy*, *pain*), target items pertaining to luxury cars (e.g. *Mercedes, BMW*) and target items pertaining to common cars (e.g. *Fiat, Hyundai*). After practice blocks, participants sorted words in the compatible trial block (*luxury cars* and *pleasant*; *common cars* and *unpleasant*) and the incompatible trial block (*luxury cars* and *unpleasant*; *common cars* and *pleasant*); the order of these blocks was randomized.

After completing the IAT, the same scale as in the pilot study was used to assess explicit evaluations about *luxury cars* and *common cars*. Subtracting the summated score for *common cars* from the summated score of *luxury cars* provided our explicit measure of attitudes toward *luxury cars* (vs. *common cars*). Individual expertise with cars was assessed using the four-item, seven-point scale used in the pilot study.

In the brand condition, participants followed a similar procedure as in the category condition, with the exception that their attitudes toward *Mercedes* (vs. *Fiat*) instead of *luxury cars* (vs. *common cars*) were assessed. Accordingly, we used the target labels *Mercedes*/*Fiat* and their respective target items in the IAT (see Appendix).

Results

D-measures for the IAT effect were calculated following the scoring algorithm developed by Greenwald et al. (2003). Mean error rates in both IATs were low (4.15% for categories and 3.39% for brands); internal consistencies calculated as the correlation between D-measures in practice and trial blocks were within the ranges reported by Greenwald et al. (2003) with $r = 0.71$, $p < 0.0001$ for categories and $r = 0.57$, $p < 0.0001$ for brands.

Multiple linear regression analysis with interaction terms was conducted following Aiken and West (1991). We mean-centered the data by subtracting the mean from each observation for all continuous variables. We then regressed explicit attitude measures on the IAT effect, expertise, object specificity and all the two-way and three-way cross-products between these three independent variables. Results of this regression are reported in Table 1. The significant main effects of IAT and object specificity were qualified by a significant negative three-way interaction between IAT effect, expertise and object specificity.

To further investigate this interaction, we conducted slope tests of the regression line estimated in the category (brand) condition for novices (experts), as recommended by Aiken and West (1991). In the top panel of Fig. 1, we present two

[2] *Extant research indicates that self-reported expertise measures and more objective knowledge/competence assessments are related (Carlson, Vincent, Hardesty, & Bearden, 2009; Mitchell, & Dacin 1996). Additionally, to assess a potential distinction between category-level and brand-specific expertise, a pretest was conducted whereby ninety-six participants completed the four-item expertise scale used in Experiment 1 followed by the same scale applied to* Mercedes *and* Fiat*. Scale reliabilities as assessed by Cronbach's alpha were the following: Expertise with cars ($\alpha = 0.93$), expertise with* Mercedes *($\alpha = 0.92$) and expertise with* Fiat *($\alpha = 0.91$). The category expertise scale was highly correlated with both the* Mercedes *($r = 0.78$, $p < 0.0001$) and* Fiat *expertise scales ($r = 0.66$, $p < 0.0001$). Taken together, the twelve items of the three scales loaded on one dominant factor explaining 64.2% of total variance. We concluded on the basis of these findings that, in the present context, there was no reason to study the effect of brand-specific expertise as a construct distinct from category expertise.*

Table 1
Explicit attitude measure regressed on the implicit attitude measure, expertise and object specificity in Experiment 1.

Independent variables	Standardized regression coefficients
IAT effect	0.29*
Expertise	0.25
Object specificity	0.53**
IAT effect × expertise	0.00
IAT effect × object specificity	−0.22
Expertise × object specificity	−0.15
IAT effect × expertise × object specificity	−0.44**
R^2	0.45
N	88

*$p<0.05$, **$p<0.01$.

regression lines estimated at different expertise levels in the category condition. The bold line corresponds to the regression slope estimated at low expertise (one standard deviation below the mean on the expertise scale) while the dotted line corresponds to the slope estimated at high expertise (one standard deviation above the mean on the same scale). Both of these slopes were significantly positive ($t(87)=2.04$, $p=0.044$ and $t(87)=2.07$, $p=0.041$), indicating that independently of expertise level, participants manifested a strong relation between their implicit and explicit attitude measures in the category condition.

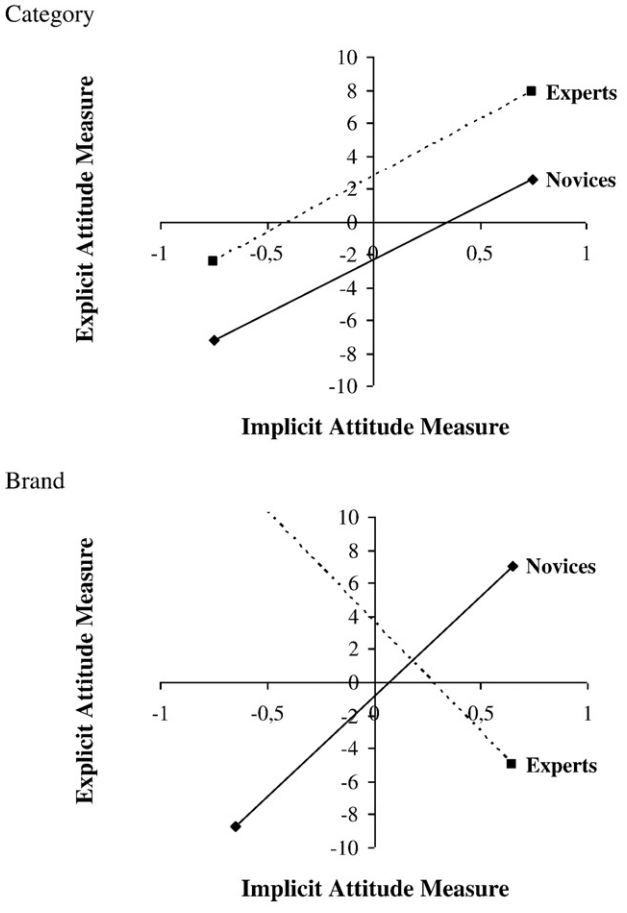

Fig. 1. Explicit attitude measure as a function of the implicit attitude measure, expertise and object specificity in Experiment 1.

The bottom panel of Fig. 1 presents two regression lines estimated at different expertise levels in the brand condition. The bold line corresponds to the regression slope estimated at low expertise; the positive slope of this line indicates that novices manifested a strong positive relation between implicit and explicit attitude measures in the car brand condition, too, $t(87)=3.88$, $p=0.0002$). However, we obtained a marginally negative slope at high expertise (dotted line), suggesting no positive relation between implicit and explicit attitude measures for experts in this condition, $t(87)=-1.96$, $p=0.053$. As expected, the slopes of those two regression lines were significantly different from each other, $t(87)=3.74$, $p=0.0003$.

Discussion

The key insight emerging from the data is that the correspondence between implicit and explicit attitude measures is conditional on the interaction between object specificity and expertise. The findings suggest that the default relationship between implicit and explicit measures for novices is highly positive, irrespective of object specificity. For experts, the picture is different: the implicit–explicit relation is highly positive for categories but not for exemplars. Because of lack of sufficient specificity, the number of attributes about an object such as a broad car category is very limited. In these circumstances, even if some limited attribute information is chronically accessible for experts, the possibility of attribute-based processing is low. It is likely that most people will therefore engage in attitude-based processing; that is, rely on their attitudes to evaluate those broadly defined objects. On the other hand, if an object is more specific (e.g. a car brand), increasing expertise levels lead to more attribute information available in memory that can be used to make an explicit evaluation.

The purpose of Experiments 2 and 3 is to further investigate the conditions under which expertise leads to a stronger or weaker implicit–explicit relation. These two studies examine the role of the context in which the explicit judgment is made on the temporary accessibility of global attitudes versus detailed attribute information. We focus on measurements of attitudes toward exemplars in order to conceptually maintain a high level of information availability across conditions and be able to investigate the effect of information accessibility. Taken together, Experiments 2 and 3 show that higher levels of expertise can impact the implicit–explicit relation for exemplars in different ways depending on the information that the evaluative context makes most accessible (either attributes or attitudes).

Experiment 2

In this experiment, we investigate the nature of the explicit evaluative context in terms of its likelihood of inducing either attitude-based or attribute-based processing in explicit evaluations of exemplars. Many common evaluative situations typically cue either attitude-based or attribute-based processing; indeed,

models of attitude-behavior processes suggest that contextual factors can lead to reliance on either attitudes or attributes in evaluation formation (e.g., Fazio & Towles-Schwen, 1999). We employed two experimental conditions, one of them designed to induce high attitude accessibility and another one inducing high attribute accessibility. In the high attitude accessibility condition, we expected individuals to engage in attitude-based processing independently of their level of expertise. We expected a high implicit–explicit relation in that condition. In the high attribute accessibility condition, we expected a difference between novices and experts such that novices would continue to engage in attitude-based processing (because of their lack of available attribute information), and experts would engage in attribute-based processing (because of ample attribute information available in their memory). We therefore expected a strong implicit–explicit relation in this condition for novices and a weak such relation for experts, just as in the brand condition of Experiment 1.

Method

Materials

The materials were similar to Experiment 1, with the following differences: participants only responded to brands and not categories; there was a filler task between the IAT and the explicit measure intended to reduce a potential carryover effect of the IAT on the explicit measure; and an experimental manipulation preceded the explicit evaluations as explained below.

Participants and procedure

One-hundred eight undergraduate students in a European business school participated in an experiment as part of a course requirement. They first completed the *Mercedes*/*Fiat* IAT used in Experiment 1, followed by a 20-min unrelated filler task. Participants were then randomly assigned to one of two conditions: high attitude accessibility or high attribute accessibility. In the high attitude accessibility condition, explicit attitude measures were preceded by an instruction asking participants to focus on their global attitude toward the car brands before completing the explicit attitude scales. In the high attribute accessibility condition, explicit measures were preceded by instructions asking participants to think of a *Mercedes* car's detailed characteristics as precisely as possible. Participants then wrote down those specific characteristics in boxes provided. They were then asked to evaluate the brand on the explicit scales on the basis of the thoughts they had just written down. The same procedure was followed for *Fiat*.

After explicit attitude measures identical to Experiment 1, participants in both conditions responded to two questions on a 1 to 7 scale anchored at 1 (strongly disagree) and 7 (strongly agree): "To evaluate *Mercedes* and *Fiat*, I tried to think of the specific characteristics of each brand" and "To evaluate *Mercedes* and *Fiat*, I tried to think of my general attitude toward each brand." Responses to these questions served as manipulation checks. Participants ended the experimental session by completing the four-item expertise scale used in Experiment 1.

Results

D-measures of the IAT effect were calculated following the scoring algorithm developed by Greenwald et al. (2003). Mean error rate was 3.84% and internal consistency was $r=0.44$, $p<0.0001$. The attribute accessibility manipulation was successful in that participants in the high attribute accessibility (vs. high attitude accessibility) condition reported higher scores to the question "I tried to think of the specific characteristics of each brand" ($M=5.29$ vs. $M=4.52$, $F(1, 106)=7.55$, $p=0.007$) and lower scores to the question "I tried to think of my general attitude toward each brand" ($M=5.36$ vs. $M=5.88$, $F(1, 106)=5.44$, $p=0.022$).

Following the same procedures as in Experiment 1, we first mean-centered the data by subtracting the mean from each observation for all continuous variables. We then regressed the explicit attitude measure on the IAT measure, expertise, accessibility type and all the two-way and three-way cross-products between these three independent variables. Results of this regression are reported in Table 2. The main effect of the IAT measure was qualified by a negative three-way interaction between IAT measure, expertise and accessibility type. To further investigate this interaction, we conducted slope tests of the regression line estimated at high attitude accessibility (high attribute accessibility) for novices (experts). In the top panel of Fig. 2, we present two regression lines estimated at different expertise levels in the high attitude accessibility condition. The bold line corresponds to the regression slope estimated at low expertise (one standard deviation below the mean on the expertise scale) and the dotted line corresponds to the slope estimated at high expertise (one standard deviation above the mean on the same scale). Both of these slopes were significantly positive ($t(107)=2.03$, $p=0.045$ and $t(107)=3.20$, $p=0.002$), indicating that, independently of expertise level, participants manifested a strong relation between their implicit and explicit attitude measures in the high attitude accessibility condition.

The bottom panel of Fig. 2 presents two regression lines estimated at different expertise levels in the high attribute

Table 2
Explicit attitude measure regressed on the implicit attitude measure, expertise and accessibility type in Experiment 2.

Independent variables	Standardized regression coefficients
IAT effect	0.45**
Expertise	0.06
Accessibility type	0.04
IAT effect × expertise	0.14
IAT effect × accessibility type	−0.07
Expertise × accessibility type	0.12
IAT effect × expertise × accessibility type	−0.32*
R^2	0.23
N	108

*$p<0.05$, **$p<0.01$.

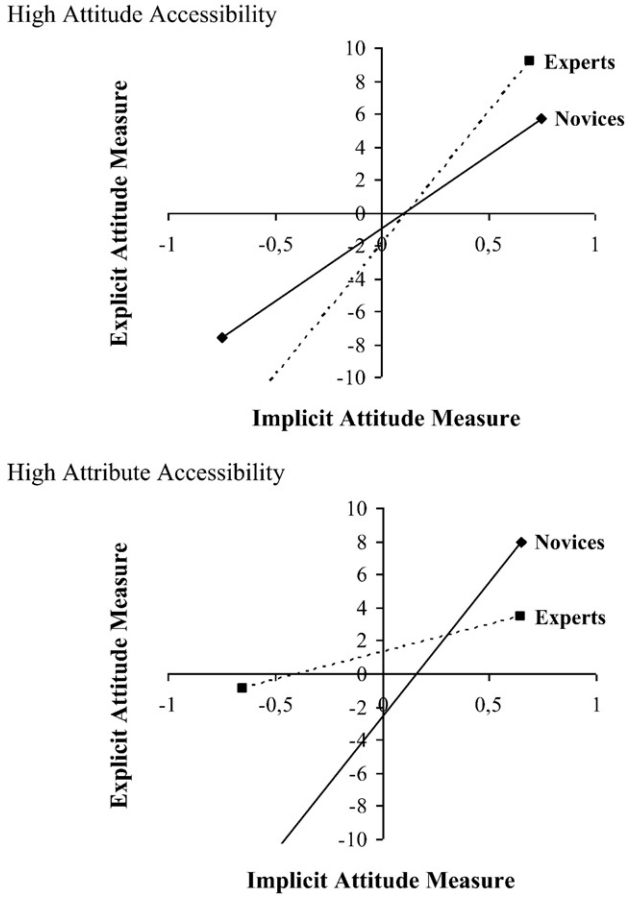

Fig. 2. Explicit attitude measure as a function of the implicit attitude measure, expertise and attribute accessibility in Experiment 2.

accessibility condition. The positive significant slope of the bold line for low expertise indicates that novices also manifested a strong positive relation between implicit and explicit attitude measures in the high attribute accessibility condition ($t(107)=3.10$, $p=0.003$). However, we obtained a non-significant slope at high expertise (dotted line), suggesting no positive relation between implicit and explicit attitude measures for experts in this condition ($t(107)=0.72$, $p=0.473$). As expected, the slopes of the two regression lines were significantly different from each other, $t(107)=2.29$, $p=0.02$.

Discussion

This study investigated an important contextual variable, the level of attribute versus attitude accessibility at the time the explicit evaluation was made. In the high attribute accessibility condition, we replicated the results obtained in Experiment 1 suggesting that experts elaborated on attributes to make an explicit brand evaluation, while novices seemed to rely on their attitudes to do so (see bottom panel of Fig. 1). This result further corroborates the proposition that as a default processing mode for exemplar evaluations, there is a weak implicit–explicit relation for experts and a high such relation for novices. In the high attitude accessibility condition, novices seemed to continue to rely on their attitudes in explicit evaluations. Experts, too, seemed to switch to attitude-based processing in their explicit evaluations. Taken together, findings from Experiments 1 and 2 suggest that, for exemplars, experts have both attitudes and attributes available, but the accessibility of those two types of information may vary depending on whether the evaluative context cues attributes or attitudes.

Experiment 3

This experiment examines the effect of another contextual factor on the differential accessibility of attitudes versus attributes during explicit evaluations. A key purpose of this experiment relates to novices. Our first two experiments consistently showed positive implicit–explicit relations for novices in all conditions investigated. From the theoretical perspective espoused in this research, these findings suggest that irrespective of the object and its evaluation context, novices strongly relied on global attitudes to make an explicit evaluation. However, there may be situations where novices do not use their attitudes toward the object to make an explicit evaluation about an exemplar. Instead, they may rely on other mechanisms to produce an explicit evaluation. In such situations, we could observe low implicit–explicit correlations for exemplars even for novices. Experiment 3 seeks to investigate an aspect of the evaluation context that may produce such situations.

The factor under consideration in this study is whether the explicit evaluation is a stand-alone single evaluation or whether the explicit evaluation is part of a larger set of evaluations (e.g., the typical case of a survey), in which case the focal evaluation is preceded by several unrelated explicit attitude measures. In a standard single evaluation context, novices and experts should behave like in the brand condition of Experiment 1: novices rely on their attitudes while experts, subject to a fan effect, engage in more detailed processing and rely on attributes to make an explicit evaluation. We should thus observe a high implicit–explicit relation for novices and a low relation for experts in a single evaluation context. However, in a multiple evaluation context, we would expect attitude accessibility to offset the fan effect for experts because multiple attitude reports would cue attitude-based processing rather than attribute-based processing. In such a context, experts would produce a high implicit–explicit relation. However, if novices indeed have weaker, less chronically accessible attitudes than experts, then the unrelated evaluations that precede the focal object evaluation may interfere with their retrieval of the focal attitudes. This would be evidenced by a potential carryover of the attitude responses from the prior evaluations to the focal object; in other words, those attitude reports may serve as primes that reduce attitude accessibility toward the focal object for novices. In such a context, novices could produce a low implicit–explicit relation. Experiment 3 was designed to investigate this possibility.

Method

Materials

Materials were similar to those used in Experiment 2, the only difference being the nature of the manipulation implemented during the explicit attitude measure.

Participants and procedure

Eighty-two undergraduate students in a European business school participated in this experiment for partial course credit. They first completed the *Mercedes*/*Fiat* IAT used in the previous experiments, followed by a 20-min unrelated filler task. Participants were then randomly assigned to one of two conditions reflecting either single or multiple explicit attitude evaluations. In the single evaluation condition, participants completed an unrelated task that did not involve evaluating any objects and then completed the target explicit attitude evaluation without specific instructions (identical to the conditions in Experiment 1). In the multiple evaluation condition, participants first completed explicit attitude measures on four unrelated objects (camera, TV set, cell phone and digital personal organizer). Specifically, participants saw a picture of the object, followed by the same six-item attitude scale used in the previous experiments. This task was followed by the explicit attitude measures on the same scale for the focal brands, *Mercedes* and *Fiat*. Participants in both experimental conditions ended the session by completing the four-item expertise scale used in the previous experiments.

Results

D-measures of the IAT effect were calculated following the scoring algorithm developed by Greenwald et al. (2003). Mean error rate was 3.77% and internal consistency was $r=0.48$, $p<0.0001$. Following the same procedures as in previous experiments, we first mean-centered the data by subtracting the mean from each observation for all continuous variables. We then regressed the explicit attitude measure on the IAT measure, expertise, evaluation type and all the two-way and three-way cross-products between these three independent variables. Results of this regression are reported in Table 3. The main effect of the IAT measure was qualified by a positive three-way interaction between IAT measure, expertise and evaluation type.

To further investigate this interaction, we conducted slope tests of the regression line estimated in single (multiple) evaluation for novices (experts). In the top panel of Fig. 3, we present two regression lines estimated at different expertise levels in the high attitude accessibility condition. The bold line corresponds to the regression slope estimated at low expertise (one standard deviation below the mean on the expertise scale) while the dotted line corresponds to the slope estimated at high expertise (one standard deviation above the mean on the same scale). Novices manifested a strong relation between their implicit and explicit attitude measures in the single evaluation condition ($t(81)=2.69$, $p=0.009$); for experts, however, there was no positive association between implicit and explicit attitude measures in that condition ($t(81)=0.03$, $p=0.98$). As expected, the slopes of those two regression lines were significantly different from each other, $t(81)=2.32$, $p=0.01$.

The bottom panel of Fig. 3 presents two regression lines estimated at different expertise levels in the multiple evaluation condition. In this condition, the pattern of results is reversed:

Table 3
Explicit attitude measure regressed on the implicit attitude measure, expertise and evaluation type in Experiment 3.

Independent variables	Standardized regression coefficients
IAT effect	0.35*
Expertise	0.05
Evaluation type	−0.06
IAT effect × expertise	−0.32
IAT effect × evaluation type	−0.05
Expertise × evaluation type	0.02
IAT effect × expertise × evaluation type	0.38*
R^2	0.17
N	82

*$p<0.05$, **$p<0.01$.

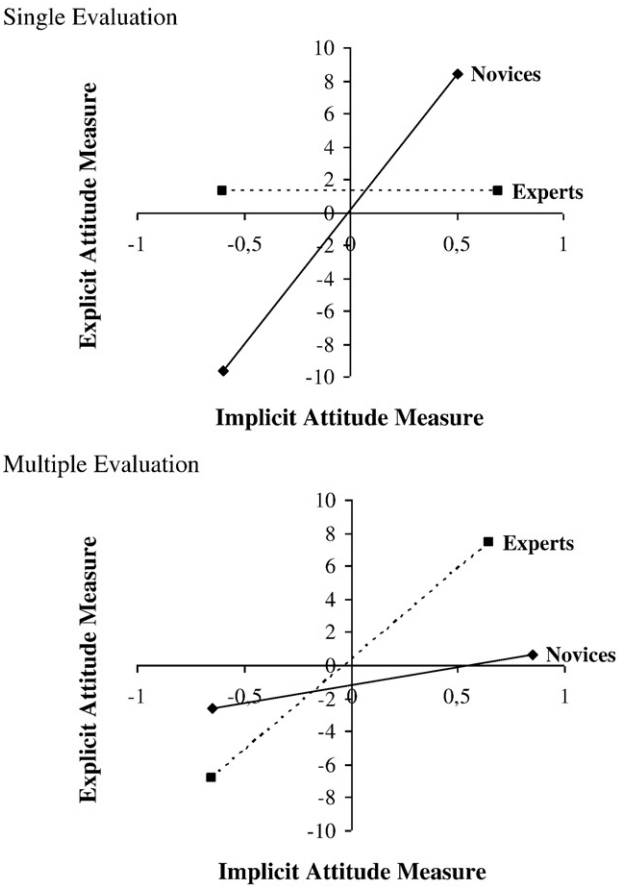

Fig. 3. Explicit attitude measure as a function of the implicit attitude measure, expertise and evaluation type in Experiment 3.

We observe a significant positive implicit–explicit relation for experts ($t(81)=2.57$, $p=0.012$) but not for novices ($t(81)=0.39$, $p=0.698$); the slopes of those two regression lines are again significantly different from each other, $t(81)=2.03$, $p=0.045$.

We also checked for support of our theorizing with regard to the differential impact that the prior unrelated evaluations have on novices versus experts. If our theorizing is correct, we should observe a carryover effect for novices but not for experts, emerging as a significant relationship between the averaged unrelated product evaluations and the focal explicit evaluation, but only for novices in the multiple evaluation condition. We regressed the explicit attitude measures on the averaged unrelated product evaluations ($t(43)=0.96$, $p=0.342$), expertise ($t(43)=-0.97$, $p=0.338$) and the unrelated product evaluations × expertise cross-product ($t(43)=-2.21$, $p=0.033$, $R=0.25$). This latter interaction was probed at low vs. high expertise levels (one *SD* below/above the mean) in Fig. 4. Novices' explicit attitude measures were strongly related to the unrelated product evaluations ($t(43)=2.45$, $p=0.018$) but there was no such relationship for experts ($t(43)=-1.05$, $p=0.299$); the slopes of those two regression differed significantly from each other, $t(43)=2.42$, $p=0.02$. These results support our hypothesis about the presence of an effect that carries over from unrelated product evaluations for novices but not experts, thus limiting the accessibility of novices' focal attitudes.

Discussion

One objective of this experiment was to show that novices can also manifest a low implicit–explicit correspondence in exemplar evaluations. We proposed that this would only occur in contexts where novices do not rely on their global attitudes toward the target object to form an explicit evaluation. To induce such a context, we manipulated the number of evaluations participants made prior the focal object evaluation. We expected that if multiple unrelated evaluations preceded the focal object evaluation, then these evaluative responses would carry over to the focal object, potentially limiting novices' accessibility of focal attitudes. Experiment 3 provided evidence for this process and indeed showed a low implicit–explicit relation for novices in multiple evaluations. No such effects were observed for experts, whose highly accessible attitudes seemed to prevent them from being influenced by this carryover effect. Instead, the unrelated evaluations seemed to act for experts as cues to engage in attitude-based processing; that is, to rely on their attitudes to form an explicit evaluation of the focal exemplar.

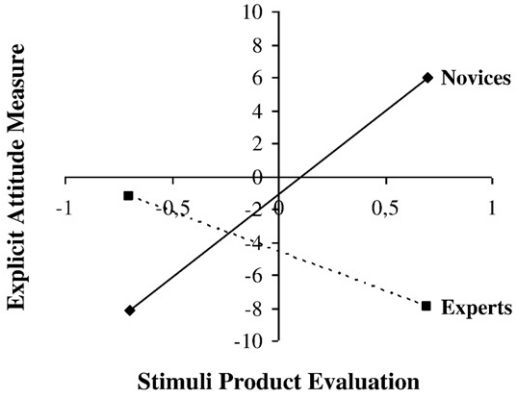

Fig. 4. Explicit attitude measure as a function of the unrelated product evaluations and expertise in the multiple evaluation condition of Experiment 3.

General discussion

This research attempts to further our understanding about how individual differences can influence the relation between implicit and explicit attitude measures (Nosek, 2007). Taken together, our three experiments provide evidence for expertise as an important individual difference moderating the implicit–explicit relation. Our availability/accessibility framework reconciles two opposing predictions for the direction of the effect of expertise on the implicit–explicit relation. We viewed attitudes as object–evaluation associations in memory that may or may not be available, and may or may not be accessible in memory depending on the context of the explicit evaluation (Fazio, 1995). We proposed expertise as a person factor shaping the attitudinal representations of objects in terms of availability/accessibility of relevant information in memory. We also proposed that experts, compared to novices, have more information available/accessible about their object of expertise, provided that this object is specific enough (i.e., an exemplar vs. a category). Under standard conditions of implementation (a single object evaluation without particular instructions), it appears that both novices and experts rely on their attitudes to make an explicit evaluation of a broad category, leading to a strong implicit–explicit relation. Under the same conditions, however, novices and experts differ in the way they evaluate specific exemplars: experts engage in relatively detailed processing, whereby in addition to their attitudes, they may also retrieve attribute knowledge to form explicit evaluations. Thus, attitudes have less relative influence in experts' explicit evaluations due to a fan effect. Such a process was not evidenced for novices. These findings were consistently replicated across the three experiments. We therefore propose that in standard evaluations of exemplars, there should be a strong implicit–explicit relation for novices and a weak relation for experts.

As attested by prior research, a specific context can make certain processing strategies more or less temporally accessible (e.g., visual vs. verbal processing; Wyer, Hung, & Jiang, 2008). In the present research, if the evaluative context clearly cued attitude-based processing, consumers were more likely to rely on their attitudes to form an explicit brand evaluation, offsetting the fan effect. In those situations, a high implicit–explicit relation was observed independently of expertise level. Finally, we showed that some evaluative contexts may actually produce a low implicit–explicit relation even for novices. Those contexts may lead to lower attitude accessibility for novices (e.g., when there is a carryover effect from prior unrelated evaluations). In

summary, we show in three experiments that depending on specific characteristics of the object and its evaluative context, increasing levels of expertise can lead to either weaker or stronger implicit–explicit relations.

Expertise and consumer knowledge structures

Building on the expertise literature, we proposed potential differences in knowledge structures between novices and experts. Provided that the attitude object is sufficiently specific (e.g., a brand), novices' knowledge structures tend to be less populated with attributes than experts'. We hypothesized that such configuration underlies the differences in the knowledge that will be activated when measuring attitudes. For instance, novices' attitude nodes are more strongly associated to the nodes representing the brand names than experts'. That is, novices have lower-order relations between the brand names and the attitude nodes compared to experts and consequently, attitudes will be more readily activated for novices than for experts (Greenwald et al., 2002). Our data confirmed this view. However, our findings also suggest that the measurement context can interfere with this general result, and lead to the temporary facilitation (priming) of the associations between brand names and attitude nodes for experts. In the same vein, specific contextual variations may inhibit attitude activation for novices.

It is theoretically possible for some experts to only retrieve attitude-consistent attributes from memory at the time the explicit evaluation is requested, in which case we could observe a high implicit–explicit correspondence. This could happen if an expert had a very extreme (positive or negative) attitude about the object. If we return to our example about *BMW*, such an expert would need to have exclusively positive knowledge structures about *BMW*, characterized by favorable attributes (e.g., safety, interior design, fuel efficient). However, the likelihood of such an extreme situation is low because experts' extensive knowledge base will probably also contain highly accessible attribute information that is either neutral (e.g., the brand's aviation origins, car racing) or even negative about *BMW* (e.g., specific car models, some aspects of exterior design). It is thus improbable that experts' would have very extreme (negative or positive) attitudes about their objects of expertise. This reasoning is also supported by our data as there was no relation between attitude reports and expertise in any of our three experiments (see Tables 1–3); no such association was detected at an implicit level, either.

We now discuss how our research relates to prior work on the implicit–explicit relation and to alternative attitude conceptualizations, and provide some methodological implications for researchers.

Category vs. exemplar evaluations

IAT research has often used categories as target objects (Greenwald et al., 2009; Hofmann, Gawronski et al., 2005a). For example, Nosek (2005) extensive analysis of web-based IAT data on 57 objects (most of which included categories like democrats–republicans, vegetables–meat and cats–dogs) found a median correlation of 0.48 between implicit and explicit attitude measures. Given that people with various backgrounds could participate in those IATs, it is probable that participants had heterogeneous expertise levels with the target objects. Thus, the correlations observed by Nosek are compatible with our argument that if object specificity is low (like for categories), then independently of expertise level, a substantial implicit–explicit correspondence is expected. For the purposes of external validity, it would be important to verify that our predictions about the interaction of expertise and object specificity on the implicit–explicit relation also hold in large-scale surveys employing numerous objects.

Lambert, Payne, Ramsey, and Shaffer (2005) reported that perceived group variability moderated the relation between implicit and explicit measures of impression formation toward a person. Their experiments demonstrate that if members of a target category are perceived as homogenous, then the implicit–explicit correspondence is high; however, weaker correspondence is observed if members of a target category are perceived as heterogeneous. Our studies actually show that the implicit–explicit correspondence tends to be stronger for categories than for exemplars. Lambert et al.'s (2005) findings suggest that group variability may moderate the interaction between object specificity and expertise on the implicit–explicit relation. We may therefore assume that the categories we used in Experiment 1 (luxury cars, common cars) were perceived by participants as relatively homogenous. The proposition that less homogenous groups may lead to weaker implicit–explicit correspondence at the category level is certainly worth investigating in future research.

Expertise and evaluative distinctiveness

Evaluation distinctiveness refers to the idiosyncrasy of an individual's judgment compared to the social norm. Nosek (2005) found that distinctive evaluations were related to a greater implicit–explicit correspondence than normative evaluations. In light of our findings, it seems that there are promising avenues for future experiments to study the relation between expertise and the normative character of an evaluation and how this relation can impact the implicit–explicit consistency. Indeed, do increasing expertise levels lead to more and more personalized judgments that are more and more different from a social norm? Or is the opposite effect more plausible? For example, Nosek (2005) argues that sports fans (that is, experts in their favorite sport) may set the norm with their attitudes as opinion leaders. A promising avenue for the clarification of these relations is to distinguish between objective expertise and subjective confidence in that knowledge (Puligadda et al., 2010). We could for example argue that highly confident experts would more likely act as opinion leaders than their more hesitant peers. Future investigations may build on these notions to establish conceptual links between expertise and evaluation distinctiveness

and how these two factors may interact on the implicit–explicit relation.

Expertise and constructionist attitude models

Researchers have advanced several conceptualizations of attitudes, including the view of attitudes as structures stored in long-term memory and retrieved as needed (e.g., Fazio, 1995), and the view of attitudes as temporary constructions (e.g., Schwarz & Bohner, 2001). Our framework of how expertise influences the implicit–explicit relationship via availability and accessibility of knowledge builds on the view of attitudes as structures held in long-term memory. From this perspective, as discussed throughout this paper, global evaluations of objects could be stored and retrieved by either novices or experts as needed, or individuals could instead retrieve the object's attributes and then integrate that information to form an explicit evaluation. Although the view of attitudes as temporary constructions can be used to explain most of our results, we find our data to be more easily explained by the view of attitudes as structures in long term memory.

Thus, a constructionist view of our data would argue that when individuals perform the IAT, they do not tap into a stored attitude toward the object in question. For instance, recent constructionist conceptualizations of implicit measurements argue that "automatic attitudes would be more appropriately understood as unintentionally activated evaluations of 'object-centered contexts'" (Ferguson & Bargh, 2007, p. 217). According to an object-centered context approach, attitude measurements are the result of the integration of multiple pieces of information that are activated when the test is performed, not just the activation of a global attitude link between the object and an evaluation. Following this framework, the lower correlations between implicit and explicit measures for experts could be due to their greater available knowledge. The likelihood of exactly the same knowledge being activated in the context of two different measures is low relative to novices, who do not have as much available knowledge, so for them the difference between the first and the second test may not be as pronounced. In addition, experts during an explicit measure are more likely to engage in additional metacognitive processing/second-guessing that would alter the unconscious evaluation in a two-stage process (Wilson et al., 2000).

If we were to interpret our data following this approach, the difference between novices and experts would not be due to novices relying on their global evaluations and experts relying on detailed attribute information during the explicit attitude measure. Instead, the difference would be due to experts' attitudes being more context-sensitive, and thus changing over time to a greater degree than novices'. This explanation could be proposed in Experiment 1 and could also be used to explain Experiment 2. In Experiment 1, the lower availability of knowledge in the category condition, even for experts, would lead to less variability in activated context across measurements, so experts would have higher implicit–explicit correlations in the category condition than in the brand condition. In Experiment 2, the context-activation explanation could reasonably be used to explain our data: experts have more attribute knowledge, so when they are encouraged to use it, there will probably be more variability across measurement tasks, leading to lower correlations than if respondents were encouraged to base their explicit evaluations on global attitudes. The application of object-centered contexts to our data may be less straightforward to explain the findings in Experiment 3. We therefore believe that an explanation based on the accessibility of global attitudes versus attribute information, as advanced in this paper, presents itself as more parsimonious than an explanation based on object-centered contexts. Our research is thus consistent with recent theorizing aiming at integrating the seemingly contradictory views of preferences as constructed or inherent (Simonson, 2008).

Expertise and the dual-attitude model

Another model of attitudes that has been used to explain the relationship between implicit and explicit measures of attitudes is the dual-attitude model (Wilson et al., 2000). The model suggests that individuals can hold two types of attitudes toward a specific object: implicit and explicit. The implicit attitude could be "activated automatically, whereas the explicit one requires more capacity and motivation to retrieve from memory. When people are able to retrieve A_E, it can override A_I, such that they report A_E. When people do not have the capacity or motivation to retrieve A_E, they report A_I" (Wilson et al., 2000, p. 104). According to the dual-attitude model, explicit attitudes are more susceptible to changes over time and to context effects; implicit attitudes tend to be more stable over time.

Our data are consistent with the main principles of this model. For example, novices could have formed only an implicit attitude and use it both in the IAT and the explicit task. Experts are more likely than novices to have more than one attitude stored in memory because of their extensive knowledge about the object. For example, experts could have an implicit attitude toward the brands at hand based mostly on the brand image communicated by the companies, and an explicit attitude based on the individuals' own brand attribute evaluations stemming from personal experience. Experts are also more likely than novices to have the capacity to retrieve the explicit attitude when required in the explicit task. Thus, we could think of the implicit attitude as the default attitude, which is then revised with the explicit attitude when individuals have the capacity (i.e., available knowledge) or motivation to do so during an explicit task. Experts, therefore, would be able to revise their implicit attitudes through elaboration and activation of available and accessible knowledge, leading to lower implicit–explicit correlations than novices.

Hence, our availability/accessibility framework for the effect of expertise on the implicit–explicit relation could work with the dual attitude model, too. Experiment 1's data could be explained in that categories are not as likely to have two

attitudes connected to them because they are not likely to be subject to as much conscious elaboration as exemplars. Therefore, the attitudes reported in the explicit measure should be similar to those emerging from the IAT, for both experts and novices. In the brand condition, however, experts are likely to have formed at least two different attitudes, given the extensive elaboration to which the attitude object is submitted to. Therefore, expertise will lead to lower implicit–explicit correlations for exemplars but not for categories. In Experiment 2, our manipulations during the explicit task could have motivated experts to retrieve either an attitude based on global impressions (the implicit attitude) versus another attitude based more on attribute evaluations (the explicit attitude), leading to our results. In Experiment 3, experts could have been primed to retrieve either their implicit attitudes (in the multiple evaluation condition) or left to their own devices to respond based on explicit attitudes in the single evaluation condition, resulting in our obtained pattern of results. In conclusion, we believe the dual attitude model can accommodate our results, too.

As stated by Gawronski (2007), scholars studying implicit cognition have adhered to different theoretical paradigms on the attitude construct. We built on the view of attitudes as object–evaluation associations to propose mechanisms about the effect of expertise on the implicit–explicit relation. However, the findings reported in this research could help further our understanding of the links between implicit and explicit attitude measures under the lenses of different conceptual paradigms as well.

Methodological implications

Our results suggest that, relative to the IAT, explicit measures of attitudes can vary more due to contextual factors. Therefore, when designing measurement instruments and procedures, researchers must be aware that biases like the carryover effect and/or the priming of attitude-based processing in Experiment 3 can influence novices and experts in different ways. Contextual influences on attitude formation have been well documented in the consumer psychology literature (e.g., Monga & Roedder John, 2008). Future studies must continue to investigate this promising area of research.

Similarly, the instructions given to respondents prior to explicit judgments can influence novices and experts differently, leading to attribute versus attitude processing for experts alone—not novices. Researchers must also consider the specificity of the object they measure attitudes for: Exemplars will likely prompt respondents to construct judgments on the spot, leading to less reliance on long-term attitudes toward the object, but only for experts.

Acknowledgments

A substantial part of this article was completed while the first author was associate professor at HEC Paris.

Appendix

Stimulus items used in the IATs.

Valence attributes	Target items	
	Car category	Car brand
Pleasant	Luxury cars	Mercedes
Peace	Ferrari	Stuttgart
Paradise	Mercedes	Benz
Joy	Jaguar	SLK
Love	BMW	Daimler
Pleasure	Porsche	Germany
Happiness	Rolls-Royce	German
Unpleasant	Common cars	Fiat
Disaster	Fiat	Turin
Grief	Renault	Punto
Accident	Citroën	Panda
Pain	Peugeot	Agnelli
Bad	Skoda	Italy
Agony	Hyundai	Italian

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