Consumer decisions: Investigating individual differences related to conceptual priming effects (implicit memory) using a preference judgement task

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Consumer decisions: Investigating individual differences related to conceptual priming effects (implicit memory) using a preference judgement task

ABSTRACT

Consumers are consistently exposed to brand names presented with brand claims and warnings, prior to making a product choice. Implicit memory has been implicated in consumer choice, and previous research has suggested affective information such as statements with positive or negative valence influence choice by way of subtle, subconscious (implicit memory) priming effects. Specific research into these effects in product selection based on statement valence found no such priming effect, and the study presented aimed to investigate if individual differences mediate priming effects, as measured by the Need for Affect, Need to Cognise and Need to Evaluate scales. The experiment used a preference judgement task and found a significant interaction for individuals low in NTE in priming effect for neutral statement selection, and significant effects of item type across the experiment indicating a greater number of positive selections over negative in each condition. The overall magnitude of priming was lower than comparable studies which made any observed effects small, and thus reliability of results as reflecting a true effect questionable. The results are discussed in relation to implicit memory and consumer cognition, along with rationale for further research, and alternative experimental methods for development in conjunction with individual difference scales.

KEY WORDS: IMPLICIT MEMORY PRIMING CONSUMER CHOICE CONSUMER COGNITION INDIVIDUAL DIFFERENCES
Introduction

Over the past twenty years a considerable amount of empirical research has supported the distinction between implicit and explicit forms of memory. Explicit memory is characterized by conscious recollection and intention to access information whereas implicit memory is unconscious and inaccessible to deliberate attempts to access the information in memory. Despite this, Butler & Berry (2002) argued the role and influence of implicit memory in real world situations has been largely neglected. One area where the importance of understanding the role of implicit memory in the real world is of great interest is in that of consumer choice, where the key element of consumer consumption is advertising (Tellis, 2005) and marketing researchers have long realized the important role of memory and 'consumer cognition' in brand consideration through advertising (Yoo, 2008). Consumer cognition refers to the process by which consumers view, interpret and respond to stimuli and has its base in social and cognitive Psychology (Loken, 2006) with primary focus on investigation of consumer cognitions and memory, specifically in terms of variation and distinctions in levels of processing (e.g. low-level processing vs. elaborate processing) and memory accessibility (explicit vs. implicit).

Much of the distinction between implicit and explicit types of memory has become evident through research in marketing and consumer Psychology. Treisman (1980) was able to demonstrate visual and audio stimuli such as seen in advertising can undergo unconscious processing, and Jacoby & Dallas (1981) highlighted implicit memory performance is not affected by variations in the level or type of processing. This represents the type of disassociation between implicit and explicit memory which has constructed the evidence for distinction between the two, and of which there are several theoretical cognitive explanations.

The activation account of implicit memory effects, suggests that implicit memory performance rests on concepts that are activated temporarily in memory due to the prior exposure. Activation is assumed to occur automatically and independent of the elaborative processing (Schacter, 1987). The processing account focuses on the differential retrieval process demands of explicit and implicit memory tests, thus disassociations occur because explicit memory tests draw primarily on respondent-initiated 'prior elaborations' of the concepts in memory, while implicit memory tests mainly use information in the test materials (Roediger, 1990). Finally, the highly regarded multiple memory system account attributes explicit and implicit memory differences to different memory systems and suggest explicit memory processes involve conscious recollection stemming from a declarative or episodic system, while implicit memory processes are ascribed to a procedural and semantic system, and can show learning facilitation or preference change without conscious awareness (Tulving et al., 1982).

Research to date in the field of consumer cognition has produced several frameworks and theories regarding both explicit and implicit memory in the context of ‘brand evaluation’. As Baker (1993) claims ‘the primary purpose of advertising is to present information that will give a brand a relative advantage over competing brands at the
the time of product choice’. The focus must then be on the factors of consumer cognition which influence this brand evaluation and ultimately product choice. Consumer cognition in this context is viewed as incorporating aspects of memory processing and organisation regarding a brand’s product, such as the product attributes, its salience at point of purchase, and its memory advantage relative to other brand products.

Jacoby & Dallas (1981) identified salience at point of purchase as exerting a significant effect on consumer selection, suggested by Lee & Labroo (2004) as relating to ‘processing fluency’. Lee & Labroo (2004) investigated processing fluency in attitude formations of products in terms of two distinct divisions, ‘conceptual fluency’, the ease with which the meaning of a stimulus is activated, and ‘perceptual fluency’, the ease with which a person identifies the physical characteristics of a stimulus. They found when a target product comes to mind more readily and becomes more conceptually fluent, for example when presented in a predictive context or when ‘primed’ by a related construct, the participants developed more favourable attitudes towards the product. Butler and Berry (in press) proposed this especially the case for products with lower financial/social risk, (e.g. lower value purchases such as food and cleaning consumables, as opposed to expensive electronic or mechanical equipment expected to last several years), and as such a consumer’s motivation to intentionally retrieve product information may not be likely to be high (Baker, 1993). Sanyal (1992) suggested some consumer judgements may be based solely on perceptual fluency, in a manner comparable to priming on implicit memory tasks, and this is an area of continuing investigation.

Further research regarding processing fluency suggests product information is organised in memory in the form of a product prototype (Loken & Ward, 1990) of which the likes of attributes and frequency of exposure (Zajonc, 1968) are mediating factors in the likelihood a prototype will be recalled into a ‘consideration set’, from which a judgement can be made and a product chosen. Brands that have largely positive attributes are likely to be associated with positive brand attitudes and in turn more likely to be chosen, and based on the processing fluency model the product prototype represents the maximum conceptual and perceptual fluency potential of a new product (Lee & Labroo, 2004). The positive attributes of a product and therefore its advantage over competitors in the marketplace are of key interest in the presented study, as such attributes are directly related to consumer attitudes and it can be logically assumed, consumer’s individual differences. Considering these factors reveals the need to understand the impact of memory associations and of consumer ‘priming’, the effect of activating information in memory, which critically can be unconscious and subtle in its memory effects (Kardes, 2005).

Effective priming in advertising has been the basis of a body of recent research which has aimed to understand priming influenced attitudes and specifically attribute accessibility in memory, as it had been established positive brand attributes create brand equity (Keller, 1993). For example, an investigation by Strick et al. (2009) revealed the enhancing effects of humour in creating positive attributes, which in turn enhanced product evaluations and product choice, but importantly in a way that is
disassociated from the accessibility of the product in memory. Of note, is research by Shiv et al. (1997) who put forward the ‘characterization-correction’ model (Gilbert, 1989) to assist in explaining these processes by which attributional judgements are made, and predict the type of cognitions used when there is less opportunity to engage in ‘elaborate processing’ and instead less effortful (low-level) processing (e.g. briefly reading a brand product advertisement regarding a product of low value). According to this model, people engage in a two-stage process when exposed to information they might usually discount, a ‘characterization stage’ associated with less effortful processing, and resulting in initial acceptance of the message claims. During this stage, cognitions related to the message claims such as affective information are likely to be relatively more accessible, and as such have an impact on judgement. It is only when people engage in more elaborate processing that they enter the ‘correction stage’ (e.g. the purchase of an expensive product), in which aspects of the message, such as a brand claim, are further assessed and potentially discounted. Shiv et al. (1997) found negative and positive framing of advertising claims (priming) affect choice and attitudes differently when the extent of processing before choice is low, and that this was due to more elaborate processing associated with attitude judgements. Johar & Simmons (2000) found similar evidence of this two-stage processing effect of brand claims on inferences of brand quality.

Lee & Labroo (2004) theorised positive valence of fluent processing was underlying in an affect they viewed was as a result of ‘processing-fluency effects’, after noting that negative valence appeared to produce interference which reduced conceptual fluency and thus effected consumer judgement at point of selection. Contrary to this empirically evidenced link between positive valence and brand choice, some research into statement valence has found surprisingly little or no implicit memory effect at all. Butler & Berry (2002) studied the influence of affective statements on performance on both implicit and explicit memory tasks, having previously found significant implicit memory effects of visual priming on unfamiliar food labels (Butler & Berry, 2002). They found no effect on implicit judgement task performance and subjects were as likely to choose brands with negative statements as with positive ones. This finding would suggest there is little or no implicit effect of statement valence, as even negative product information in implicit form did not affect product selection. One possible explanation could be to apply the Perceptual Representation System (PRS) account (Tulving & Schacter, 1990) which suggested the proposed subsystem responsible for perceptual word priming does not represent information relating to meaning or associative word properties, and based on this theory affective statements would be expected to have little effect on preference judgement performance as conceptual processing is discounted. However, based on existing research repeatedly linking positive attitudes to influencing product choice further investigation is required, and according to Schacter (1994) associative information and conceptual priming may depend on joint access to a semantic memory system, and preference judgement contains a mixture of conceptual and perceptual processing. According to this perspective, it is possible other factors and influences may play a mediating part on implicit memory effects in the context of brand selection.
Such possible factors are evidenced in previous research by Gorn (1982) and later by Gibson (2008), who demonstrated pairing of advertising with a positive affective stimuli builds favourable ‘brand attitudes’. These are known collectively as ‘evaluative conditioning procedures’ (Sweldens et al., 2010) and represent an individuals need to evaluate (NTE) in decision-making. Jarvis & Petty (1995) and Bizer et al. (2004) have found individual differences exist in evaluative response, which suggests individual differences in NTE could affect evaluative response and mediate implicit memory effects in the context of brand evaluation.

Further to NTE, need for cognition (NFC) and need for affect (NFA) have both been recognised as constructs of attitude content, and of which both have been shown to be influenced by individual differences. The need for cognition refers to the tendency for an individual to engage in and enjoy effortful cognitive activity (Cacioppo & Petty, 1982). Haugtvedt et al. (1992) found that individuals high in need for cognition were more likely to possess attitudes based on an evaluation of a product’s attributes. Haddock et al. (2008) demonstrated the moderating effects of NFC and NFA and found individual difference effects accounted for different responses to the same message. With regard to the need for affect (NFA), consumer Psychology has long implicated that affective judgment forms attitudes which dramatically influence consumer behavior (Crites, Fabrigar, & Petty, 1994), and considerable theory and research have addressed the extent to which people believe in the desirability of emotions and feel a need to pursue them (Maio & Esses, 2001). Previous findings have contributed to the suggestion that individuals high in need for affect seek out affective information in forming attitudes (Haddock et al., 2008), and Murphy et al. (1995) found in certain circumstances affective information appeared to influence priming.

The presented study aimed to investigate the contradictive findings of studies regarding the priming effect of information valence on preference judgement (brand selection), and examine both priming effects of statement valence and the mediating effects of individual differences in NFA, NFC and NTE, in preference judgement performance. Butler & Berry (2002) have previously demonstrated preference judgement as a credible task for measuring priming effects based on valence of accompanying information, and as such formed the basis of this experiment. On the basis of previous research understanding, it was hypothesised that participants ‘high’ in NFA, NFC and NTE would show greater sensitivity to priming effects in a preference judgement task than participants 'low' in these scales, and 'high' would select more brand names which were presented with statements if positive valence than 'low'.
Method

Design

The experiment consisted of three conditions need for affect (NFA), need for cognition (NFC) and need to evaluate (NTE), which used a 2 X 3 design in which median splits of measures (high vs. low NFA, high vs. low NFC, high vs. low NTC) were manipulated between participants and statement type (positive vs. negative vs. none) was manipulated within participants.

Participants

Thirty-six participants consisting of 23 male and 19 female (Mean age = 26.22, SD = 10.5) took part in the experiment. Participants were obtained by opportunity sampling and all were native English speakers. All participants were obtained by via email or telephone contact, informing them of the study and offering opportunity to take part. Each participant was assigned a number (1-36) to ensure their anonymity during analysis and subsequent results.

Materials

Materials for this study included; a PSC (AEAF) Application for Ethics Approval Form (see Appendix 1), a PSC (ECF) Ethics Check Form (see Appendix 2), a consent form (Appendix 3), readability rating form including brief and standardized instructions (Appendix 4), preference selection form (Appendix 5), post-test questionnaire (Appendix 6) and a debrief form (Appendix 7).

Three scales (self-report questionnaires) were used to provide measures of individual difference, Need for Affect (Maio & Esses, 2001) (Appendix 8), Need for Cognition (Cacioppo, Petty & Kao, 1984) (Appendix 9) and Need to Evaluate (Jarvis & Petty, 1996) (Appendix 10).

To create the brand claim and product information sentences for the brand names and product types presented during the study phase, 42 statements were constructed (Appendix 11), of which there were equal numbers of positive three-word statements (e.g. is premium quality, is great value), positive six-word statements (e.g. is delicious and low in fat, smells great and leaves clothes soft), negative three-word statements (e.g. have poor taste, is very expensive) and negative six-word statements (e.g. have little taste and are poor value, is more expensive than most competitors). The statements were of three basic types: relating to sensory characteristics (e.g. flavour), health/nutrition and value for money, and some offered contextual information (e.g. mouthwash, refreshes breath and protects gums, has a strong and unpleasant taste). The sentence length was varied so that it provided a convincing cover task for the brand preference task.
To construct study sentences, brand names and accompanying product type (e.g. Axxcell toothpaste) were matched with statements (e.g. Axxcell toothpaste whitens and prevents plaque build-up) (see Appendix 17). The sentences were created such that each brand name and product type was matched with one three-word positive and negative statement and one six-word positive and negative statement (Appendix 12), to ensure each brand name appeared in all possible statement/no statement combinations. For each participant, out of the 42 (Group A or B) brand names and product types they were exposed to, 14 items were presented with positive statements (7 three-word and 7 six-word), 14 with negative statements (7 three-word and 7 six-word), and 14 with no statement. This order was fully rotated across all participants (Appendix 12), and a check sheet was used to reference the type of the selected item in each subgroup rotation (Appendix 16). Each study sentence was displayed in Microsoft Powerpoint on a Powerpoint slide (Appendix 13), the brand name was presented in 24-point Arial font with upper-case first letter followed by lower-case, and the product type and sentence in 18-point lower case. Six-practice items preceded the 42 at study.

The pairs of labels used in the brand preference task (Appendix 14) contained original brand names, constructed by selecting surnames which had only one entry in a local telephone directory. Pairs of surnames were selected on the basis both were of similar length and shared the same first two or three letters. Brand names which did not appear credible or closely resembled common UK brand names were discarded at this stage. Each pair of brand names was randomly assigned to a product type (eg. Axxcell Toothpaste, Axxton Toothpaste, Milia Mouthwash, Millward Mouthwash). Microsoft Powerpoint was used to display the labels, and each brand name and product type appeared centrally in black Arial font on a white rectangle (80mm x 26mm) with a 2-point outer black border, on a Powerpoint slide. The brand name for each label was presented in 28-point upper-case letters and the product type was positioned below the brand name in 18-point lower-case letter except the first letter which was upper-case.

**Procedure**

Before initial research commenced a PSC Application for Ethics Approval Form and PSC Ethics Check Form were completed to ensure research adhered to British Psychological Society Ethical Guidelines (August, 2009) and were signed off by the supervisor.

Participants were informed they were taking part in a consumer behaviour analysis examining the effect of sentence length on the impact brand claims, and to investigate this they would see sentences consisting of both a brand name and product type along with brand claims of various lengths. They were informed the brand names were real but not known to the UK, so the brand claims were to be treated as being true, and they would also see some sentences without brand claims (i.e. just brand name and product type), for comparison purposes.

Participants were given a consent form to sign, and in Group A participants were given the NFA, NFC and NTE self-report measures which featured instructions for completion.
at the beginning of each document. Group B participants completed the measures after the cognitive task.

Participants were informed the cognitive experiment consisted of two parts, 'Part 1' a rating of brand claim readability and 'Part 2' a brand preference task. Participants inserted their name on the readability rating form and were assigned a number, then asked to read the briefing and instructions at the top of the form. The researcher invited questions regarding the procedure and ensured the objective of the Part 1 was clear before beginning.

The readability rating task (Part 1) required the participant to read each sentence carefully and make a judgement concerning its readability (i.e. clarity of the message conveyed) using a 7-point bipolar scale (1 not at all readable to 7 extremely readable). Each sentence was displayed for 2000ms and participants were told to spend all of that time reading, but not to take too much time deliberating and to make a selection by ticking the relevant 1-7 on the rating readability form. Following each sentence a blank screen appeared for 1000ms, before the next sentence appeared. In total, 42 sentences were presented (14 consisting of ‘neutral’ brand name and product type only), preceded by six practice items. Half of the participants saw sentences comprising set A brand names, and the other half saw set B brand names.

Once participants had completed the study phase at Part 1, they were given a consumer behaviour survey (Appendix 15) to serve as a distractor and inhibit recall from Part 1, and after no more than five minutes were stopped and given the Part 2 brand preference selection form and asked to read the instructions at the top of the page. Participants were informed this test was for comparison purposes for a further experiment, and were presented with 48 brand label pairs (6 practice pairs and 42 from the study phase). For each pair of labels they were instructed they should choose whichever one struck them as the ‘better’ or ‘preferred label’. Each pair of labels was presented for 1000ms, followed by a blank background for 1000ms before the next pair.

At the conclusion of Part 2, participants were given a post-test questionnaire (Appendix 6) which assessed potential contamination by explicit memory processes on implicit memory tasks, and test awareness (Bowers & Schacter, 1990), and confirmed no such contamination was present, thereby conforming the results to the retrieval intentionality criterion (Schacter et al., 1989). Finally participants were issued with a de-briefing form which contained information about the true nature of the experiment and its contents, and included details of an optional request to receive results of the study, and contact details of the researcher.
Results

Proportion scores were calculated from raw data by dividing the raw scores by the maximum number of selectable items in the preference judgement task. For each type (e.g., positive, negative and neutral had a maximum of 14 items selectable) and the baseline (e.g., items not seen before had a maximum number of 42 items selectable), item selection raw scores were divided by 14 and baseline scores divided by 42 respectively, to obtain mean proportion scores. These mean proportion values were used in the analysis.

Presented throughout the results are the mean proportion scores of items selected which reflects the mean proportion of priming effect. The effect size was between .10 and 1.0 across the experiment. Using the proportional values three separate ANOVAs were conducted on NFA, NFC and NTE (as described over page).

Need for affect (NFA)

Table 1 provides the mean proportion of priming scores for NFA: high vs. low, the mean proportion of labels chosen was 0.07 (SD = 0.15), 0.04 (SD = 0.16) and 0.01 (SD = 0.16) for positive, neutral and negative statements respectively. The mean proportion of positive and neutral items chosen were equal in high vs. low, where NFA-high was 0.07 (SD = 0.13) and NFA-low 0.07 (SD = 0.17). NFA-low selected more negative items 0.05 (SD = 0.13) than NFA-high 0.03 (SD = 0.19).

Table 1
Mean proportion of items selected for each item valence type (high vs. low) need for affect

<table>
<thead>
<tr>
<th>Participant group (N = 36)</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High (n = 18)</td>
<td>.07 .13</td>
<td>.04 .15</td>
<td>.03 .19</td>
</tr>
<tr>
<td>Low (n = 18)</td>
<td>.07 .17</td>
<td>.04 .17</td>
<td>.05 .13</td>
</tr>
<tr>
<td>Total (N = 36)</td>
<td>.07 .15</td>
<td>.04 .16</td>
<td>-.01 .16</td>
</tr>
</tbody>
</table>

1 Proportional priming scores were calculated to assess the overall magnitude of priming in the experiment, and the values in the tables and graphs reflect a mean proportion of priming for each item type (positive, negative and neutral), as selected against baseline (items not seen before) in the preference judgment task. Comparable studies (Butler & Berry, 2002) produced an effect size between 0.36 and 0.55, and using the proposed convention by Cohen (1998), an effect of 0.20 would be considered low and an effect of 0.50 would be considered medium, so anything below 0.20 reflects a minimal priming effect.
A 2 x 3 mixed ANOVA was conducted, and a significant main effect for item type was found $F(2, 68) = 4.220, p < .02$. Fig. 1 and Fig. 2 show that participants high or low in NFA were as likely to choose positive or neutral items, but NFA-high were more likely to choose negative than NFA-low. There was no significant interaction found in terms of statement valence selection for (high vs. low) NFA, $F(2,68) = 1.27, p > .05$.

![Graph](image)

**Figure 1:** Plots illustrating the mean proportion of priming for each statement type in (high vs. low) need for affect

**Note:** The graph overlaps are representation of the proportional means of positive and neutral valence item selections being identical for both high-NFA and low-NFA.
Figure 2: Bar plots illustrating mean proportion of items selected in (high vs. low) need for affect

Need for cognition (NFC)

Table 2 provides mean proportion of priming scores for (high vs. low) NFC. The mean proportion of items selected by NFC-high was 0.08 ($SD = 0.16$), 0.03 ($SD = 0.13$) and 0.01 ($SD = 0.15$) for positive, neutral and negative respectively, and by NFC-low was 0.07 ($SD = 0.14$), 0.04 ($SD = 0.19$) and 0.01 ($SD = 0.18$).

Table 2
Mean proportion of items selected for each item valence type (high vs. low) need for cognition

<table>
<thead>
<tr>
<th>Participant group ($N = 36$)</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>NFC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High ($n = 18$)</td>
<td>$M = .08$</td>
<td>$SD = .16$</td>
<td>$M = .03$</td>
</tr>
<tr>
<td>Low ($n = 18$)</td>
<td>$M = .07$</td>
<td>$SD = .14$</td>
<td>$M = .04$</td>
</tr>
<tr>
<td>Total ($N = 36$)</td>
<td>$M = .07$</td>
<td>$SD = .15$</td>
<td>$M = .04$</td>
</tr>
</tbody>
</table>
Based on the 2 x 3 mixed ANOVA, a significant main effect for item type was found $F(2, 68) = 4.054, p = < .02$. Fig. 3 and Fig. 4 show that participants high and low in NFC were equally likely to choose positive or negative items, but NFC-low were more likely to choose neutral than NFC-high. There was no significant interaction in terms of statement valence selection for (high vs. low) NFC, $F(1,34) = 0.01, p > .05$.

![Figure 3: Plots illustrating the mean proportion of priming for each statement type in (high vs. low) need for cognition](image)

**Figure 3:** Plots illustrating the mean proportion of priming for each statement type in (high vs. low) need for cognition
Figure 4: Bar plots illustrating mean proportion of items selected in (high vs. low) need for cognition

Need to evaluate (NTE)

Table 3 provides mean proportion of priming scores for (high vs. low) NTE. The mean proportion of labels chosen by NFC-high was 0.10 ($SD = 0.16$), -0.02 ($SD = 0.15$) and 0.002 ($SD = .17$) for positive, neutral and negative respectively, and by NFC-low was 0.05 ($SD = 0.14$), 0.10 ($SD = 0.19$) and -0.02 ($SD = 0.16$).

Table 3
Mean proportion of items selected for each item valence type (high vs. low) need to evaluate

<table>
<thead>
<tr>
<th>Participant group ($N = 36$)</th>
<th>Positive</th>
<th>Neutral</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTE</td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>High ($n = 18$)</td>
<td>.10</td>
<td>.16</td>
<td>-.02</td>
</tr>
<tr>
<td>Low ($n = 18$)</td>
<td>.05</td>
<td>.14</td>
<td>.10</td>
</tr>
<tr>
<td>Total ($N = 36$)</td>
<td>.07</td>
<td>.15</td>
<td>.04</td>
</tr>
</tbody>
</table>
A 2 x 3 mixed ANOVA shows a significant main effect for item type was found $F(2, 68) = 4.726, p = .01$. Fig. 5 and Fig. 7 show that participants NTE-high were more likely to choose positive and negative items than NTE-low, and NTE-low were more likely to choose neutral items than NTE-high. There was a significant interaction in terms of statement valence selection for (high vs. low) NTE, $F(1,34) = 13.756, p < .001$.

Figure 5: Plots illustrating the mean proportion of priming for each statement type in (high vs. low) need to evaluate
To further analyse the significant interaction of NTE high vs. low independent t-tests were used to assess NTE-high and NTE-low in each item type (see Appendix 18 for tables), and a significant interaction was found with those NTE-low showing greater scores for neutral items, $t(34) = 2.52$, $p < .05$ (one-tailed). Paired t-tests were used to look at the relationship between items selected by NTE-high and NTE-low and revealed a significant difference for NTE-high between positive and neutral item selection $t(17) = 3.41$, $p < .05$ (one-tailed) and between positive and negative $t(17) = 2.01$, $p < 0.05$ (one-tailed). For NTE-low there was also a significant difference between neutral and negative items selected $t(17) = 3.28$, $p < .05$.

To further assess the magnitude of priming the baseline scores were compared with positive, negative and neutral items selected using paired t-tests (see Appendix 18 for tables). There was a significant difference between positive items chosen over baseline, based on a two-tailed hypothesis, $t(35) = 2.99$, $p < .005$. There was no significant difference with neutral to baseline and negative to baseline item selections in addition to low proportional mean values, suggesting an overall low magnitude of priming (priming effect) for this experiment.
Discussion

This experiment demonstrated there was no significant relationship between high NFA, NTC and NTE and an increase in priming effects, and so the hypothesis can be rejected. A relationship not hypothesised was observed with those NTE-low more likely to select neutral (i.e. not positive, not negative) items than NTE-high. There were significant effects of item type observed across the experiment in each condition with positive vs. negative items selected, but with no apparent consistency. NFC-high and NFC-low were significantly more likely to select positive than negative statement types as were NTE-high and NTE-low. Similarly NFA-low selected significantly less negative items than neutral and positive, but this was not seen in NFA-high.

It could be reasoned that the high vs. low measures of each scale (NFA, NTC and NTE) did not provide a distinct division, especially amongst 36 participants, and more extreme comparison groups in addition to a greater sample size would greatly improve the reliability of this area of the analysis. With regard to the observed item type effect of affective information, the PRS account (Schacter, 1994) suggested associative or semantic properties are not encoded within the representation that supports perceptual priming. By this account, the present findings suggests this may not be the case, and affective information has been accessible (i.e. encoded in semantic memory), and therefore has influenced performance. Whilst these findings may suggest some implicit effect of affective information, the overall magnitude of priming was very low and thus any effects observed must be viewed with caution. Using the convention proposed by Cohen (1988) a small effect would be around 0.20 and a medium effect 0.50. In this experiment, means of priming (items selected against baseline) were typically between 0.01 and 0.10 which are comparably lower than those in similar experiments (Butler & Berry, 2002, Cohen et al., 1995).

Due to the low overall magnitude of priming it is difficult to draw significant conclusions from this experiment regarding the moderating effects of NFA, NFC and NTE in priming effects, but the observed NTE interaction and item type effects provide rationale for further investigation. It is suggested the present low priming effect is due to issues relating to the encoding part of the experiment, where it is possible participants evaluated the affective information contained in the statement but did not associate this information with the brand name. During part one of the experiment, the (encoding) rating of readability, presentation of the sentence may have been too brief considering use of a separate coding sheet which required the participant to look away from rather than maintaining focus on the screen, and indicating the rating of readability with a keyboard response may have acted as a distractor to initial processing of the statement and brand name.

To reduce such unreliability during encoding it would be necessary to directly manipulate the extent of associative processing, and ensure associative information was correctly related to each brand during the encoding (priming) phase. Further to this it is possible that a forced choice task is not a sensitive enough retrieval task to pick up the subtle effects of these prior evaluations, and that participant choice is influenced by
other, uncontrolled factors. Therefore a different implicit memory task could be used, such as an evaluative priming task (Klauer et al., 1997), where at the retrieval stage participants would be presented with a brand name and quickly followed by a word (positive or negative), and participants are required to respond quickly. This task would clearly show if evaluations of the brand have been carried across to the brand name at the selection (retrieval) stage, and such a task could be developed to incorporate measures of NFA, NTC and NTE.

In addition to this, the study has clear limitations in terms of ecological validity without the use of real brand names and products. In parallel with Butler & Berry (2002) the use of fictitious brand names is necessary as they do not evoke prior encoded imagery or cognitive biases, and this consideration suggests priming has its most significant effect on products which are new to the market. On this basis however, a study involving established brand names and recently established brand names could improve understanding of more 'real-life' priming effects allied to further use of fictitious brand name studies, in order to enhance ecological validity of such laboratory-based experiments as implicit memory tasks. Furthermore, in the important pursuit of increasing ecological validity, presentation of associated images or music alongside brand names would create a more realistic example of the stimuli the consumer is presented with, in conjunction with a more refined retrieval task such as the evaluative priming task discussed.

A further overriding factor to consider in future analysis is that implicit memory may mediate the likelihood products are 'considered' for selection rather than actual selection, as real-life choices are much more complex than presented here. If implicit memory is involved in creating a ‘consideration set’ (Loken & Ward, 1990) based on labels retrieved from memory based on product categories (e.g. Colgate, Macleans, Sensodyne for toothpaste) then this is an area for experimental consideration. As Butler & Berry (2002) suggest, an 'indirect memory' exemplar production task (Mulligan & Hartman, 1996) classified as a conceptual implicit memory task, would be a useful experimental method for measuring priming effects which does not focus on selection to the extent preference judgement and evaluative priming tasks do. Researchers have suggested that performance on indirect memory tests reflects automatic encoding processes, whereas performance on direct memory tests reflects encoding processes that require attentional resources (Besson et al., 1992). It is possible that such tasks provide a better reflection of implicit memory effects and are more likely to be influenced by positive and negative information, as Schacter (1994) suggested that conceptual priming, as well as associative properties of words, may depend on access to a semantic memory system distinct from the PRS that supports perceptual priming.

In conclusion, the current findings revealed a significant interaction for individuals who measure low in a need to evaluate information in selection statements with no statement valence, and evidence of affective priming with a significant item type effect evidencing greater positive than negative selections, but critically with an overall low magnitude of priming. Therefore, the findings cannot be usefully considered without demonstration of a higher priming effect, and further research is necessary to improve
upon the experimental methods and confirm the reliability of the findings presented here before they can be reliably incorporated into a refined understanding of consumer processing.

References


