Mood, Information Congruency, and Overload

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Marketers seek new ways of gaining attention in our age of information bombardment, and one popular way has been to utilize schema-incongruent language. The present article investigates how a common situational factor–consumer mood–influences consumers' ability to process incongruent information in an information overload environment. Two experiments find positive mood increases (and negative mood decreases) consumers' ability to respond to incongruent information. Both experiments utilize computer reaction tests on healthy adult consumers; the first uses the Stroop test, the second uses the IAT (Implicit Association Test). This article discusses the implications of the findings for marketers attempting to gain consumers attention as well as the theoretical implications for the growing research on consumer mood and processing.

Introduction

About 1500 advertising messages touch consumers each day. The number keeps rising as marketers find new ways to reach consumers through text messaging, the iPod, etc. (Rosen, 2002). In order to break through the clutter, some theorists have suggested that advertisers use incongruent information (i.e., information not consistent with one's expectations) in order to attract attention and ensure more profound message processing (Lee, 2000). For instance, Chrysler uses a German Dr. Z (also their CEO) to promote its car's engineering which is quite different from the company's traditional all-American image; Marlboro and other cigarette companies seek to change their negative image through public service campaigns aimed at reducing adolescent smoking behavior; Wal-Mart promotes its addition of organic products to make the company seem “green” and community-friendly. In all of those examples the companies are trying to change their image by adding attributes or features not usually associated with their product or company. The danger of using such strategy, especially in an overload

situation, is that it can lead to consumer confusion, and even cause consumers to tune out the message (Mitchell and Papavassiliou, 1999).

Adding to this scenario is the fact that consumers' mood at the time they receive marketers' messages can greatly influence how that information is processed. Forgas (1995) proposes that mood can influence consumer judgments in two ways: first, the mood state can be used as information (which would lead to mood congruent judgments); second, the mood state can influence the judgment process itself. Marketers can manipulate moods through the use of colors, smells, type of programming in which messages are placed, etc., but which consumer mood state best handles processing of marketing stimuli in an overload situation? The literature is not entirely clear on this issue.

The goal of this research is to better understand how consumer mood influences processing of congruent and incongruent information in an information overload environment. The present article first defines “information overload” and reviews prior research investigations. Then the difference between schema congruent and incongruent information and relevant research are discussed. The differing views of the effect of mood-state on processing ability are then presented. The experiments are designed to test how quickly consumers are able to respond to and categorize information in an information overload situation. In the first experiment the Stroop task measures the speed with which consumers respond when encountering congruent and incongruent information at a very fast pace. In the second experiment the Implicit Association Test (IAT, see Greenwald and Banaji, 1995) is used to measure how quickly consumers are able to categorize information that is congruently (or incongruently) valenced with a brand. Also included is a discussion of the implications of the results for those interested in the increasing problem of overload as well as how the research findings fit and expand existing knowledge of how mood affects consumer processing.

Background

Information Overload

Early research in marketing (Jacoby, 1977) proposes that there are finite limits to human beings' abilities to assimilate and process information in a data-rich environment. The concern at that time was that as more and more brands entered the marketplace and more and more attributes were introduced, consumers would no longer be able to effectively make quality decisions in such an environment. Indeed, most research found evidence that increasing the number of alternatives or attributes in a choice set led to a decline in the quality of consumers' choices (see Keller and Staelin, 1987).

Almost thirty years later, that 1970s media environment looks almost simplistic compared to the one facing consumers in the 21st century, but the underlying concern about consumers and their ability to make quality decision remains. More recent research suggests that studies of information overload should not only consider the demands of the task but also consider the information processing system that deals with the incoming information. Of great interest is whether consumers can exercise executive control over the incoming information or will be overwhelmed completely (Hahn et al., 1992). Researchers have found that decision makers adapt decision strategies to the information environment (Payne et al., 1988) where in some cases they may rely on deeper processing strategies and in other cases simplify with a heuristic processing strategy.

The research on information overload and decision making has produced inconsistent results (Malhotra et al., 1982). In order to explain some of the inconsistencies found in prior research, researchers have differentiated between task factors, that is the number of attributes and alternative choices, and context factors, which include the things having to do with how the information type and structure. The only situational context variable that has been considered thus far in the information overload literature has been time pressure (Hahn et al., 1992) and these findings revealed time pressure reduced decision quality as well.

Schema Congruent v. Incongruent Information

Schemas are representations of previous experience that guide action, perception and thought (Mandler, 1982). When a consumer encounters a brand it is evaluated against an existing schema and that schema determines the understanding and organization of the environment. According to Mandler, when new information presented is congruent with one's existing schema, processing is easy and comprehension is high. When information is incongruent with one's existing schema, it is challenging to comprehend and additional mental activity is required (Meyers-Levy and Tybout, 1989).

There are many advantages for a brand using incongruent information in its communication strategy. For instance, incongruent information can lead to more careful processing (Sujan et al., 1986; Lee, 2000); incongruent information can make a brand “stand out” (Dahlen and Lange, 2004) because it is novel and enhances arousal (Lee and Mason 1999) or because it may induce curiosity (Muehling and Lazniak, 1988); incongruent information can increase memorability of advertising (Heckler and Childers, 1992) and enhance ad/brand attitudes (Lee and Mason, 1999) partly because it can increase message involvement (Lee, 2000), viewing time and elaboration (Goodstein, 1993). On the other hand, congruent

information is more automatically understood and more often seen as relevant (Kamins and Gupta, 1994) because it matches expectations (Nedungadi and Hutchinson, 1985).

Within an information overload situation, schema congruent information would be easier for consumers to process when their cognitive capacity is diminished. However, that ease of processing may lead to messages being overlooked or ignored, so advertisers recently have been urged to use more incongruent information as the advertising environment becomes more cluttered (Lee, 2000).

Mood States and Processing

Definition

In the psychological and marketing literature, a "mood" generally refers to an affective state that is less intense and more diffused than an "emotion" (Isen, 1984). Mood states are continuously shifting and even small shifts have been found to exert great influence on consumer behavior (Gardner, 1985). Research has identified a broad range of specific moods such as sadness and anxiety (Raghunathan and Pham, 1999), but mood states can also be grouped in more general or global categories such as positive, neutral and negative (Clark and Isen, 1982) though some researchers argue that such categorization is a vast oversimplification (Belk, 1984). Studies of positive mood have generally produced more consistent effects than negative mood (Moore and Isen, 1990) and for the purposes of this study, negative mood is operationalized as an affective state similar to sadness and positive mood is operationalized as an affective state similar to happiness.

The traditional View of Mood on Processing

Forgas (1991, p. 15) summarizes the traditional (or prevailing) view of the role mood has on decision making: "Several studies indicate that when facing a problem-solving task in a positive mood, people tend to reach a decision more quickly, use less information, tend to avoid demanding, systematic processing of the information, and are more confident of their decisions (Forgas, 1989; Isen, 1984; Isen and Means, 1983). Unfortunately, relatively little attention has been paid to the processing consequences of dysphoric or negative affect states, and what evidence exists suggests a rather complex reaction to dysphoria (Forgas, 1989)." And consistent with this view, Schwarz and Bless (1991, p. 56) offer the following with regard to the role of negative mood: "We suggest that people in negative moods are likely to elicit an analytical mode of information processing that is characterized by considerable attention to detail, careful, step-by-step analysis of the available information, and a high degree of logical consistency, although probably associated with a lack of creativity. Accordingly, they

are likely to improve performance on tasks that require analytic processing, but performance on creativity-related tasks is typically impaired."

Changing Views of Mood on Processing

The original view was that positive mood places a high cognitive load on decision-making, which leads to greater reliance on heuristics (Worth and Mackie, 1987). However, new research debunks that theory. For instance, an experiment designed to demonstrate decreased performance under a positive mood state, finds that those in a positive mood actually outperformed sad mood participants on a task thought to impose a "cognitive load" (distraction task, Bless et al., 1996). In fact, the research on depression (which could be thought of as a chronic sad state) has found that depression interferes with effortful processing. This interference view of depression has been supported by research studying the performance of depressed and non-depressed participants on intellectual, general learning and problem-solving tasks (Hartlage et al., 1993). This interference, they argue, may be due to a reduction of cognitive capacity and a narrowing of attentional focus.

Several of the researchers who originally proposed that positive mood makes consumers "mindless," have found that happy people were able to switch processing depending on the situation, in some instances using their greater flexibility to process information at a deeper level (Ruder and Bless, 2003). Isen and her colleagues have conducted the most thorough research in the area of positive mood and its role in information processing (though it should be noted that the majority of this research compares positive to neutral rather than negative moods). These researchers have shown that positive mood leads to a rich cognitive context that improves integration of information, problem solving, decision making, and cognitive organization in a wide variety of settings (Isen, 2000). Clore et al (2001) suggest that if the environment calls for it, the flexibility of those in a positive mood state should enhance consumers' ability to switch processing strategies. Forgas' (1995) Affect Infusion Model (AIM) states that mood should play the most influence on processing in situations that require high versus low constructive processing, as in the information overload environment.

Designing an Information Overload Environment

Much of the early research on information overload was a debate as to how to best measure "quality of decision" as that can be a rather subjective task (e.g., Jacoby, 1977). In this research we propose that rather than looking at the decision outcome–choice–looking at the ability of consumers to

react to and process different types of information can provide insight into how well consumers fare in an overload situation.

Information overload refers to the variety of stimuli (in type and number) to which the receiver must attend (Jacoby, 1977). In addition, the issue of responding to time pressure is also important (Hahn et al., 1992) in the fast-paced consumer world where information is continuously received. The present experiments were designed to focus on mood's impact on processing congruent and incongruent information. According to a recent review, one of the most powerful and useful tools for studying automatic processes in judgment and choice is response-latency analysis (Fitzsimons et al., 2002). Faster reaction times reveal consumers are more efficient in their judgments, while slower reaction times demonstrate consumers are having a more difficult time coming to a decision. In the present study, if consumers are faster/slower in the completion of their tasks as a function of mood state, it can be assumed that their processing stimuli were enhanced/hindered by the mood-induction. Furthermore, unlike more conventional tools such as questionnaires, response latency measurements have the advantage of being less susceptible to consumers' beliefs, expectations or issues of social desirability.

The objective was to choose tasks that tap consumers' executive functioning to investigate mood's effect on processing. Ashby et al. (1999) propose that positive moods result in increased dopamine levels, particularly in the prefrontal cortex and anterior cingulate. Specifically, it seems higher levels of dopamine are associated with greater flexibility in cognitive thought suggesting a mechanism for the relationship between positive mood and flexible thinking. The cortical areas implicated in both positive and negative mood states are also involved with higher-order decision making, such as executive functioning. Such executive functioning is thought to be important in the control of thoughts and actions, such as planning, problem solving, trouble shooting, and performing novel tasks (e.g., Cabeza and Nyberg, 2000). This executive control would seem necessary when processing information that is incongruent with existing schemas.

The Stroop task was especially well suited to the research question. It is thought to tap into basic operations of cognition, offering clues to the fundamental process of attention and executive control (Stroop, 1935; MacLeod, 1991). Further, the Stroop task has been labeled by many researchers as a “frontal lobe” test because of its relationship to higher-order decision processes and it seems to activate those areas of the brain involved in both higher-order function and affect. Cabeza and Nyberg (2000) reviewed the positron emission tomography (PET) results of Stroop task performance and found significant activation in the prefrontal cortex and anterior cingulate, the areas of the brain thought to be influenced by mood.

Surprisingly, though, only one study has assessed mood effects on the classic Stroop task. Phillips et al. (2002) looked at performance between positive and neutral mood-induced participants on several variations of the test. They predicted, but found no difference between mood conditions, though the direction of their results indicated positive mood was faster than the neutral group.

In the Phillips et al. (2002) study, mood was induced by having participants think and discuss either a very positive event or discussing a "typical" Monday (they did not consider negative mood). Mood was assessed three times during the study: once at the beginning, once after the induction, and then again after the Stroop test. Mood differences had dissipated after the Stroop test, suggesting the induction procedure was not particularly robust. In addition, there are concerns that having participants rate their mood state so often within an experiment may lead to demand effects. Murry and Dacin (1996) have suggested videos may be more appropriate for studying some marketing induced mood effects, particularly when studying negative moods. Therefore the present experiments manipulate mood with mood-inducing videos.

IAT was used in the second experiment to assess how consumers respond to incongruencies between brand and valence. In a typical IAT there are two critical conditions: a "congruent" combination where one categorizes a positive/negative subject with similar positive/negative attributes; and an "incongruent" combination where one has to group a positive/negative subject with dissimilar adjectives. In the incongruent condition, participants must suppress the natural urge to categorize the subject with its properly valenced attribute which is a similar experience to that in the Stroop task in which the participant must disregard the color word and identify the ink color. This incongruent condition is more difficult and requires more processing capacities (Sherman et al., 1998). The congruent information trials, meanwhile, are able to benefit from existing schemas or stereotypes and past knowledge structures which free up more attentional resources.

The application of the IAT has been quite different from the Stroop task. However, there are some important parallels between the two tests. Indeed, a recent neuroimagining study found that the IAT racial bias/stereotype was associated with brain activity in regions thought to be critical to executive control (Richeson et al., 2003). Though some researchers have found some context effects on the IAT (e.g., Karpinski and Hilton, 2001) no one as yet has specifically parsed out the responses to the incongruent and congruent trials as a function of mood-state.

Predictions

Based on the schema congruency research we predict that consumers' reaction times in categorizing congruent information will be faster than when categorizing incongruent information for both the Stroop and IAT tasks. As the decision environment gets more complex, consumers will find it even easier to process congruent rather than incongruent information. According to Forgas (1995) mood will have the most influence on processing in environments that require more extensive processing so the first experiment separately considers consumers' reactions when categorizing in a simple environment and in a more complex environment. We expect greater differences to emerge in the latter situation.

Though there have been no specific studies on the role of mood-state on processing in an information overload environment, this environment would qualify as consumers' needing more constructive processing, especially in the case of encountering incongruent information. There are several studies that suggest those in a positive mood may be better able to deal with incongruent information than those in other mood-states. First, researchers who have studied positive mood's impact on variety seeking behavior have found that consumers in a positive mood have a greater awareness of the differences and/or multifaceted nature of the stimuli and exhibit more switching behavior across alternatives (Kahn and Isen, 1993). Second, studies have shown that consumers in a positive mood tend to be less overwhelmed by tasks and show less confusion and greater understanding and integration of issues during the decision-making process (Isen, 2000). Third, researchers have found participants in a positive mood are more responsive to instructions to find similarities or differences in categorizing products and exhibit more cognitive flexibility (Murray et al, 1990). Therefore, it is reasonable to believe that this enhanced cognitive capacity and efficient processing of consumers in a positive mood would extend to the information overload situation (despite the fact that traditional research in this area would predict the opposite). Specifically it is predicted that those in a positive mood (compared to neutral or negative mood) will be faster at categorizing information in both the Stroop and IAT tasks. Because the congruent information relies on heuristic processing rather than the more constructive processing of incongruent information, one might expect greater differences in mood-states in reaction times for the incongruent trials.

Last, in order to explore the mood-as-information and mood-as- process relationship, in the second experiment the relationship between the IAT effect (an implicit measure of attitude) and explicitly stated attitudes toward the brands is investigated. The mood-as-information theory would

predict a mood-congruent response on brand attitude measures, where brands are rated more favorably in the positive mood condition (compared to the neutral or negative mood conditions, Gardner, 1985). Prior research has found a positive relationship between implicit and explicit attitude measures (Isen et al., 2004) in research where a positive mood induction occurred. There has not been any research on the correspondence of implicit and explicit attitude measures with a negative (sad) mood, and since there is less consistency in the negative mood research (Moore and Isen, 1990), this issue is more exploratory.

Experiment 1: Stroop Task

The classic Stroop test is delivered to participants on a computer in both simple and complex conditions. In the simple condition, the participant identifies the color of the ink with just one type of stimuli, receiving all congruent ink and color words, or all incongruent ink and color words. In the complex condition, the participant receives randomly both congruent and incongruent color words and ink. The complex condition is similar to what consumers receive in an information overload environment. It should place more emphasis on executive functioning and highlight participants' ability to "switch" processing.

Participants

Eighty eastern university undergraduates, 50 female and 30 male, with an average age of twenty-one, participated in this study for extra credit. None of the participants had done the Stroop task before or were colorblind.

Design

A mixed levels design was employed with a between factor 3 (mood: positive, neutral, negative) and within factor of information type 2 (information: congruent, incongruent) and fixed within factor 2 (environment: simple, complex). Participants were randomly assigned to one of the three mood conditions.

Procedure

Participants came to a computer lab and were told that they would be doing some tasks on the computer, but first were to view a video. Depending upon their experimental condition, they saw one of three twenty minute videos: the positive or "happy" mood-induction group saw a comedy routine by Bill

Cosby and a clip from Jim Carrey's movie Liar, Liar; the neutral mood-induction group viewed a documentary about Einstein, and the negative (sad) mood-induction group viewed a clip from the movie Steel Magnolias, taken from a critical scene where Julia Robert's character dies and her mother, played by Sally Field, has a breakdown at the funeral. These mood-induction videos had been pre-tested to ensure the elicitation of the proper mood-state (Puccinelli, 2000).

Participants were told that they would be answering some questions about the video but they were to clear their immediate memory with some other tasks. Participants were directed to their computers and started the Stroop task. In this version of the task we had six different ink colors and color words: red, blue, green, yellow, orange and purple. The first two trials were in the more simple condition: the first block of trials had them indicate the first letter of the ink color for stimuli in which the color word and ink matched by pushing the appropriate button on the keypad (congruent). The second block of trials had them identify the first letter of the ink color where the ink and word did not match (the Stroop condition, incongruent). Again, there were six exposures of incongruent ink colors and words. The third block of trials had them identify the first letter of the ink color in a more complex condition: they received either congruent or incongruent color words and ink for a total of twenty-four word/ink combinations. The stimulus order was randomized within each block of trials and fixed the order of trials across conditions: the simple condition always preceded the more complex condition. Each block of trials consisted of six stimulus items.

Results

Based on previous research, only reaction times from correct trials were used for analysis (Phillips et al., 2002). A 2 (information type: congruent vs. incongruent)×2 (environment: simple vs. complex)×3 (mood: positive, negative, neutral) mixed-model ANOVA was performed with information type and environment as within factors and mood effect as between factor. The dependent measure was the speed in categorizing the information. There was a main effect of environment, $F(1,77)= 19.35$, $p<.0001$, information type, $F(1,77)=65.76$, $p<.0001$. There was a marginal effect of mood, $F(2,76)=2.76$, $p=.07$. However, the variables mood and information type interacted, $F(2,76)=5.57$, $p=.006$. None of the other interactions reached significance.

A separate 2×3 ANOVA was then computed because different responses based on the environment were expected, where more constructive processing and therefore more influence of mood-state would occur in the more complex, overload situation. Means by condition appear in Table 1. For the simple condition, the ANOVA revealed a main effect of information type, $F(1,77)=33.91$,

p<.0001, which illustrates that the participants responded faster to congruent information (M=1211 ms) than to incongruent information (M=1375 ms). However, there was no main effect of mood and no interaction effect (F's<1.50, p's>.23), suggesting, consistent with Forgas (1995), that this more simple task did not constitute one where mood would exert differences in processing.

Table 1
Experiment 1 Stroop Reaction Times

	Simple environment		Complex environment	
Mood	Congruent	Incongruent	Congruent	Incongruent
Positive	1202 ms	1310 ms	1041 ms	1167 ms
Neutral	1226 ms	1364 ms	1144 ms	1270 ms
Negative	1235 ms	1449 ms	1091 ms	1422 ms

As the environment became more complex, positive mood began to exert more effect on ability to deal with incongruent information. A separate 2×3 ANOVA revealed an interaction between information type and mood, F(2,76)=6.51, p=.002. Means are also in Table 1. Post hoc tests (Bonferroni) revealed that the negative mood condition was significantly slower (p=.012) than the positive mood conditions. Additionally, a main effect for type of information was found, where overall participants were faster (M=1089 ms) in the congruent than incongruent condition (M=1288 ms), F(1,76)=50.23, p<.0001. Mood was also found to be a significant factor, F(2,76)=4.54, p=.014. The mood factor was qualified by the interaction: there was only a difference between groups when the information type was incongruent. This therefore suggests that the incongruent information become more difficult to process in the overload environment and that those in a positive mood were best able to handle that more extensive processing.

Discussion

The results of this study suggest that mood-states can make a difference in how consumers process incongruent information in an overload situation. Participants in the negative mood condition were significantly slower than the other mood conditions when encountering incongruent information, particularly in the more complex “overload” situation. Researchers have suggested that if the task calls for it, those in a positive mood-state may be able to “step up to the plate” and expand their processing ability (Ruder and Bless, 2003) which is consistent with what we found here as there was no differences

across mood-states in the more simple environment. This finding is also congruent with Forgas' research (1995 AIM).

While the difference in the Stroop task performance provides some insight into the differences between mood-states in global executive functioning and ability to process incongruent information, a concern for consumer researchers is when these effects will appear in “real world” consumer tasks. Therefore, in the next experiment well-known brand names rather than colors are used n a computer reaction time test. The researchers were also interested in whether mood's influence on processing would be related to mood's role as information (resulting in mood-congruent judgments).

Experiment 2: The Implicit Association Test

In this version of the IAT two well-established brands, Ben & Jerry's and Marlboro, are the focus. Pilot research on these two brands found each brand to be stereotypically thought of as the “good” (Ben & Jerry's) and the “bad” (Marlboro) brand. In this pretest four participants were asked to “please indicate how you feel about each the following brands.” For each of the brands, they rated how “positive” and “negative” each brand made them feel on a 9-point scale ranging from “not at all” to “extremely.” In addition to Ben & Jerry's and Marlboro, these participants rated the following nine brands: Coca-Cola, Crest, Firestone, General Motors, Levi Strauss, McDonald's, Microsoft, Nabisco and Philip Morris. To check that there were no other brands that participants felt more strongly about, they were asked to list any additional brands about which they felt very positively or negatively. No brand surfaced across all participants and those that were listed were not rated as extremely as Ben & Jerry's or Marlboro. The two unipolar ratings (i.e., positive and negative) were combined to form a single Positive composite (alpha=.75). The results found that Ben & Jerry's was rated highest on the Positive composite and Marlboro the lowest. Moreover, the two differed significantly (M=7.63 vs. 2.63, $t(3)=8.16$, $p<.01$).

In the main experiment the congruent trials involved pairing Ben & Jerry's with positive adjectives and Marlboro with negative adjectives. The incongruent trials involved pairing Ben & Jerry's with negative adjectives and Marlboro with positive adjectives. These critical trials were in an environment similar to the “complex” one from Experiment 1 where they received both types of information at a very fast pace.

Participants

Thirty-two (18 female, 14 male, average age of 22) participants from the Cambridge Massachusetts area were paid for their participation in the study.

Procedure

Participants were shown one of the same three videos from the first experiment to induce either a positive, negative or neutral mood. Each participant was run in a separate session. After viewing the video they received instructions about the IAT test, and were told that they would be categorizing a series of stimuli and were given a set of practice trials to get accustomed to the IAT procedure. Participants were presented with blocks of either words (e.g., joy, happiness, murder, death) or images (e.g., a pint of Chunky Monkey) and asked to categorize each based on the instructions for the given trial using the specified keys on a computer keyboard. The participants then completed the IAT test, with the critical trials being ones where they had to categorize Ben & Jerry's with positive attributes and Marlboro with negative attributes (congruent trial) and one where they had to categorize Ben & Jerry's with negative attributes and Marlboro with positive attributes (incongruent trial). It is important to note that for half of the participants the keys were switched (i.e., positive words for the right key and negative words for the left key) and order of the test conditions (congruent and incongruent) was counterbalanced across participants.

To assess participants' explicit attitudes toward each of the brands, they were asked to rate each brand on a range of dimensions. They were given a series of semantic differentials on a visual analog scale, asked to indicate their feelings toward the brands, and indicate their willingness to pay for products featuring the brands' logos. These ratings were combined into two composites, one for each of the brands for the analysis that follows.

Results

All reported p-values are two-tailed. A 2 (information type: congruent vs. incongruent)×3 (mood: positive, negative, neutral) mixed-model ANOVA was performed with information type as within factors and mood effect as between factor. There was an effect of information, $F(2,29)=33.62$, $p<.0001$, which illustrates the IAT effect indicating that participants responded faster to congruent combinations, consistent with research finding schema- congruent information is easier to process. Fig. 1 also illustrates that the information type interacted with mood, $F(2,29)= 3.63$, $p<.05$. The response times

were longest for those consumers who were in the negative mood condition when they had to process incongruent information, which is consistent with the findings from the first experiment. Contrasts between the mood-states were computed for the two conditions separately and the only difference between the negative and positive mood that was statistically significant was in the incongruent combination, contrast t=2.21, p=.05. The response times for the neutral condition fell between the means for the positive and negative mood conditions. There is no effect of mood manipulation when the consumers had to process the congruent trials. The ANOVA revealed no overall effect of mood, F(2,29)=1.33, p=.28.

As an initial analysis of the explicit measures, a 2 (brand: Ben & Jerry's, Marlboro)×3 (mood: positive, neutral or negative) mixed-model ANOVA was computed with brand as within factor and mood effect as between factor. Consistent with pretests, participants in this sample had more positive attitudes toward Ben & Jerry's compared to Marlboro F(1, 41)=236.64, p<.001. Further, a marginal effect of mood condition found a mood congruence effect of mood condition on attitudes such that participants in a positive condition reported the most positive attitudes and those in the negative condition the least positive attitudes F(2, 41)=2.21, p<.15 which is consistent with the mood-as-information hypothesis.

To examine the correspondence of these explicit attitudes (mood-as-information) and the IAT effect (mood as influencing processing), a difference score between the two brand composites was calculated. While the process measure (the IAT effect) turned out to be highly predictive of explicit attitudes for positive mood participants (r=.66, p<.05), an implicit measure actually predicted a tendency in the opposite direction among negative mood consumers (r=−.63, p=.067).

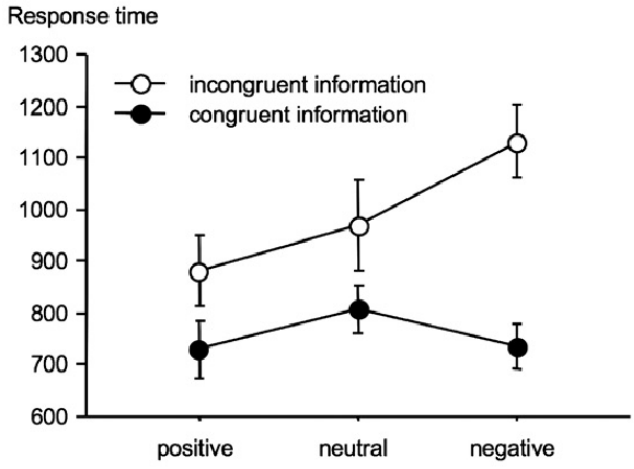

Fig. 1. Experiment 2 IAT.

Discussion

These results are consistent with those found in Experiment 1: negative mood participants needed more time to process incongruent information than positive mood participants and somewhat more time than neutral participants. Note in neither study was there a significant difference in mood-state on the processing of congruent information, which would indicate greater or lesser usage of heuristic processing. Nor was there an overall dampening due to the negative mood. It appears that those in a negative mood are not slower overall in their processing, just when the information to be processed is incongruent and involves more extensive cognitive effort.

The difference between the mood's influence on processing the congruent and incongruent information and mood's influence on explicitly stated attitudes for the brands are additional results. Negative mood appears to result in an implicit and explicit knowledge clash; a result different from findings when looking at positive mood on these measures—where correspondence results (e.g., Isen et al., 2004). In the positive mood condition, the results show that the IAT effect was positively correlated with the attitudes the participants reported explicitly. The stronger the individual difference between the processing of congruent and incongruent information (see the vertical offset in Fig. 1 for the mean) the more the participants reported positive attitudes toward Ben & Jerry's (being the stereotypically "good" brand in this experiment). Despite the fact that the IAT effect was more pronounced for the negative mood condition (see the difference between congruent and incongruent information processing in Fig. 1), there was no such correlation with the explicitly reported attitudes. If at all, there was a slight tendency in the opposite direction. This result demonstrates how mood can influence the relation between implicit and explicit measures and thus entails important methodological considerations for future research.

General Discussion and Implications

In two experiments it was found that incongruent information is more difficult for consumers to process when in a negative rather than a positive mood in an information overload environment. In both studies the "neutral" participants fell somewhere between the positive and negative mood participants. The implications are discussed below.

Implications for Overload

The fact that mood-state can be used as information for consumer decision-making is not new. What is new is that one's mood can influence the ability of the consumer to attend to, and use certain information in an information overload environment. Because one of the remedy's to “break through” the information clutter is to present communications that are incongruent with expectations, it is important to understand how mood-state influences that type of discrepant information. More generally, incorporating incongruent information is one way in which brands evolve and reposition themselves in the marketplace.

Both experiments find processing incongruent information is more difficult for those in a negative mood-state. This implies that if marketers suspect that a consumer is in a negative mood, due to a cold, product failure, or watching a sad TV program, or any other reason, they should expect consumers to process incongruent information in a slower, more deliberate fashion than under other circumstances. Therefore, marketers should consider using congruent or reinforcing campaigns when approaching consumers in a sad state. For consumers in a positive mood, marketers can use that mood to introduce more complex varieties of their products, or get consumers to elaborate on their products more deeply, or change positioning strategies.

Implications for Mood/Consumer Research

The present state of the role of positive mood on decision-making seems to be that in some simple tasks, such as when stereotypes or scripts can be employed, people in a positive mood will rely on those heuristics. However, for tasks that require greater elaboration, positive mood might enhance decision making, e.g. seeing the creative solution to a problem. In the past there has been some difficulty in making the comparative statement between positive and negative mood-states, however, because those who do study the beneficial role of positive mood normally compare their findings to a neutral control group, rather than a negative or sad group while those finding a detrimental effect of positive mood generally compare their results to those in negative (sad)mood-states. The present research suggests that it is important to consider both positive and negative moods. In addition this research suggests that positive mood may enhance and negative mood hinder cognitive capacity and relational processing in an information rich environment.

Future Research and Limitations

The present report focuses on “sad” mood and other negative mood-states that may lead to different findings. Because information overload relates with feelings of anxiousness and stress, future research should investigate how that more natural occurring mood-state influences consumers' decision processes. Because the tasks were done in controlled lab environments, the choice of tuning out or avoiding marketers' information was not available (which is a common result in overload situations). Also, because different mood-induction techniques might produce different results (Gardner, 1985), future research should consider varying the induction techniques to get a more robust understanding of mood's influence on processing.

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