MOOD AND ADVERTISING PERSUASION: A MODEL INTEGRATING MOOD MANAGEMENT AND MOOD DISRUPTION MECHANISMS

by

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ABSTRACT

Past consumer research on mood has focused mainly on the impact of pre-processing mood on attitude formation, cognitive process, or behaviour. The present study, however, opens a new research direction by investigating the impact of ad characteristics on pre-processing mood. In particular, this research develops a model by combining the mood management and mood disruption mechanisms to answer the following interrelated research questions:

1. How does a consumer's mood interact with an ad's characteristics?
2. What is the effect of this interaction on subsequent mood and ad evaluation?
3. When will the above effect on ad evaluation be more likely to occur?

Before the main experiment was conducted, a scale was developed to measure the mood potency of an ad -- a construct developed to capture the dimensions of an ad in eliciting affective responses. Following a systematic psychometric scale-development procedure, a reliable and valid scale with eighteen items was obtained.

A 2x2x2 between-subject factorial design was conducted to test the model. The treatments included pre-processing mood pleasure, pre-processing mood arousal, and mood potency of an ad. The experiment involved exposing groups of subjects to one ad after listening to one piece of music, then comparing ad evaluations by music condition. The ad's mood potency was manipulated to elicit either a positive or negative feeling. Music was employed to vary pleasure and arousal prior to ad processing. Altogether two ads and four pieces of music were used.

For the dependent measure considered (i.e., ad evaluation), findings were in accordance with a mood management interpretation. It was found that a positive mood potency ad was preferred to a negative mood potency ad either in a good or bad mood condition. Moreover,
this effect was more pronounced when the arousal level was high. Regarding predictions on change in pleasure/arousal due to an exposure of an ad, only the change in pleasure yielded marginal support for the mood disruption mechanism.

The findings of this study not only contribute to our understanding of research on advertising context and affective responses but also have important implications for managerial decisions on ad placing, design, and copytesting.
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CHAPTER 1
INTRODUCTION

1.0 OVERVIEW

Mood has been recognized as important to various aspects of marketing and consumer behaviour such as ad evaluation (Gardner and Wilhelm, 1987; Goldberg and Gorn, 1987; Kuykendall and Keating, 1990), in-store behaviour (Donovan and Rossiter, 1982; Ridgway, Dawson, and Bloch, 1990; Sherman and Smith, 1987), as well as information-processing strategy (Gardner and Hill, 1988). This line of research has focused mainly on the impact of pre-processing mood on attitude formation, cognitive process, or behaviour. The present study, however, opens a new research direction by investigating the impact of an ad on pre-processing mood. In particular, this study develops a model by combining the mood management and mood disruption mechanisms to answer the following interrelated research questions:

(1) How does a consumer's mood state interact with an ad's characteristics?

(2) What is the effect of this interaction on subsequent mood and ad evaluation? And how does this effect happen?

(3) When and under what conditions will the above effect on ad evaluation be more pronounced or more likely to occur?

In addition, this research goes beyond traditional studies on positive vs. negative mood to examine the effects of positive vs. negative mood accompanied with different levels of arousal.

The implications of this work are relevant to both academicians and practitioners. Results from this study provide researchers with a theoretically-improved approach to addressing the interaction between mood and ad type. In addition, the results have implications for
managerial planning of ad placement, design and copytesting.

The rest of this chapter provides basic background information on mood research and briefly introduces the model and study.

1.1 BACKGROUND

Recently, there has been an increasing interest in understanding the role of affect\(^1\) on human behaviour in both psychology (e.g., Bower, 1981; Zajonc, 1980) and consumer behaviour (e.g., Holbrook, 1985; Kassarjian, 1985). Reviews by Isen (1984), Blaney (1986), Morris (1989), and Schwarz et al. (1991) in social psychology as well as Gardner (1985) and Cohen and Areni (1991) in consumer behaviour provide insights into the way the current mood literature is organized. Further examination of the literature reveals that past empirical or theoretical works on mood have either focused on the main effect of moods on memory, evaluation, and choice (e.g., Isen et al. 1978; Lawson, 1985; Srull, 1983); or the affective responses to marketing stimuli such as advertisements (e.g., Aaker, Stayman, and Vezina, 1988; Allen, Machleit, and Marine, 1988; Edell and Burke, 1987; Holbrook and Batra, 1987). Although these studies provides interesting insights into the effects of mood on the evaluation of advertisements, these studies did not investigate the dynamic and interactive relationships between consumer mood states and ad characteristics simultaneously.

The importance of understanding the interaction between mood and ad characteristics is well-knowned. In its 1986-1987 report on research priorities, the Marketing Science Institute (1986) listed the interaction of media contexts and ads as an important consideration of marketing practice. The media context includes those factors like mood, colour, and music.
Moreover, a number of marketing researchers have suggested that an extension of the existing mood research would be to study the interaction of ad appeal and tone with consumer mood (e.g., Broach, 1988; Hill and Stephens, 1990). A few recent studies, indeed, have attempted to examine the interaction between stimulus characteristics and consumer mood states. While effects were observed, the process or mechanism through which these effects were produced has not been fully examined. For example, Gardner and Wilhelm (1987), in a study investigating the congruent effect between consumer mood states and mood elicited by advertisements, hypothesized that subjects in congruent mood and ad conditions would have more favourable affect toward the ad and advertised brand than those in incongruent mood and ad conditions. Findings revealed that support was found when subjects were in positive mood states but not in negative mood states. To explain these unexpected findings, Gardner and Wilhelm (1987, p.95) proposed that consumers might prefer positive moods to negative ones, and use controlled processes to avoid the latter. Furthermore, in a study investigating how mood influences reactions to a persuasive communication (Kuykendall and Keating, 1990), findings indicated that for neutral and negative subjects, they preferred communication with strong argument to communication with weak argument. On the other hand, subjects in positive mood states preferred weak argument to strong argument. These results made them hypothesize that people are motivated to maintain positive moods or reduce negative moods by selectively engaging in different kinds of messages. Unfortunately, this post hoc mood management explanation does not provide any answers to how and when the consumers would use the controlled processes to manage their mood states. Moreover, virtually all these studies fail to include a post-measure of mood, forcing conclusions that are quite speculative.
Therefore, the principal concern of this research is to investigate the interacting effects between consumers' pre-processing mood states and ad characteristics on subsequent ad evaluations and changes in consumers' mood states. The second goal is to unravel the conditions and processes through which these effects are produced.

Empirical evidence in psychology and consumer behaviour has also strongly suggested that arousal, in addition to pleasure, is a basic dimension of mood (e.g., Holbrook and Batra, 1987; Mehrabian and Russell, 1974; Pavelchak, Antil, and Munch, 1988; Schachter and Singer, 1962). However, it is unfortunate that in most of the previous consumer studies investigators usually defined and assessed mood only on a single positive vs. negative dimension (e.g., Gardner and Hill, 1988; Goldberg and Gorn, 1987; Kuykendall and Keating, 1990; Lawson, 1985). This conceptualization not only failed to collect valuable information, but also served to misidentify the true pattern of relations. Therefore, the term "mood" is used here to refer to an individual's affective state containing two basic dimensions: mood arousal and mood pleasure. It is the contention of this study that an ad can have significant impacts on an individual's pre-processing mood state in two ways: either changing his/her pre-processing mood pleasure and/or mood arousal level. Including mood arousal in this study can help to increase the understanding of the phenomenon.

In sum, evidence exists that interaction effect between mood and ad characteristics is important. Moreover, arousal is a basic dimension of mood other than pleasure. However, lacking in the advertising literature is a framework to explain the interaction and to go beyond a pleasure dimension that is solidly grounded in theory, not just on empirical findings.
1.2 THE MODEL

The model developed for this study addresses the shortcomings mentioned above. A mood management perspective is first proposed to explain how the change in mood states can influence subsequent ad evaluations. According to the mood management model (Isen, 1984; Zillmann, 1988), individuals are motivated to get rid of their bad moods and to maintain their good moods. Therefore, individuals in bad moods will prefer ads that can diminish their moods to ads that can maintain their moods. On the other hand, a reverse pattern is expected when individuals are in good moods. The mood management approach helps to provide insight into the relationship between change in mood states and ad evaluations. What is not clear is how an ad interacts with a consumer's pre-processing mood to produce his or her post-processing mood.

Of special interest for this research is the mechanism by which an ad's elements have an impact on an individual's mood. In order to examine and understand this interacting effect, a new mechanism -- "mood disruption process" -- is conceptualized and introduced to explain the underlying psychological process. The mood disruption process is defined here as "a psychological process through which the maintenance and/or rehearsal of an individual's mood-related cognitions is disrupted by the impact of a stimulus." With regard to advertising, the elements of an advertisement that have the potential to impact a consumer's mood maintenance and/or rehearsal state are referred to as the dimensions of its mood potency. In this study, mood potency is defined as "the capacity of an ad to induce an affective state in an individual by activating his/her mood-related cognitions." Three related dimensions of an ad's mood potency are hedonic tone, activation potential, and absorption potential. It is hypothesized that the higher the level of mood potency of an ad, the greater will be its impact on an individual's mood.
A conceptual model integrating the mood management perspective and mood disruption mechanism is then proposed to explain and predict when and how the interaction effect between ad characteristics and consumer mood states will operate. With the above rationale, it is hypothesized that an individual in a bad mood will prefer an ad with a high ability in disrupting the maintenance and/or rehearsal of his/her aversive and bad mood state. On the other hand, an individual in a good mood will prefer an ad with a low ability in disrupting the maintenance and/or rehearsal of his/her gratifying and good mood state.

To complete the proposed model, several personal or situational variables are also proposed to specify the conditions under which the mood-management effects on ad evaluation are more pronounced or more likely to occur. For example, the above effects on ad evaluation are hypothesized to be more likely to occur when the individuals are at high arousal levels or in negative mood states than when they are at low arousal levels or in positive mood states. A diagrammatic illustration of this model is shown in Figure 1.1.

1.3 THE STUDY

A 2x2x2 between-subject factorial design was conducted to test the model. The treatments included pre-processing mood pleasure, pre-processing mood arousal, and mood potency of an ad. The laboratory experiment involved exposing groups of subjects to one ad after listening to one pieces of music, then comparing ad evaluations by music condition. The ad’s mood potency was manipulated to elicit either a positive or negative feeling. Music was employed to vary pleasure and arousal prior to ad processing. In total, two print ads and four pieces of music were used. Pilot work was performed to assess the reliability and validity of
the mood potency scale and to find appropriate stimuli for the main study.

1.4 IMPORTANCE OF RESEARCH AND POTENTIAL CONTRIBUTIONS

The results of this study are relevant to both academicians and practitioners. First, this study has increased our understanding of how mood interacts with the affective responses elicited by an ad. The application of mood management and mood disruption mechanisms to the advertising context provides a more theoretically-driven basis for understanding and explaining the interaction effect between ad contexts and ad type on ad evaluation.

Second, recent empirical and theoretical works in psychology and consumer behaviour have strongly suggested that mood is made up of two basic dimensions: pleasure and arousal (Mehrabian and Russell, 1974; Pavelchak, Antil and Munch, 1988). However, most of the existing research typically looks at a positive mood in comparison to a negative mood and not a positive vs. a negative mood accompanied by either a high or a low arousal level. If only one dimension is investigated, the overall affective impact of a stimulus may be underestimated, overestimated, or misunderstood. Therefore, one of the major contributions of this study is to extend the existing research by including both arousal and pleasure in examining mood effects.

Third, the present study is one of the first in the marketing literature which successfully manipulate arousal and pleasure simultaneously and independently in an experiment. Music was found to be a useful tool in creating different combinations of pleasure and arousal.

Fourth, following an acceptable psychometric scale-development procedure, a reliable and valid scale for measuring mood potency of an ad was developed. With this scale, an ad can be classified as either a positive mood potency ad, a negative mood potency ad, or a neutral.
mood potency ad. This new classification provides an additional taxonomy of ads other than the transformational vs. informational ads classification or thinking vs. feeling ads taxonomy.

Fifth, the results of this research have important managerial implications for ad design. This study not only acknowledges that the mood generated by the media environment have a significant impact on the perception of embedded ads, but also suggests that different ads may have different impacts on an individual’s pre-processing mood which in turn can influence the evaluation of an ad. With the findings of this study, an advertiser can design an appropriate ad for a particular media environment that would lead to the most desirable ad responses. For example, if an advertiser has information about the media environment, he/she can design an ad by varying the combination of an ad’s hedonic tone, activation potential, and absorption potential so as to create an ad which either has a maximum impact on negative mood or has a minimum impact on positive mood.

Finally, the present study has application in terms of ad copytesting. The findings show that the interaction between the mood induced by the context and the mood potency of an ad can affect ad evaluation. This implies that copytesting which utilizes a single context can introduce potential for biased evaluation.

1.5 ORGANIZATION

The remainder of this paper is organized as follows. First, a review of the literature in marketing, communication, social psychology, clinical psychology and environmental psychology relevant to the proposed study is presented in Chapter 2. This review is intended to reveal how this study fits in with previous work and to provide insights how the present work can advance
and improve the existing knowledge. Then, in Chapter 3, a conceptual model combining a framework of mood management perspective and mood disruption mechanism is proposed to predict when and how the interaction between ad characteristics and consumer mood states will operate. In Chapter 4, the procedure in developing measurement scales for mood potency of ads is discussed. In Chapter 5, the methodology used to test the hypotheses is described. Chapter 6 contains the analysis and results. Finally, the discussion of the results, limitations of the study, implications, and conclusions are summarized in Chapter 7.
CHAPTER 2
LITERATURE REVIEW

2.0 OVERVIEW

This chapter contains a review of the literature relevant to the proposed study. The review does not address all aspects of mood effect on consumer behaviour. It covers only those areas which lend insights into the operations of the model discussed in Chapter 3. First, the existing research on affect in consumer behaviour is summarized in section one. This review helps to suggest the need to develop a theoretical framework to explain the dynamic and interactive relationships between consumer mood states and ad characteristics. The second section reviews why and how individuals would manage their mood states by engaging in some conscious or unconscious behaviours and psychological processes. Included in the review are studies from communication, social psychology, clinical psychology, environmental psychology, and marketing. Lastly, the definitions, conceptual development and empirical studies on arousal from both psychology and marketing literature are examined.

2.1 EXISTING CONSUMER RESEARCH ON AFFECT

In studying affective states, two distinctly different approaches seem to dominate the past research in consumer behaviour. First, affective states are treated as an independent variable, where empirical and theoretical works on mood have focused on the effect of moods on memory, evaluation, and choice. Second, affective states are treated as a phenomenon or dependent variable, where efforts have been focused on examining the mood elicited by an ad.
2.1.1 Affective State as an Independent Variable

Many investigators have looked at the main effects of consumers’ current affective states on subsequent evaluations of advertisements or products. In these studies, subjects’ mood states are manipulated outside the context of the advertisements or products. Isen, Shalker, Clark, and Karp (1978), for instance, observed that subjects provided more favourable evaluations of products they owned when placed in a positive mood state. Gardner and Wilhelm (1987) found that positive-induced mood is associated with more favourable evaluations on advertisement and brand, while negative-induced mood is associated with less favourable evaluations on advertisement and brand. Finally, in a study with TV programs and commercials, Goldberg and Gorn (1987) found that subjects were more likely to have favourable attitudes toward a commercial after a happy program than after a sad program. In summary, the impact of mood states on the evaluation process appears to be a function of the valence or pleasantness of the current mood.

With the mood accessibility paradigm, several hypotheses have been proposed in the literature to explain this effect (e.g., Isen, 1984; Mitchell, 1988). The first hypothesis is the encoding hypothesis (e.g., Bower, Gilligan, and Monteiro; 1981). Under this hypothesis, the valence of an individual’s feeling state influences the encoding of information in memory. For instance, individuals experiencing positive feeling states encode primarily positive information in memory. The second hypothesis is the retrieval hypothesis (e.g., Teasdale and Fogarty, 1979). Here the valence of an individual’s subjective feeling state influences what information is retrieved from memory. For instance, more positive information is retrieved by individuals in a positive feeling state. The last hypothesis is a response bias hypothesis. Here subjects in
a positive feeling state tend to evaluate everything more positively, independent of what information is recalled from memory.

In summary, all the three hypotheses predict a main effect of mood on attitude change, that should be independent of the characteristics of the presented stimulus. However, the fact that the encoding, retrieval, and response bias hypotheses generate potentially identical predictions, raises the question of how the three may be distinguished. Moreover, the interacting effect between mood and ad/product characteristics cannot be predicted from any of these three hypotheses.

2.1.2 Affective State as a Phenomenon or Dependent Variable

Another major approach in studying the role of mood in advertising has focused on the ability of ads to elicit different affective states (e.g., Holbrook and O'Shaughnessy, 1984). Research using this approach is directed at developing a taxonomy or categorization of different moods generated by advertising (e.g., Aaker, Stayman, and Vezina, 1988; Allen, Machleit, and Marine, 1988). Interest in the role of moods evoked by an advertisement is fairly new, but its roots go back to research that identified the importance of attitude toward the ad (A_{ad}) in understanding advertising effects (Holbrook, 1978; Mitchell and Olson, 1981). Advertising researchers have produced empirical support for the inference that A_{ad} is an important mediator of advertising’s impact on brand attitude. More specifically, it has been proposed that A_{ad} influences the formation of brand attitude.

However, as this stream has matured, some concerns have arisen regarding the inherently inhibiting nature of A_{ad}. That is, this construct leads researchers to consider ad-evoked affect
as a unidimensional and bipolar variable which involves only simple evaluations concerning how
good or likable an ad is; thus the concern that ad researchers "have thereby missed the
multidimensional richness of the emotional responses that presumably mediate advertising
effectiveness" (Holbrook and O'Shaughnessy, 1984, p.48). In fact, as noted by Lutz (1985),
Mackenzie, Lutz, and Belch (1986), Batra and Ray (1986), and others, it is important to
understand affective antecedents of \( A_{ad} \), such as feelings, to fully understand ad effects in part
because there are many reasons for liking or disliking an ad. For example, ads which evoked
such disparate responses as warmth, humour, and interesting could be equally liked but be
effective in different ways. In fact, Stayman and Aaker (1988), Burke and Edell (1986), and
others have suggested that not all the effects of feeling response can be captured by the \( A_{ad} \)
construct. Thus it is important to study the feelings and emotions that audiences/viewers
experience as they are exposed to an ad both to better understand the antecedents of \( A_{ad} \) and to
fully explore all possible models of ad effects. Early efforts to study specific feeling responses
concentrated on fear (Sternthal and Craig, 1973) and humour appeals (Sternthal and Craig,
1974). Other researchers have gone beyond these often-used appeal types to explore other
responses. For example, Aaker, Stayman, and Hagerty (1986) have explored warmth and
irritation; while Alpert and Alpert (1986) have studied happiness and sadness.

More recently, some consumer researchers have borrowed various emotional taxonomies
from psychology and tested their applicability in the advertising context. Holbrook and Batra
(1987), for example, employed Plutchik's (1980) emotional typology to assess the emotional
response evoked by TV commercials. With factor analysis, the 93 emotional response items
were reduced to pleasure, arousal, and domination dimensions. These three dimensions are
consistent with previous taxonomies of emotion (Mehrabian and Russell, 1974; Russell, 1978, 1980).

2.1.3 The Interaction Between Consumer Mood States and Ad Characteristics -- A Neglected Area in Marketing

It is undeniable that the above studies have improved our general understanding of mood in consumer behaviour significantly. However, these studies tend to be static and independent. The moods elicited by advertisements or the examination of the effects of consumer mood states on subsequent stimulus evaluation is focused on independently. Seldom do these studies investigate the dynamic and interactive relationships between consumer mood states and stimulus characteristics simultaneously (Ger, 1986; Kuykendall and Keating, 1990). The major drawback of these approaches is the lack of a theoretical framework to predict and explain interactions between consumer mood states and stimulus characteristics in a marketing context. For example, with the mood-accessibility paradigm (e.g., encoding hypothesis, retrieval hypothesis, or response bias hypothesis), studies are only able to predict that subjects will be more likely to have favourable attitudes toward an ad when they are in a good mood than when they are in a bad mood and this effect is independent of the characteristics of the ad.

However, some recent studies have suggested that the effects of mood on product or ad evaluation is moderated by the characteristics of the product or ad. For example, Ger (1986) found that mood induced by an orange juice scare story would only bias the evaluations of orange juice and other beverages but not the evaluations of foods and fillers. These findings made her conclude that mood did not affect product evaluations indiscriminately but depended on cognitive association between the products and the mood induced. Furthermore, in another
study investigating how mood influences reactions to a persuasive communication (Kuykendall and Keating, 1990), subjects were first asked to read a magazine article designed to induce a positive, neutral, or negative state. Then they were asked to evaluate a communication for which argument quality varied. Findings indicated that for neutral and negative subjects, they preferred communication with strong argument than weak argument. On the other hand, subjects in positive mood states preferred weak argument to strong argument. These results made them hypothesize that people are motivated to manage moods. With these findings, the existing mood accessibility paradigm seems to be unable to provide a precise prediction for the interaction between consumer mood states and ad/product characteristics.

2.1.4 Summary

Given the above discussion, it seems that the interaction between ad/product characteristics and consumer mood states is more complex than as previously conceptualized. It is clear that more work is required for the theoretical development and empirical testing in this long-neglected but important area.

2.2 CONSUMPTION AS A MOOD MANAGEMENT ACTIVITY

Several independent lines of research have suggested that individuals are pleasure seeking and displeasure avoiding. In general, they consciously or unconsciously engage in some behaviours or psychological processes to manage their moods. Support for this general proposition can be found from literature on social psychology, clinical psychology, environmental psychology, communication and marketing.
2.2.1 Social and Clinical Psychology: Mood Management Research

Mood management research is a perspective that emerged in social and clinical psychology in the early seventies attempting to propose theoretical frameworks to integrate diverse findings in the literature on how individuals manage their mood by engaging in some related activities. Indeed, both folk knowledge and empirical evidence have long suggested that people always attempt to control feelings, especially negative feelings. "Whistling past the graveyard" refers to a strategy for coping with fear; and the words of two familiar songs illustrate how children may be taught to cope cognitively with fear and sadness: "Whenever I feel afraid, I hold my head erect and whistle a happy tune, so no one will suspect I'm afraid.... Make believe you're brave and the trick will get you far. You may be as brave as you make believe you are." (Rodgers & Hammerstein, 1951, p.16), and "... when the dog bites, when the bee stings, when I'm feeling sad, I simply remember my favourite things and then I don't feel so bad..." (Rodgers & Hammerstein, 1959, p.27).

Other than in songs, empirical evidence also confirms that people may attempt to manage their moods by employing the following three different types of activities: self reward (Cialdini et al., 1973), the use of alcohol (Parker & Brown, 1982), and distraction (Mischel, Ebbesen, and Zeiss, 1972).

The most comprehensive program of research studying self-regulation of mood through self-reward is that of Cialdini and his colleagues. In a number of published reports of this series (Cialdini, Darby, and Vincent, 1973; Cialdini and Kenrick, 1976; Cialdini, Baumann, and Kenrick, 1981), consistent findings showed that subjects who were induced into a bad mood were more likely to help a fellow student in response to a request than were control subjects.
unless either of two positive mood-inducing experiences (unexpected monetary reward or approval for task performance) intervened between the bad mood induction and the helping opportunity. The major premise of this program of research assumes that the helping act is instrumental in nature in that it is motivated by the subject's desire to rid himself of a bad mood through self-reward. The ingenious research of Cialdini and his colleagues makes a convincing case for the idea that people in a bad mood will sometimes help as a way of making themselves feel better.

Another behaviour that has been considered as a mood-management activity is alcohol consumption, an activity that many appear to enjoy. At an anecdotal level, alcohol is widely mentioned as a way of self-regulating how one feels. Surveys (Parker and Brown, 1982; Rippere, 1977) which asked people how they dealt with depressed mood confirmed this. Much of the literature on alcohol use has been guided by the "tension reduction hypothesis" (Conger, 1951) which says that people drink to reduce negative feelings or tension (rather than produce pleasure). Some of the most directly relevant data suggesting self-regulation of mood through alcohol use come from a study by Marlatt, Kosturn, and Lang (1975) which, interestingly, has a design that is conceptually identical to that of Cialdini et al. (1973). Marlatt et al. (1975) found that being insulted by a confederate resulted in increased alcohol consumption during a supposedly separate wine-tasting experiment unless an opportunity to retaliate by shocking the confederate intervened. Thus, in both experiments, a bad mood induction facilitated an act hypothesized to be remedial of bad mood (helping in Cialdini et al. and alcohol consumption in Marlatt et al.) unless some other mood-improving event intervened. Not only is there evidence that bad mood increased alcohol consumption, but there is also data showing that alcohol can
be an effective management technique in that consumption appears to be followed by a lessening of negative affect. In a recently published meta-analysis, Hull and Bond (1986) found that alcohol reliably improves self-reported mood. Aneshensel and Huba (1983) have applied causal modelling techniques to longitudinal data they collected on the relation between depression and alcohol use. They interpreted their data as suggesting that depressed effect leads to increased alcohol consumption that, in the short term, appeared to be effective in reducing depression somewhat.

Distraction is a process to direct attention away from a specific disturbing stimulus (e.g., self-relevant unpleasant thoughts). In general, when asked how they deal with depressive affect (Rippere, 1977), people often nominate techniques denoting distraction, for example, "keep busy," or "do something engrossing." One of the most readily available distracters in our society is television. Pearlin (1959) asked subjects the extent to which they enjoyed "escapist" programs and found that those who scored low on a measure of mastery were more likely to say they liked to watch shows that "help us forget our personal problems and troubles while we watch them." Moreover, another common means of distraction is probably through direct thought control. If one is plagued by distressing thoughts, it may be possible to simply wilfully change what one is thinking about and, thus, to terminate the distress. Evidence suggesting the feasibility of this technique emerged from the literature on delay of gratification. Data gathered by Mischel, Ebbesen, and Zeiss (1972) showed that children who were instructed to think about things which were fun were better able to tolerate a delay of gratification. Mischel and his coworkers interpreted their results to mean that the aversive experience of frustrative nonreward encountered during the delay period can be assuaged by the distraction of thinking entertaining
thoughts.

A number of theoretical perspectives have been proposed to explain the occurrence of mood management. For instance, Cialdini, Darby and Vincent (1973) offered the Negative-State Relief Model (NSR). According to the model, a negative mood is accompanied by a corresponding drive to reduce whatever bad feelings are present. This drive may be satisfied by engaging in any mood-elevating behaviour. In line with this theoretical development, Clark and Isen (1982) proposed a Mood Maintenance Hypothesis for positive mood. This hypothesis posits that happy individuals engage in mood maintenance behaviour because doing so enables them to prolong their good mood states. Recently, Wegner (1988) has extended the scope of mood management from behaviour to cognition by proposing a theoretical framework on thought control. According to this perspective, mentally healthy people have learned to self-generate thoughts that help them maintain positive feeling states and disrupt or change negative feeling states.

2.2.2 Environmental Psychology: Theory of Environmental Response

Environmental psychologists (Mehrabian and Russell, 1974; Mehrabian, 1980; Russell and Pratt, 1980) have presented one of the potentially valuable theoretical frameworks for studying the interaction effect between consumer pre-processing mood states and ad characteristics on consumer post-processing mood states, ad evaluation and product evaluation. Using the traditional S-O-R paradigm as its point of departure, Mehrabian’s theory of environmental response attempts to explain emotional reactions that occur from exposure to the stimuli of a particular environment (see Figure 2.1). In general, an adequate S-O-R model has
the following requisites: a stimulus taxonomy, a set of intervening or mediating variables, and a taxonomy of response. In Mehrabian’s model, the stimulus may be store atmosphere, products, advertisements, or any environmental variables which can affect an individual’s emotional state. Subject to interpersonal characteristics, the organism component of the S-O-R paradigm is represented by individuals’ emotional reactions to an environment (Petrie, 1967). According to Mehrabian’s theory, all emotional reactions to the environment can be classified into three independent states: arousal-nonarousal, pleasure-displeasure, and dominance-passivity. However, because the dominance factor has proved to be the weakest part of the model in empirical research, Russell and Pratt (1980) proposed elimination of the factor on the basis that dominance requires a cognitive (rather than affective) judgement on the part of the individual. To complete the model, response (the R component) can be broadly categorized as approach or avoidance. Approach behaviours relate to a willingness or desire to move towards, stay in, explore and interact with the environment. Avoidance behaviours relate to the opposites of the above, a desire to leave the environment. According to Mehrabian’s theory, the level of arousal and the pleasure-displeasure experienced by an individual will determine his/her approach-avoidance responses. Thus, individuals who find the level of mood arousal and mood pleasure of an environment to be desirable would want to stay, explore and interact with the environment. On the other hand, individuals would like to leave the environment if they find its level of mood arousal and mood pleasure to be undesirable.

Three studies conducted in a retailing setting have provided supports for the above model. Donovan and Rossiter (1982) found that consumers experienced in-store environments in terms of two major dimensions: arousal (arousing-sleepy) and pleasantness (pleasant-unpleasant). The
two emotional reactions, in turn, determine consumers' approach-avoidance behaviours within the store, such as: (1) time spent browsing and exploring the store's offerings; (2) willingness to talk to sales personnel, and (3) tendency to spend more money than originally planned. Similar findings were found in two recent studies (Sherman & Smith, 1987; Ridgway, Dawson, and Bloch, 1990).

Based on this theory, understanding consumers' response to an environmental stimulus requires studying emotional reactions. To apply the model in a communication context, we may expect that an individual will spend more time and attention to an ad which helps to elicit good mood than an ad that elicits bad mood. Furthermore, he/she will have a higher evaluation on an ad which makes him/her feel good than an ad which makes him/her feel bad.

2.2.3 Communication and Marketing: Hedonic Consumption Research

Hedonic consumption is a new emerging concept developed in consumer behaviour and has been defined by Hirschman and Holbrook (1982, p.92) as those facets of consumer behaviour that relate to multisensory, fantasy and emotive aspects of product usage experience. The basis of this approach is that the search for emotional pleasure and arousal is an important motivation for individuals when selecting tangible products or intangible services to consume. Implicit to this perspective is the assumption that consumers are hedonistically motivated by the desire to feel good. A number of studies relating to TV-program consumption conducted by communication researchers provided indirect support for this premise. For example, in a study conducted by Zillmann et al. (1980) to determine whether mood states influenced selective exposure to broad content categories, such as drama, comedy, and sports, persons in a bad mood
were found to prefer situation comedy over action drama and game shows.

To test the hypothesis that persons in states of acute under- or overstimulation tend to manage their mood by arranging their environment, Bryant and Zillmann (1984) conducted an investigation in which subjects were placed into a state of boredom or stress and then allowed to select various TV programs. Six programs, three exciting and three relaxing, were simultaneously available. It was hypothesized that bored subjects would choose exposure to exciting materials over exposure to relaxing ones and that stressed subjects would exhibit opposite preference. As expected, the findings supported the prediction. Moreover, it was found that through exposure to exciting materials, the arousal level of bored subjects increased significantly. On the other hand, the arousal level of subjects under stress decreased significantly after exposure to relaxing programs. The findings of the above studies show that individuals consciously or unconsciously utilize the consumption process -- TV-program consumption, in this case -- to manage their moods.

Furthermore, recent evidence in marketing also suggests that consumer behaviour activities may result in the maintenance of an individual’s positive mood or the reduction of his or her negative mood. In a study by Gardner and Hill (1988) on brand choice, they examined the relationship between mood and choice strategies that are primarily affective (experiential strategy) or cognitive (informational strategy). Informational strategy was defined as the strategy which brand selection was based upon careful consideration of brand-benefit information. On the other hand, experiential strategy was defined as the strategy which brand selection was based upon feelings and sensations associated with past or expected brand experiences. Findings suggest subjects in positive moods, who used an experiential strategy while making a purchase.
decision, had more positive postprocessing moods than those who used an informational strategy; and subjects in negative moods, who used informational strategy, had more positive postprocessing moods than those who used an experiential strategy. Interestingly, subjects in positive moods were more likely to use an experiential strategy than those in negative moods, and subjects in negative moods were more likely to use an informational strategy than those in positive moods. This finding suggests that subjects may have been employing a mood-management strategy during decision making.

2.2.4 Summary

Given the above discussion, it seems that mood management perspective provides a meaningful and useful framework in analyzing why individuals engage in some activities to maintain their good moods and diminish their bad moods. However, one of the major problems with this literature is the general failure to track down and measure the specific processes mediating observed behaviours. In order to resolve this problem, Clark and Isen (1982) have discussed a distinction between automatic and controlled processes in studying the mechanisms of mood management. "Automatic processes" are defined as those cognitive processes that occur without conscious awareness, without intention, without effort, and without interfering with other mental activities. In contrast, controlled or self-regulatory processes are those that do involve time, effort, and at least some degree of conscious awareness in order to be performed. Generally speaking, self-regulatory efforts should reduce bad moods or maintain good moods whereas the automatic efforts of mood would be expected to produce mood-congruent behaviour and vicious cycling. However, one of the major criticisms on the
distinction of controlled and automatic processes is the failure of Clark and Isen to delineate when or under what situations these processes will take place or dominate. Though it might seem to be easy to distinguish which of these two processes is responsible for any given example of behaviour induced by mood, that is not the case. Moreover, virtually all the studies examining the self-regulation of mood "fail" to obtain a post-measure of mood, forcing conclusions that are quite speculative.

It is the purpose of this study to advance the existing knowledge on mood by not only including a post-measure of mood after interaction but also specifying a number of conditions under which mood management activities are more likely to occur.

2.3 Arousal: Its Definitions, Conceptualization Development and Effects on Psychological Processes

In this section, an important construct -- arousal -- is briefly reviewed. Then, its role in past mood research in consumer behaviour is examined. The construct will be used as a basic dimension of mood in formulating the conceptual model in Chapter 3.

2.3.1 Arousal: A Basic and Necessary Dimension of Mood

Though there is little controversy in psychology associated with the attempt to identify basic dimensions of mood, there is disagreement as to how many dimensions there are and how they should be labelled. There appears to have been three general views. The first view is offered by those cognitivists in psychology who hold that moods can be adequately represented and measured by its valence or pleasure dimension (Clark and Isen, 1982; Bower, 1981). With this view, moods are always conceptualized as good versus bad or positive versus negative.
Alternatively, some investigators, for example, Borgatta (1961), Izard (1977), McNair et al. (1971), and Nowlis (1965, 1970), argue that there are at least 5 to 11 factors necessary for an adequate description of the mood space. In general, these multifactorial solutions identify monopolar and discrete mood factors. The set identified by Izard (1977) includes interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame, and guilt. Finally, a number of investigators have come to the third view that there are only two or three dimensions required to adequately describe the mood space and these are generally seen as bipolar in nature. Schlosberg (1944) first advocated two dimensions, attention-rejection, for labelling affect revealed in facial expression. Later, a third dimension, sleep-tension, was identified (Engen, Levy, & Schlosberg, 1958). Subsequent research on the description of emotion in language revealed three similar dimensions: pleasantness, activity, and potency (Osgood, 1969; Osgood, May, & Miron, 1975; Snider & Osgood, 1969). Evidence on the structure of mood often has suggested three specific dimensions. The first two dimensions, pleasantness-unpleasantness and arousal-sleep, are usually supported. Consensus on the label of a third dimension, however, is unclear. Trust (Dittmann, 1972), authoritarianism (Frijda, 1969), interpersonal readiness (Block, 1957), and dominance-submission (Mehrabian & Russell, 1974, Russell and Mehrabian, 1977) have all been offered as labels to describe a third dimension of affect. In order to resolve this controversy, Russell (1978) attempted to examine these similarly named dimensions using a variety of scaling techniques and factor analyses and confirmed the pleasant-unpleasant as well as the arousal dimension. Russell did not find a third common dimension but instead found evidence for three additional dimensions beyond pleasure and arousal, which he interpreted as referring to the antecedents or consequences of the affect described rather than referring to the
affect itself.

Exactly how many and what dimensions are found in attempts to analyze the basic structure of mood? The most comprehensive answer may be found in Watson and Tellegen’s (1985) review. These authors selected a set of studies that had asked subjects to indicate the degree to which their feelings could be described using various mood terms, e.g., angry, sad, elated, etc. Included were studies by Thayer (1967), Hendrick and Lilly (1970), Borgatta (1961), Mcnair et al. (1971), Lebo and Nesselrode (1978), Russell and Ridgeway (1983), and Kotsch, Gerbing, and Schwartz (1982), and three analyses with which Watson and Tellegen were involved including the two reported by Zevon and Tellegen (1982) and the one reported by Watson, Clark, and Tellegen (1984). The chosen studies varied in terms of the nature of the rating and the time period to be rated.

Based on both qualitative and quantitative assessments of the data from these various studies, Watson and Tellegen concluded that the evidence strongly supports the existence of a basic two-dimensional structure of mood. This was most clearly suggested by the fact that principal components analysis of the data from studies producing more than two factors showed a sudden drop-off in variance accounted for by factors subsequent to the first two. Figure 2.2 shows the mood structure after the factor analyses. Determination of the major axes in the mood space depends upon the rotation that is applied. The axes indicated by the dotted lines represent one of the two alternatives. These same bipolar dimensions of pleasantness and arousal (termed ‘engagement’ by Watson and Tellegen) have been found in studies of facial expressions (e.g., Scholsberg, 1952; Abelson & Sermat, 1962) and analyses of vocal emotional expression (e.g., Dittman, 1972), judged similarity of mood words (e.g., Russell, 1980), and semantic differential
ratings of mood terms (e.g., Averill, 1975).

The above empirical evidence strongly suggests that mood is composed of two basic and independent dimensions, namely pleasure and arousal. Two major implications can be drawn from these findings. First, mood is characterized by two dominant dimensions, not one or three or many. It is unfortunate that in many otherwise excellent studies investigators continue to assess mood on a single "pleasant" vs. "unpleasant," or "positive" vs. "negative" dimension. Such measurement not only fails to collect valuable information, but also serves to misidentify the true pattern of relations. Second, as Figure 2.2 shows, superficially similar positive mood terms are not entirely interchangeable, and the same is true for negative terms; most importantly, many mood terms are mixtures of pleasure and arousal. One implication of this is that what has been called "positive mood" or "negative mood" may vary considerably from study to study. This creates difficulties in integrating and generalizing past studies.

2.3.2 Definitions of Arousal

Arousal historically has been defined in a number of ways, including:

(1) as the release of energy into various internal physiological systems in preparation for overt activity (Duffy, 1962);

(2) as some elevated states of bodily function, representing a nonspecific increment in physiological activity (Eysenck, 1976);

(3) as inner tension, activation, energization or alertness (Kroeber-Riel, 1979);

(4) as a diffuse and general state of cortical alertness following sensory stimulation or some internal thought process (Chaplin, 1981);

(5) as a state of wakefulness, general preparation, or excitement that facilitates the performance of well, learned responses (Greenwald & Leavitt, 1984).
The common thread in these definitions is the activation of the organism that accompanies arousal. While there has been no disagreement on the energizing function of arousal, arousal as such has been conceived of differently in the various theoretical approaches. In behavioral theory, arousal was synonymous with drive (e.g., Brown, 1961), and drive, as a universal energizer, was a hypothetical construct and an intervening variable (e.g., Hull, 1952). In activation theory, the study of arousal was focused on activities in the brainstem reticular formation; that is the cortical arousal. Cortical arousal is assumed to be the force for controlling sensory gating and response organization. In general, cortical arousal is characterized by brain waves and as measured in alpha wave blocking as recorded in the electroencephalogram (Rothschild et al., 1988). For recent theories of affect and emotion (Schachter, 1964; Izard, 1977; Zillmann, 1978), the examination of arousal focused on activity in the autonomic nervous system throughout the body, selecting a great many manifestations of excitatory processes for assessment. In general, autonomic arousal is measured in numerous peripheral manifestations. Commonly used indices are systolic and diastolic blood pressure, heart rate, vasoconstriction (usually measured in skin temperature decrease), and skin conductance.

2.3.3 Arousal: A Multidimensional Conceptualization

According to Watson and Gatchel (1979), arousal was first viewed by psychophysiologist as a "unidimensional continuum along which all behaviour could be categorized, the range of which extends from calmness and sleep to high levels of emotion and agitation." Berlyne (1960) maintains that the individual organism has a unidimensional "optimal influx or arousal potential," with the most pleasant level of stimulus occurring at an intermediate level of intensity. A
similar view was held by McClelland (McClelland et al., 1953) who posits that both increases and decreases in arousal are pleasurable when their magnitude is moderate, and both are aversive when it is extreme. Common to all these views is the assumption that either the level of arousal or a change in arousal can, by itself, determine the hedonic quality of a reaction. The usefulness of this approach is quite limited. It is the fact that moderate changes in excitation that occur at intermediated levels of arousal can as readily be associated with noxious as with pleasant experiences (Schatcher, 1964; Zillmann, 1978) that destroys the utility of the sole consideration of arousal levels and arousal changes. Moreover, substantial evidence exists that this relationship is much more complex than the unidimensional model. For instance, Krober-Riel (1979) maintains that an inverted "U" relationship between activation and information processing performance may be confined to "tonic" activation or a long-lasting form of activation ranging from sleep to intense arousal. Based on empirical evidence, he contends that the relationship between shorter term changes in excitement or phasic activation and performance does not follow an inverted "U" curve. Based on these findings, arousal does not appear to be unidimensional. A logical alternative would be a multidimensional form. Followings are two different conceptualizations about the multidimensional nature of arousal.

2.3.3.1 The Theory of Psychological Reversals

Reversal theory was originally proposed by Smith and Apter (1975). One of the major premises of this theory is the experience of arousal in relation to hedonic one. In this respect, reversal theory differs markedly from optimal arousal theory. All optimal arousal theorists appear to assume that there is only one arousal system and this system has a single optimal point
on the arousal dimension, this point being optimal in terms of both performance and hedonic
tone. Reversal theory, by contrast, argues that there are two systems, each with its own optimal
point. The idea can be made clear by reference to Figure 2.3, in which there are two
hypothetical curves relating arousal to hedonic tone instead of the single curve of optimal arousal
theory. Each of these curves relates to a different system, one of which may be thought of as
"arousal-avoiding" system and the other as an "arousal-seeking" system.

2.3.3.2 Thayer's Model of Arousal

Thayer's (1967, 1970, 1978) model of arousal/activation is composed of two groups of
two interrelated factors derived from the Thayer (1967) Activation-Deactivation Adjective
Checklist (AD-ACL):

(i) General Activation (energy), and high Activation (tension),

(ii) General Deactivation (calmness), and Deactivation - sleep (fatigue).

Thayer (1978) maintains that self-report measures of arousal have some important
advantages over physiological measures. Electrophysiological validity of the Thayer model has
been examined by Clements, Hafer, and Vermillion (1976). Thayer's model was purported to
be a more accurate reflection of total body arousal than individual physiological systems
measured separately by electromechanical instruments.

Thayer (1978) maintains that many problems with unidimensional activation or arousal
constructs could be clarified by understanding interrelationships between activation dimensions
of his model. For example, the possibility exists that experimental manipulations of cognition
assuming a one dimensional model of arousal, could be confounded by the effect on cognition.
mediated by another dimension. Addressing these problems will ultimately clarify both the multidimensional nature of arousal and its impact on cognition.

Alternative conceptualization of Thayer's arousal factors was offered by Russell (1979). Analyses suggest that Thayer's arousal factors may simply reflect different locations on the pleasure-displeasure continuum in combination with variations on a single arousal dimension. More specifically, both high activation and general activation contain the expected high degree of arousal. The difference between these two scales, however, was as much the amount of pleasure as it was the degree of arousal, with general activation (energy) involving pleasure and high activation (tension) involving displeasure. Similarly, deactivation - sleep (fatigue) and general deactivation (calmness) scales contained the expected low arousal, but again the two scales differed on pleasure, with general deactivation involving pleasure and deactivation-sleep involving displeasure. Figure 2.4 is a diagram depicting the relationship of these four types of activation. Interestingly, the two groups of two interrelated factors of activation derived by Thayer were reduced to the two basic dimensions of mood, namely; pleasure and arousal. This finding provides another indirect support to the basic structure of mood.

2.3.4 Arousal: A Missing Construct in Marketing

Arousal has long been considered a fundamental dimension of all affect (e.g., Mehrabian & Russell, 1974; Schachter and Singer, 1962), but its role with respect to moods has only recently created interest (Singh & Churchill, 1987; Singh & Hitchon, 1989). Examination of some current empirical studies on moods in marketing reveals that mood is defined most often as a unidimensional, bipolar phenomenon that ranges from positive to negative (e.g., Kuykendall
& Keating, 1990; Gardner & Hill, 1988; Lawson, 1985) or happy to sad (e.g., Goldberg & Gorn, 1987). Arousal, an important dimension of mood, is generally received limited attention in marketing studies. Several studies in social psychology, however, have established that mood induction is always accompanied by changes in arousal. Specifically, using such diverse measures of arousal such as heart rate, systolic blood pressure, adrenaline excretion in urine and palmar conductance, Mueller and Donnerstein (1981) and Patkai (1971) have provided evidence that success and free gifts are accompanied by elevations in arousal. Averill (1969) has shown that humorous movies elicit elevated arousal, and Schwartz et al. (1981) as well as Cialdini & Kenrick (1976) have shown that imagining happy or sad thoughts produces elevations in arousal.

However, most of the studies in marketing and consumer psychology have either not mentioned arousal (Lawson, 1985; Kuykendall & Keating, 1990) or have mentioned it just in passing (Bower, 1981; Clark & Isen, 1982; Goldberg & Gorn, 1987). Indeed, a number of researchers in psychology and marketing have shown concerns over this phenomenon with the following comments:

"Mood states may vary in terms of how much arousal they involve as well as in terms of whether they are pleasant or unpleasant" (Clark, 1982).

"Arousal, a powerful potential mediating variable, has been largely ignored by ad researchers" (Singh & Churchill, 1987).

"Focusing on either one (valence or arousal) alone runs the risk of confounding one dimension with the other" (Russell et al., 1989).

Mood has been manipulated in marketing with the following ways: having subjects think of the details of either a happy or sad life event (Srull, 1983; Lawson, 1985), having subjects exposed to positive or negative message (Gardner & Hill, 1988; Kuykendall & Keating, 1990),
and exposing subjects to happy and sad TV programs (Goldberg & Gorn, 1987; Kamins, Marks & Skinner, 1991). One can see, in this catalog of mood manipulations, only events that are hedonically relevant but of mild arousal level have been selected. Indeed, a leading scholar in studying mood has acknowledged that not all moods are mild:

"Feeling states can be produced not only by small things but also by major positive or negative events in our lives, and can be intense" (Isen, 1985, p.186).

Unfortunately, this realization has not manifested itself in research, possibly because of the ethical and moral issues involved in strong manipulations of mood, especially when they are negative. As a result, the above manipulations may limit the generalization of past results to the entire domain of mood states, especially to the highly arousing and nonarousing states.

A number of studies have shown that some of the unpredictable or controversial findings in studying affective processes can be resolved by including arousal. For example, a study on the effect of mood on judgement (Clark et al., 1983, Study III) shows that pleasure dimension alone has no significant effect on subjects' attitudes, but a positive feeling combined with increased arousal resulted in more favourable attitudes. Furthermore, a number of empirical studies employing the paradigm of excitation transfer have provided additional insights on the role of arousal in the judgement process (Zillmann, 1971; Zillmann et al., 1972; Zillmann & Bryant, 1974). It was found that the hedonic tone of mood was irrelevant in determining the direction of the evaluative bias. This finding appears to contradict results from experiments on mood effects which demonstrate mood-congruent biases, in that negative moods lead to more critical attitudes whereas positive moods lead to more favourable attitudes.

Arousal was also found important in mediating the effect of pleasure dimension on
memory. In a study with children, Bartlett, et al. (1982; study I) was not able to find the state-dependent effect when a relaxation technique was used prior to mood induction. On the other hand, Clark et al. (1983) found enhancement of state-dependency when subjects were highly aroused in addition to being in a particular mood and suggested that lack of arousal may have been a reason why Bartlett et al. failed to find the effect. Furthermore, a study conducted by Srull (1983) found that in arousing situations positive ads were better recalled by subjects in a negative mood, whereas negative ads were better recalled by subjects in a positive mood. These findings seem to contradict with the previous literature on mood-congruent effect on memory.

2.3.5 Summary

In summary, the early view that we could characterize individuals in terms of their locations on a single bipolar positive versus negative dimension now appears to be oversimplified or incorrect. Rather, the evidence seems to suggest that arousal is a basic dimension of mood and more studies on the role of arousal in the affective processes are helpful and essential in untangling the controversies in past studies. With the above discussion, arousal is incorporated as a basic and important dimension for mood in formulating the model and hypotheses in Chapter 3.

2.4 CONCLUSION

Based on the literature review of previous sections, past research on mood seems to suffer from the following fundamental limitations:

(1) Existing literature on mood has mainly focused either on the ability of ads to elicit
particular mood states or on the effects of mood on ad evaluations. However, the
dynamic and interactive relationship between consumer pre-processing mood states and
ad characteristics has long been neglected. Moreover, the existing mood accessibility
paradigm seems to be unable to provide a precise prediction for the interaction between
consumer pre-processing mood states and ad characteristics.

(2) Empirical evidence on psychology and marketing has strongly suggested that arousal, in
addition to pleasure, is a basic and important dimension of mood. However, it is
unfortunate that in most of the previous studies on mood in consumer behaviour
investigators usually defined and assessed mood only on a single bipolar positive versus
negative dimension. Such conceptualization not only failed to collect valuable
information, but also served to misidentify the true pattern of relations.

(3) Conceptual discussion and empirical evidence from communication, social psychology,
clinical psychology, environmental psychology, and marketing tend to suggest that a
mood management perspective seems to be an appropriate theoretical framework in
explaining how the change in mood states can influence subsequent ad evaluations.
However, few systematic research efforts have been found in marketing and consumer
studies.

With the above discussion, a conceptual model combining a framework of mood
disruption mechanism and mood management perspective is proposed in next chapter to predict
why, how, and when the interaction effect between ad characteristics and consumer mood states
will operate. This model differs from the previous research paradigms in the following aspects:

(1) Unlike previous conceptualization, mood is referred in this study as an affective state
containing two basic dimensions: arousal and pleasure.

(2) Mood disruption process (MDP) is conceptualized to explain the underlying psychological process in which the maintenance and/or rehearsal of an individual's mood-related cognitions is disrupted by the impact of an ad.

(3) A new construct, mood potency, is introduced to capture the characteristics of an ad in interacting with a consumer's pre-processing mood.

(4) A mood management perspective is proposed to explain why the change in mood can influence subsequent ad evaluations.

(5) To advance the existing knowledge on mood, this model not only includes a post-measure of mood after interaction but also specifies a number of conditions under which mood management activities are more likely to occur.
CHAPTER 3
MODEL AND HYPOTHESES

3.0 OVERVIEW

This chapter presents a conceptual model on how pre-processing mood, after interacting with a stimulus, affects subsequent stimulus evaluation and post-processing mood. More specifically, first, a mood-management perspective is proposed to explain how the change in mood states can influence subsequent ad evaluations. It is proposed that individuals are motivated to repair their bad moods and maintain their good moods. Therefore, individuals in bad moods will prefer ads that can diminish their moods to ads that can maintain their moods. On the other hand, a reverse pattern is expected when individuals are in good moods. Second, a new mechanism -- "mood disruption process" -- is conceptualized and introduced to explain the psychological process in which an ad interacts with a consumer's mood. The mechanism of the proposed interaction is discussed in some detail. The focus is on applying the model to an advertising context. Finally, by combining the mood-management perspective and mood disruption mechanism, a number of testable research hypotheses are proposed stating the main and interacting effects on a consumer's post-processing mood arousal and mood pleasure, as well as subsequent stimulus evaluations.

3.1 ASSUMPTIONS

Premise 1: Mood state has two basic dimensions, namely: pleasure and arousal.

In this study, mood is defined as an affective state of an individual containing two basic
dimensions: pleasure and arousal. Premise 1, indeed, is based on the empirical evidence provided by Russell (1980) as well as Watson and Tellegen (1985). They suggest two specific properties for affect. First, the dimensions descriptive of affect are bipolar. For instance, pleasure can be expressed as positive or negative; while arousal can be expressed as arousing (high arousal level) or nonarousing (low arousal level). The second property of affect is that any affective state can be defined as some combinations of the pleasure and arousal components. For instance, excitement is a type of mood that is high on the underlying dimensions of pleasure and arousal; while depression is another type of mood that is low on both pleasure and arousal dimensions. Figure 3.1 is a diagrammatic illustration of how the different mood states can be positioned as a combination of pleasure and arousal components.

Premise 2: Individuals are motivated to avoid aversive, bad mood states.
Premise 3: Individuals are motivated to seek gratifying, good mood states.

The above two premises are based on the arguments proposed by the Negative-State Relief Model (Cialdini et al., 1973), the Mood Maintenance Hypothesis (Clark and Isen, 1982), and the Thought Control Processes (Wegner, 1988). All these three theoretical perspectives posit that people in good moods attempt to think and/or behave in ways designed to "protect" their moods from an impending negative event whereas people in bad moods try to think and/or behave in ways designed to "repair" their moods.

Premises 2 and 3 seems to be inconsistent with some of our observations in daily life. For example, some people love to go to see sad movies and cry. The discrepancy between this phenomenon and the two premises may be resolved by the following two plausible reasons. First, people go to see movies not because they like to seek bad mood states rather they like to
enjoy the creative skills of actors and writers. Second, the temporary arousal of feelings, such as crying, may help viewers to relieve any inherent bad mood states.

3.2 DEDUCTION

Proposition 1: Individuals will engage in mood-management strategies with the expectation of diminishing bad mood states or maintaining good mood states.

According to the mood-management perspective, individuals should prefer a stimulus that has the desired impact on their current mood states, and dislike a stimulus that has the undesirable impact on their current mood states. Specifically, the following two major propositions can be stated:

Proposition 2: Individuals in bad moods would prefer stimuli diminishing their moods to stimuli maintaining their moods.

P2a: Individuals in bad moods would prefer stimuli diminishing their negative feelings to stimuli maintaining their negative feelings.

P2b: Individuals in bad moods would prefer stimuli diminishing their mood arousal levels to stimuli maintaining their mood arousal levels.

Proposition 3: Individuals in good moods would prefer stimuli maintaining their moods to stimuli diminishing their moods.

P3a: Individuals in good moods would prefer stimuli maintaining their positive feelings to stimuli diminishing their positive feelings.

P3b: Individuals in good moods would prefer stimuli maintaining their mood arousal levels to stimuli diminishing their mood arousal levels.

Recent studies in consumer behaviour has provided indirect evidence for the above propositions. In a study by Gardner and Hill (1988), subjects in positive moods were more likely to use an experiential strategy than those in negative mood, and subjects in negative moods
were more likely to use an informational strategy than those in positive moods. Interestingly, subjects in positive moods, who used an experiential strategy while making a purchase decision, had more positive post-processing moods than those who used an informational strategy; and subjects in negative moods, who used an informational strategy, had more positive post-processing moods than those who use an experiential strategy. This finding suggests that subjects may have been employing a mood-management strategy during decision making.

The mood-management approach provides insight into the relationship between changes in mood and stimulus evaluations. What is not clear is how a stimulus may interact with a consumer's pre-processing mood to produce a change in mood state. To examine and understand the above proposed interacting effect, a new mechanism -- "mood disruption process" -- is conceptualized and introduced in this study to explain the underlying psychological process.

3.3 CONCEPTUALIZING THE MOOD DISRUPTION PROCESS

In this study, mood disruption process is defined as

"a psychological process through which the maintenance and/or rehearsal of an individual's mood-related cognitions is disrupted by the impact of a stimulus."

Considered from the perspective of the cognitive theories (Bower, 1981; Isen, 1984), one could argue that mood is nothing more than a tendency to retrieve a skein of mood-related thoughts. The above premise is parallel to what has been proposed by Associative Network Theories (e.g., Anderson, 1976; Anderson and Bower, 1973; Collins and Quillian, 1969). According to these theories, thoughts can be represented as a network of "nodes" corresponding to concepts. Furthermore, thoughts or concepts are associated with each other in meaningful ways in memory. The network analogy holds that thoughts are interconnected and that some thoughts
are more closely linked than others. In addition, a concept or thought is said to enter consciousness when its "activation" exceeds a certain level, either by the presentation of the corresponding stimulus or by activation from associated concept(s). Activation spreads from one node to another along the links between nodes in the network, making this set of nodes available for use in subsequent decision process (Ratcliff and McKoon, 1988). For example, the concept bird may first activate associations to sparrow and later to pigeon or seagull; while the concept musical instrument may first activate associations to piano and later to violin and drum.

Recently, Bower (1981) and Isen (1984) have extended this line of theory from a model that includes only cognitions and relations among them to one that includes both cognitive and affective elements. With this model, thoughts can be associated by mood. For instance, sadness may trigger the thought life is unfair, which in turn may lead to the thought the future is dismal, and so on. In contrast, happiness may trigger the thought life is terrific, which in turn may lead to the thought the future is bright, and so on. These theories may suggest that the best way to disrupt oneself from the maintenance and/or rehearsal of emotional thoughts is to direct attention to the other thoughts that are "emotionally unrelated" to the individual. In addition, theories of affect control proposed by Clark and Isen (1982), Klinger (1982), as well as Wegner (1988) also suggest that people can control negative moods directly by wilfully changing the focus of their attention away from negative thoughts. Data gathered by Mischel, Essbsen, and Zeiss (1972) provided evidence for this argument. This study showed that children who were instructed to think about things which were fun were better able to tolerate a delay of gratification. Mischel and his coworkers interpreted their results to mean that the aversive experience of frustrative
nonreward encountered during the delay period can be assuaged by the distraction of thinking entertaining thoughts.

To apply the above perspective to an advertising context, the ameliorative impact of a subsequent ad may be the diversion of an individual’s attention from appraisal-specific cognitions in the case when the mood induced by prior event is unpleasant. More colloquially, in order for an individual to reduce his/her bad mood state and feel better, the ad must "take his/her mind off of his/her mood." In contrast, the desirable impact of the subsequent ad may be the maintenance of the individual’s attention on appraisal-specific cognition when the mood induced by prior event is pleasant. In this case, the good mood state will less likely be diminished. Therefore, In general, the more an ad can interrupt the maintenance and/or rehearsal of prior induced mood-related cognitions, the more complete will be the reduction or termination of pre-processing mood.

In summary, mood disruption is proposed to be a process which can occur as an ad interacts with an individual’s pre-processing mood, that is conceptually separate from the characteristics of the ad. With a change in pre-processing mood resulting from an exposure to an ad, the ad is said to have disrupted the maintenance and/or rehearsal of an individual’s mood-related cognitions. It is important to note that it is not necessary for the individual consciously to connect the effect with the ad or even to be aware of having been exposed to the ad. Certainly, conscious awareness does not preclude the mood disruption effect -- indeed, it may enhance it -- but there is ample evidence to suggest that considerable processing occurs below the level of conscious awareness (e.g., Hasher and Zacks, 1979; Lewicki, 1986).

A critical aspect of this approach is that mood disruption mechanism is not a
characteristic of an ad. Rather, it is the process through which an ad influences pre-processing mood which in turns affects subsequent ad evaluation. Thus, one does not set out to construct a mood disruption ad since, according to the above discussions, ad works by interacting with the pre-processing mood of an individual. Hence, one can use knowledge of the mood disruption process to develop measures of the major elements of an ad relating to the process and diagnose which aspects of the mood disruption process are functioning in that ad.

With the above discussions, it is postulated that through the process of mood disruption, an ad may act to reduce, maintain, or enhance the pre-processing mood of an individual. Moreover, the result of a mood disruption process is considered to be jointly determined by an individual's pre-processing mood as well as an ad's characteristics. The next section addresses the question of what types of advertisements or what characteristics of an advertisement would have an impact on an individual's mood state.

3.4 MOOD POTENCY OF AN AD: A NEW TYPOLOGY OF ADS

3.4.1 Conceptualizing The Mood Potency of An Ad

To capture the multidimensional nature of an ad's characteristics when interacting with a consumer's mood in the mood disruption process, a new typology of ads -- "mood potency of an ad" -- is defined and developed in this section. The mood potency of an ad is defined here as:

"the capacity of an ad to induce an affective state in an individual by activating his/her mood-related cognitions."

As a hypothetical construct, mood potency of an ad cannot be measured directly. A number of variables or indicators need to be developed to represent the multidimensional nature of an ad's
mood potency. These variables may be categorized into three related characteristics of an ad: hedonic tone, activation potential, and absorption potential. The listing of these characteristic variables is not meant to be exhaustive. In this initial formulation, only those variables that are most likely to play a significant part in interacting with an individual's pre-processing mood in the mood disruption process are focused and examined. In the following, the details of these variables are discussed and the mechanisms of their impacts on an individual's mood are indicated.

(a) Hedonic Tone of an Ad

In this study, hedonic tone of an ad is defined as "the capacity of an ad to elicit mood pleasure from a viewer/reader." Supportive evidence was found in an empirical study on affective response to an ad conducted by Holbrook and Batra (1987). In this study, both mood arousal and mood pleasure were found to be generated by ads. In general, ads which can elicit positive or negative feelings from viewers/readers are ads that are employing emotional appeal, fear appeal, soft-sell approach, etc..

According to the Associative Network Theories, an ad can have an impact on an individual's mood by activating his/her mood-related cognitions. For example, an ad with positive hedonic tone can induce a positive feeling to an individual by activating his/her positive mood-related cognitions; while an ad with negative hedonic tone can induce a negative feeling to an individual by activating his/her negative mood-related cognitions. Moreover, an ad with a higher level of hedonic tone can induce a more intense affective feeling to an individual than an ad with a lower level of hedonic tone by activating more mood-related cognitions. Therefore,
a highly positive or negative ad can have more impact on an individual’s mood than a mildly positive, a mildly negative, or a neutral ad.

(b) Activation Potential of An Ad

Other than hedonic tone, activation potential is another ad characteristic relating to the mood potency of an ad. Activation potential is defined here as "the capacity of an ad to elicit mood arousal from a viewer/reader." In fact, past studies have reported that some ads are more arousing than others (e.g., Holbrook and Batra, 1987). In general, ads which can elicit mood arousal from viewers/readers are ads that are creative, attention drawing, employing humorous appeal, novelty appeal, etc..

According to the Associative Network Theories, activation potential will intensify the hedonic tone of an ad by activating more mood-related cognitions in the mind of a viewer/reader. For example, an ad with positive hedonic tone will be considered to be more positive when it is accompanied with high activation potential than with low activation potential. It is because activation potential provides the required energy to elicit or activate more mood-related thoughts or cognitions. Therefore, it is postulated that the higher the level of an ad’s activation potential, the higher will be its impact on an individual’s mood.

(c) Absorption Potential of An Ad

Another characteristic of an ad relating to an ad’s mood potency is its absorption potential level. Absorption potential of an ad is defined here as "the capacity of an ad to attract the viewer’s attention and involve him/her cognitively." With this definition, two variables are
proposed to relate to an ad’s absorption potential. They include attention drawing and elaboration potency. The definitions of these variables are:

- **Attention Drawing**: the tendency of an ad to attract the attention of the viewers/readers.

- **Elaboration Potency**: the tendency of an ad to elicit the viewers/readers to generate thoughts or meanings related to the ad/product advertised.

According to Berlyne (1960) the attention-getting and thought-generating properties of stimuli can be divided into two classes: physical properties, which affect the intensity of the stimulus (e.g., brightness, colour, and size), and collative properties, which depend upon comparison or collation of stimulus elements (e.g., complexity, motion, unit formation, and novelty). A substantial amount of advertising research has attempted to identify physical properties of advertisements that attract the attention of customers. For example, ad size, size of illustration, area of copy, type sizes, number of colours, area of colour (i.e., bleed), number of illustration units, and number of copy units have all been found to be positively related to recognition (Diamond, 1968; Hanssens and Weitz, 1980; Twedt, 1952). Several studies have also noted the impact of collative properties of advertisements on the allocation of attention. For example, Holbrook and Lehmann (1980) observed that ads rated as "surprising, incongruous, or funny" were more likely to have been read.

In general, the more thoroughly a person is absorbed in an ad, the more likely he/she is immersed in ad-induced affective cognitions, provided the hedonic tone of the ad is not neutral in nature. It is because, according to the Associative Network Theories, any ad which can attract an individual’s attention, motivate the individual to process the ad, and elicit the individual to generate thoughts or meanings related to the ad or product advertised can help to
intensify the hedonic tone of an ad by activating more ad-related affective cognitions. Therefore, the higher the level of an ad’s absorption potential, the higher will be its impact on an individual’s mood.

Based on above discussions, the mood potency of an ad is considered to be a multidimensional construct. The level and nature of mood potency is seen to be a "joint function" of an ad’s hedonic tone, activation potential, and absorption potential. In general, the nature of mood potency is determined by the hedonic tone of an ad; while the level of mood potency is determined by the activation potential and absorption potential of an ad. With these three elements of an ad, a two-stage approach can be used to classify advertisements with respect to the three basic elements of an advertisement. An advertisement is first placed into one of the three general categories: positive mood potency, neutral mood potency, or negative mood potency; based on the hedonic tone of the advertisement. Then the advertisement can be labelled as high, moderate, or low level in that particular mood potency according to the level of activation potential and absorption potential. For example, an ad is considered to be a high positive mood potency ad if it has positive value on hedonic tone, and high values on activation potential and absorption potential. On the other hand, an ad is labelled as a high negative mood potency ad if it has negative value on hedonic tone, and high values on activation potential and absorption potential. Finally, an ad is classified as a low neutral mood potency ad if it has neutral value on hedonic tone, and low values on activation potential and absorption potential. In short, based on the three basic elements of an ad: hedonic tone, activation potential, and absorption potential; the level and nature of an ad’s mood potency can be easily and consistently classified (see Table 3.1).
3.4.2 How Mood Potency Typology Differs From Other Typologies

A number of classification schemes have been developed to identify various types of advertisements employed in advertising of consumer goods. The two most commonly employed typologies employed in advertising and/or marketing literature are (1) image/emotional/feeling vs. informational/rational/cognitive ads (see Golden and Johnson, 1983; Gardner, 1986), and (2) transformational vs. informational ads (see Puto and Wells, 1984).

Golden and Johnson (1983) defined "thinking" ads as ads appealing to the "rationality of the receiver" by making "objective appeals." "Feeling" ads were defined as ads creating a mood and appealing to the emotions by relying on music or drama. Gardner (1986) distinguished between "informational" ads using primarily thinking-oriented or fact-based appeals and "emotional" ads using primarily feeling-oriented or image-based appeals. With the above definitions, researchers can classify an ad into either image/emotional/feeling or informational/rational/cognitive category.

In developing a typology in classifying ads, Puto and Wells (1984) defined an "informational advertisement" as one which provides consumers with factual, relevant brand data in a clear and logical manner such that they have greater confidence in their ability to assess the merits of buying the brand after having seen the advertisement. A "transformational advertisement" is one which associates the experience of using (consuming) the advertised brand with unique set of psychological characteristics which would not typically be associated with the brand experience to the same degree without exposure to the advertisement. With this definition, Puto and Wells (1984) distinguished transformational ads from informational ads and proposed a 2x2 simple typology to classify ads into (1) high transformation/low information, (2)
According to Laskey, Day and Crask (1989), a good classification scheme, or typology, should meet at least three basic requirements. First, any typology should be mutually exclusive and exhaustive; all advertisements should be able to be categorized in one, but only one category. Second, the typology should capture meaningful differences between advertisements while remaining parsimonious. Finally, a typology should be operational; ads should be able to be consistently categorized according to the rule of classification. Other than these criteria, Hunt (1983) proposed an additional criterion for evaluating classification scheme. This criterion simply asks: "Does it adequately serve its intended purposes?" or "How theoretically fruitful is the scheme?"

Neither the Puto and Wells nor Golden and Johnson typologies meet all the classification criteria. For example, it is not clear that ads are exclusively feeling vs. informational. Vaughn (1983), among others, cautions that advertising must contain both rational and emotional elements in order to be effective. For Puto and Wells typology, it is obvious that the informational vs. transformational are exhaustive but not exclusive categories. Moreover, it seems that these two typologies are not useful for developing hypotheses stating the interaction between a consumer's mood and an ad's characteristics.

In comparison with these two commonly adopted typologies, the typology developed in this paper meets all the four basic criteria for a good typology. First, the mood potency typology is parsimonious. Only three categories -- positive mood potency, negative mood potency, and neutral mood potency -- are required to classify all possible available ads. Second,
the typology is operational. Based on the three basic elements of an ad: hedonic tone, activation potential, and absorption potential; any given advertisement can be consistently classified as a positive mood potency ad, a negative mood potency ad, or a neutral mood potency ad. In addition, it is worth noting at this point that these three types of ads are mutually exhaustive and exclusive categories of ads. Thus, any given advertisement can be unambiguously classified as a positive mood potency ad, a negative mood potency ad, or a neutral mood potency ad. Each of these categories is hypothesized to induce varying moods on an individual, and these effects are the basis for a series of theoretical hypotheses which are given and discussed in the next section.

Finally and most important, the mood potency typology is useful and theoretical fruitful in stating the interaction between a consumer's mood and an ad. With the three basic related elements of an ad, one can examine and predict how an ad can have significant impacts on the maintenance and/or rehearsal of mood-related cognitions of an individual in the mood disruption process. In the following, the interactions between a consumer's mood and the three related elements of an ad are discussed.

Based on our previous discussion, the hedonic tone of an ad is postulated to induce an affective feeling to an individual by activating mood-related cognitions. The mood disruption effect of an ad's hedonic tone on an individual's pre-processing mood depends on the mood congruence between an ad and an individual. Four possible situations can be considered to illustrate the degree of mood pleasure congruence or consistency between the mood pleasure elicited by the ad and the individual's mood pleasure (see Table 3.2). Mood congruence (e.g., case I and case IV) occurs when an individual in positive (negative) mood is exposed to an ad.
which elicits positive (negative) feelings, while mood incongruence (e.g., case II and case III) is said to exist when an individual in positive (negative) mood is exposed to an ad which elicits negative (positive) feelings. With mood disruption mechanism, it is postulated that in mood-incongruence situations, an ad is likely to impair or disrupt the rehearsal of mood-related cognitions and thus reduce the prior mood states. On the other hand, in mood-congruence situations, a mood-related ad is expected to perpetuate or maintain the rehearsal of prior mood because it revives affect-maintaining cognitions. Such process is due to the fact that related affective states share associative networks (Isen, 1984). In fact, the impact of messages with hedonic tone on an individual’s pre-processing mood during reception have been explored in past studies on communication. Findings show that for persons in an acutely unpleasant mood state, exposure to material that triggers a pleasant mood state appears to cut into the initial unpleasant mood state, reducing its pleasure intensity. Day (1980), for example, demonstrated that exposure to pleasant music is capable of reducing unpleasant mood. Paralleling Day’s findings, Baron (1974) reported an experiment in which exposure to pleasant but nonarousing erotic materials could accomplish alleviation from unpleasant mood states.

Other than hedonic tone, the activation potential is another element of an ad involved in the mood disruption process. It is because activation potential can intensify the hedonic tone of an ad by activating more mood-related cognitions which can impair or disrupt the maintenance/rehearsal of prior affective experience, provided the ad is not congruent with the mood state of an individual.

Another characteristic of an ad involving in the mood disruption process is the ad’s absorption potential level. According to the Associative Network Theories, it is assumed that
any ad which can attract an individual’s attention, motivate the individual to process the ad, and elicit the individual to generate thoughts or meanings related to the ad or product advertised can disrupt the mood rehearsal process of an individual. It is because the more thoroughly a person with mood is immersed in ad-induced cognitions which is opposite or unrelated to his mood, the more effectively his/her attention should be turned away from the rehearsal of mood-related cognitions and the more complete his/her mood should diminish. The magnitude of mood-reduction, therefore, is considered to be directly proportional to the capacity of the ad to affect attentional shifts, provided the ad is not congruent with the mood state of the individual.

Since the impact of an ad’s mood potency on an individual’s mood is jointly determined by the combined influences of hedonic tone, activation potential, and absorption potential; it is expected that different combinations of these three elements may have differential impact on an individual’s mood. According to the mood disruption mechanism, it is postulated that an ad with negative hedonic tone, high activation potential, and high absorption potential (i.e., high negative mood potency ad) would have the highest ability in disrupting the maintenance and/or rehearsal of positive mood-related cognitions than any other combinations (e.g., moderate negative mood potency, low negative mood potency, low positive mood potency, moderate positive mood potency, or high positive mood potency). It is because a high negative mood potency ad would activate more negative mood-related cognitions than any other combinations of ad elements. With the same rationale, it is expected that a high positive mood potency ad (an ad with positive hedonic tone, high activation potential, and high absorption potential) would have the highest ability in disrupting the maintenance and/or rehearsal of negative mood-related cognitions than any other combinations (e.g., moderate positive mood potency, low positive mood potency, low
negative mood potency, moderate negative mood potency, or high negative mood potency). In short, the above discussions can be summarized with the following two propositions:

Proposition 4: An ad with negative hedonic tone, high activation potential, and high absorption potential has the highest ability in disrupting the maintenance and/or rehearsal of positive mood than any other combinations.

Proposition 5: An ad with positive hedonic tone, high activation potential, and high absorption potential has the highest ability in disrupting the maintenance and/or rehearsal of negative mood than any other combinations.

The mood potency typology developed in this section also has advantages over the traditional positive vs. negative ad typology (e.g., Gardner and Wilhelm, 1987; Srull, 1983). In general, a positive ad is usually defined as an ad containing positive information or message; while a negative ad is defined as an ad containing negative information or message. This definition suffers from two major limitations. First, as suggested by Gardner (1985), ads designed to create a particular mood state contain two basic elements: cognitive mood inducers, such as positive or negative statements (information) and noncognitive mood inducers, such as music, colour, or voice. The above definitions for positive and negative ads seem to be appropriate in classifying ads with positive or negative cognitive information, but not sufficient in classifying ads with only noncognitive mood inducing elements; such as colour and music. Second, as suggested by the previous discussion in this paper, mood is considered to be made up of two basic dimensions: mood arousal and mood pleasure. The classification of ads into either positive or negative ads is likely to miss the arousal dimension of an ad. In contrast to the positive vs. negative ad typology, the mood potency typology not only specifies the characteristics of an ad related to the mood potency of an ad; but also specifies the process in which how an ad can induce a feeling to an individual. Viewed from this perspective, ads are
considered to be affective only to the extent that they can elicit mood-related cognitions. Moreover, this process-oriented definition is helpful in understanding the interaction between an ad’s characteristics and a consumer’s mood which is the major focus of the next section.

3.4.3 Summary

A number of classifications have been developed to aid researchers and practitioners in identifying various types of ads. The two most commonly used typologies in advertising and marketing are informational/transformational and feeling/thinking ads. However, none of these two existing typologies seemed to sufficiently meet the evaluative criteria for a good classification system. Therefore, there is a need for a different and more theoretical useful typology for categorizing ads -- at least for the present research purpose. In this study, a new concept of ads -- mood potency -- is proposed and developed to capture the multidimensional nature of an ad when interacting with a consumer’s mood in the mood disruption process. With a two-stage classification process, the nature and level of an ad’s mood potency can be determined according to its hedonic tone, activation potential, and absorption potential. This classification of ads is found to be theoretical helpful in formulating hypotheses on the interacting effects between an individual’s mood and an ad’s characteristics.

3.5 RESEARCH HYPOTHESES

This study is designed to answer the following three interrelated research questions: (1) How does a consumer’s mood state interact with an ad’s characteristics? (2) What is the effect of this interaction on ad evaluation as well as changes in mood arousal and mood pleasure? and
(3) When and under what conditions will the above effect on ad evaluation be more pronounced or more likely to occur?

The three independent variables in this study are pre-processing mood pleasure, pre-processing mood arousal, and mood potency of an advertisement. In accordance with our previous discussion, mood is defined as an affective state of an individual containing two basic dimensions: mood pleasure and mood arousal. Mood pleasure can be expressed as positive or negative; while mood arousal can be expressed as arousing (high arousal level) or nonarousing (low arousal level).

Mood potency of an advertisement is defined as the capacity of an ad to induce an affective state in an individual by activating his/her mood-related cognitions. In this study, both the effects of a positive mood potency ad and a negative mood potency ad will be examined.

The three dependent variables of this study are ad evaluation, change in mood arousal, and change in mood pleasure. Ad evaluation is defined as the overall evaluation of an ad. Change in pleasure (arousal) is defined as the difference between pre-processing mood pleasure (arousal) and post-processing mood pleasure (arousal).

Following the logic of the model assumptions and the above arguments, a number of research hypotheses are derived to answer the above research questions.

3.5.1 The Attitudinal Effect of Ad Type

According to the prediction of mood-management perspective, subjects in bad moods will engage in mood diminishing strategy. With this strategy, they will prefer ads which can diminish their mood states to ads which can maintain their current mood states. With respect
to an ad's characteristics, they would prefer a positive mood potency ad to a negative mood potency ad. It is because a positive mood potency ad has a higher ability to disrupt the maintenance and/or rehearsal of negative and aversive mood-related cognitions than a negative mood potency ad. On the other hand, subjects in good moods will be more likely than those in bad moods to employ mood maintaining strategy. With this strategy, they would prefer ads which can maintain their current mood states to ads which can disrupt their mood states. Thus, negative mood potency ads, because of its high ability in disrupting the maintenance/rehearsal of positive mood-related cognitions, are less preferred to positive mood potency ads by subjects in good pre-processing mood states. In summary, positive mood potency ads are preferred to negative mood potency ads by subjects both in good and bad moods for different reasons. For example, individuals in good moods prefer a positive mood potency ad because it can help to maintain good mood states. On the other hand, individuals in bad moods prefer a positive mood potency ad because it can help to diminish bad mood states. With the above discussions, the main attitudinal effects of an ad's mood potency can be hypothesized as:

\[ H_1: \text{There exists a main effect of mood potency on ad evaluation.} \]

\[ H_{1a}: \text{The evaluation is less favourable for a negative mood potency ad than for a positive mood potency ad.} \]

3.5.1.1 Mood Management Model Vs. Mood Accessibility Model Vs. Mood Consistency Model

The above hypotheses are different from the predictions of existing research paradigms in the mood literature. For example, with the mood accessibility model (e.g., Bower, Gilligan, and Monteiro, 1981; Teasdale and Forgerty, 1979), stimulus is expected to have a more favourable evaluation after positive moods than after negative moods. This model predicts a
main effect of mood on attitude change, that is independent of the characteristics of the presented
stimulus. With this model, there should be no difference in ad evaluation between a positive
mood potency ad and a negative mood potency ad after the same mood. In contrast, the model
in this study postulates that the evaluation of a stimulus is determined not only by the mood state
of a subject but also by the characteristics of a stimulus -- an ad -- in this case.

Furthermore, the prediction of Hypothesis 1 is different from the expectation of the mood
consistency approach (see Gardner and Wilhelm, 1987; Kamins et al., 1991). According to this
approach, subjects may feel uncomfortable with ads that are incongruent with their pre-existing
feelings, and prefer advertisements which are congruent with their pre-existing mood states.
Mood states and ads may be considered congruent if they involve or induce the same types of
feelings. With the mood consistency approach, researchers may hypothesize that when subjects
are in positive mood states, they are expected to prefer positive mood potency ads to negative
mood potency ads. On the other hand, when they are in negative mood states, they are expected
to prefer negative mood potency ads to positive mood potency ads. Simply stated, there exists
an interaction effect between mood and the hedonic tone of an ad. A comparison of ad
evaluation predictions between Hypothesis 1 and the other existing research paradigms in mood
literature is illustrated in Table 3.3.

3.5.2 The Interaction Between Pre-processing Mood States and An ad’s Mood Potency

According to the mood disruption mechanism, subjects in bad pre-processing mood states
would experience a greater change or a greater improvement in pre-processing mood after an
exposure to a positive mood potency ad than after an exposure of a negative mood potency ad.
It is because an ad with positive mood potency is likely to induce a positive feeling which will impair the maintenance/rehearsal of prior negative mood-related cognitions. On the other hand, an ad with negative mood potency is expected to perpetuate the maintenance/rehearsal of prior negative mood-related cognitions because it helps to revive affect-maintaining cognitions. Such process is due to the fact that related affective states share associative networks. In contrast, subjects in good pre-processing mood states are expected to experience a smaller change or a smaller deteriorating in pre-processing mood after an exposure of a positive mood potency ad than after an exposure of a negative mood potency ad. It is because an ad with negative mood potency has high ability in disrupting the maintenance/rehearsal of positive mood-related cognitions than an ad with positive mood potency.

With the above rationale, hypotheses can be formulated to state the interaction effects between a consumer’s mood and an ad’s characteristics on change in mood pleasure and change in mood arousal. For change in mood pleasure, the hypotheses can be stated as:

\[ \text{H2: These exists an interaction effect between a consumer’s mood pleasure and an ad’s characteristics on change in mood pleasure.} \]

\[ \text{H2a: When subjects are in a negative pre-processing mood state, they will experience a greater change in mood pleasure after an exposure to a positive mood potency ad than to a negative mood potency ad.} \]

\[ \text{H2b: When subjects are in a positive pre-processing mood state, they will experience a greater change in mood pleasure after an exposure to a negative mood potency ad than to a positive mood potency ad.} \]

Likewise, the interaction effect on change in mood arousal can be stated as:

\[ \text{H3: These exists an interaction effect between a consumer’s mood pleasure and an ad’s characteristics on change in mood arousal.} \]

\[ \text{H3a: When subjects are in a negative pre-processing mood state, they will experience a} \]
greater change in mood arousal after an exposure to a positive mood potency ad than to a negative mood potency ad.

H3b: When subjects are in a positive pre-processing mood state, they will experience a greater change in mood arousal after an exposure to a negative mood potency ad than to a positive mood potency ad.

Indeed, one of the common criticisms on past empirical studies with the mood-management perspective is the failure of including a post-measure of mood. Therefore, the changes in mood pleasure and arousal as suggested by H2 and H3 provide a further empirical support for mood-management explanation.

3.5.3 Conditions when the Attitudinal Effect is more Pronounced

By integrating a framework of mood disruption mechanism and mood management perspective, the previous section proposes three research hypotheses to explain why and how the interaction effect between ad characteristics and consumer states will operate. To advance the existing knowledge on mood, this section specifies when or a number of conditions under which mood management activities are more likely to occur.

3.5.3.1 Positive Vs. Negative Pre-processing Mood

Research has shown that the effects of positive feeling states are quite simple and relatively direct, while the influence of negative feeling states is more complex and harder to predict. In fact, as suggested by past studies, asymmetric effects on memory, evaluation and choice have been found between positive and negative mood states (e.g., Bower, 1981; Bower et al., 1981). A number of explanations have been proposed to explain this asymmetric effect.
Ellsworth and Smith (1988a), for example, argued that negative moods are more differentiated because of the need for greater flexibility in responding adequately in negative moods. That is, the risks of responding inappropriately to negative events are greater than the risks of responding inappropriate to positive events. In short, one does not need to "cope" with good fortune.

Similar to this interpretation, Isen (1987) argued that positive affect is very common. Although we probably could not live without positive affect, it does not seem as urgent as negative affect. Negative affect is rarer, perhaps because we try to keep it away. This may also be the reason that, when it does occur, something has to be done about it. In contrast, nothing needs to be done about positive affect, or so it seems. Based on this discussion, she postulated that individuals are more likely to engage in mood management or controlled process as when they are in negative mood states than when they are in positive mood states.

With the above rationale, it appears that the maintenance of positive mood states may be considered as less compelling or less important as compared to the relief of negative mood states. Thus, it is expected that mood management and self-regulating activities are more likely to occur when subjects are in negative mood situations. The above effects on ad evaluation (H1) are more pronounced and more likely to occur when the subjects are in negative mood states than when they are in positive mood states. Thus the next hypothesis is stated as:

H4: There exists an interaction effect between pre-processing mood pleasure and mood potency of an ad on ad evaluation.

H4a: The difference in ad evaluation associated with the mood potency of an ad is greater when subjects are in negative pre-processing mood states than when they are in positive pre-processing mood states.
3.5.3.2 High Arousal Level Vs. Low Arousal Level

The fact that controlled processes require "effort" or "motivation" has implications for the circumstances under which they will be used most effectively. For example, one might expect the effects of controlled processes to be less apparently at time of weakness and, as Hasher and Zacks (1979) have suggested, in childhood, old age, and time of fatigue. Level of arousal is expected to be another variable that may influence individual’s efforts or motivation to engage in controlled processes. As the concept implies, arousal is the inner tension, activation, energization or alertness (Kroeber-Riel, 1979). If a person is in a very unaroused state, he/she has very low motivation to behave in a manner to change his/her present state. On the other hand, if a person finds himself or herself in a very aroused state, that person may have high motivation or energy to behave in a manner aimed at alleviating that arousal if he/she is in an unpleasant state or maintaining that arousal if he/she is in a pleasant state. It is expected that under high arousal level, individuals have higher motivation or tension to maintain their good mood or to repair their bad mood. Thus, above effects on ad evaluation (H1) are more pronounced and more likely to occur when subjects are at a high arousal level than when they are at a low arousal level. The hypothesis stating the moderating effect of mood arousal level can be formulated as:

H5: There exists an interaction effect between pre-processing mood arousal and mood potency of an ad on ad evaluation.

H5a: The difference in ad evaluation associated with the mood potency of an ad is greater when subjects are at a high arousal level than when they are at a low arousal level.
3.6 SUMMARY

In this chapter, a model was presented to establish a new way of examining the interaction between a consumer’s pre-processing mood state and an ad’s mood potency. Mood disruption and mood management mechanisms were combined to explain the underlying psychological process involved. In addition, several hypotheses were generated to predict both the main and interaction effects of pre-processing mood states and ad type on ad evaluation and changes in mood states. Before these hypotheses can be tested empirically, the construct -- mood potency of an ad -- has to be clearly defined and operationalized. It is the main objective of the next chapter to develop reliable and valid measurement scales to assess this construct.
CHAPTER 4
THE DEVELOPMENT OF MEASUREMENT SCALES FOR
THE MOOD POTENCY OF ADVERTISEMENTS

4.0 OVERVIEW

The objective of this section is to develop a reliable and valid instrument to measure the mood potency of an ad. Development of the present instrument began with item generation. With literature review, dictionary search and expert interview, a large pool of items was generated to measure the dimensions of mood potency. Then the items were evaluated for content validity using judging procedures, resulting in a reduced set of items. A questionnaire containing the items was administered to 175 student subjects to assess the dimensionality and reliability of the present measures of mood potency. Next, a series of analyses were conducted to provide additional evidence regarding the convergent and discriminant validities of the scales. To examine the test-retest reliabilities of the scales, measurement items remaining were administered to another sample of 28 students twice within five weeks. Then, the concurrent and predictive validity of these scales was assessed by an additional study with another 133 students. This study resulted in the final form and content of the present scale. A summary of the instrument development procedure is illustrated in Table 4.1.

4.1 ITEM GENERATION

As discussed in Chapter 3, mood potency is a multidimensional construct and can be represented by the three inherent characteristics of an ad: hedonic tone, activation potential and absorption potential. Following Churchill’s (1979) suggestions, once the facets are identified,
a pool of items will be generated for each facet. Sources of these items are threefold, literature review, dictionary search and in-depth interviews with a number of experts in consumer behaviour. Each facet of mood potency would be measured by a multi-item scale. Altogether 52 items were generated and they are listed in Table 4.2.

4.2 CONTENT VALIDITY

Following the item generation step, ambiguous items and statements with essentially identical meaning were eliminated. Faculty and Ph.D. students from the marketing and psychology departments at The University of British Columbia were used as judges in an evaluation of the content validity of the items. In this analysis, the five judges were exposed to the definition of each dimension plus a related explanation and asked to allocate the statements to each dimension or to a "not applicable" category. Items that did not receive consistent classification by at least four of the five judges were eliminated. This initial analysis resulted in 42 statements for the three dimensions of mood potency.

Next, and similar to the procedure used by Zaichkowsky (1985), three additional judges were given each construct's definition and asked to rate each statement on the following scale: 1 -- clearly representative of the construct, 2 -- somewhat representative of the construct, and 3 -- not representative of the construct. For the three dimensions, only items evaluated as clearly representative by two judges and at least somewhat representative by a third judge were retained for further analysis. This process resulted in 30 items for further analysis.
4.3 INTERNAL SCALE RELIABILITY

The next task was to administer the remaining 30 items as scales over different advertisements to measure the internal consistency or inter-item correlation of various constructs of mood potency. After a pretest of twelve ads, three ads were selected to examine the reliability of the scales. One hundred and seventy-five business students completed the scales during the class time.

4.3.1. Pretest: Selection of Ads

In order to select appropriate advertisements for scale development, about 300 print advertisements were reviewed first and 12 were selected by subjective judgement. These twelve ads were considered to differ on the relevant dimensions of mood potency. Then 25 students were asked to evaluate each of these 12 ads with respect to five seven-point scale items measuring the three dimensions of mood potency (see Appendix 1 for the questionnaire). The results of this pretest are listed in Table 4.3 and Table 4.4.

A number of interesting findings can be observed from these two Tables. First, different ads have different values in hedonic tone, activation potential, and absorption potential; indicating that these three dimensions are some of the possible inherent characteristics of an ad. Second, the three dimensions of mood potency are not independent but moderately interrelated. The coefficients of correlation between these dimensions range from .308 to .571, and all are statistically significant at .01 level. Third, ad attitude and ad affect are, in fact, two distinct concepts. As revealed in past literature, there exists a good deal of semantic confusion between attitude and affect. Affect is usually viewed either as a component of attitude or as synonymous.
with attitude (discussions see Batra & Ray, 1983; Cohen, 1990). If this conceptualization is valid, ad attitude should be either equal to ad affect or directly related to ad affect. However, Table 4.4 indicates that the "Drunk Driving" ad has low value in hedonic tone (HT = 1.5) but high value in ad evaluation (E = 5.2); while the "Club Med (I)" has high values in both hedonic tone and ad evaluation (HT = 6.0, E = 5.9). Furthermore, the correlation between attitude and hedonic tone for the overall sample is only .184. With these findings, the relationship between affective responses to an ad and ad evaluation seems to be more complex than expected. Further studies are needed to clarify this relationship.

To keep the number of ads in a manageable size for the scale development procedure, three ads (Seagrams, Drunk Driving, and Club Med(I)) varying in the three dimensions of mood potency were selected for further scale development. As revealed in Table 4.3, "Drunk Driving" is the ad that has a low value in hedonic tone (HT = 1.5), but medium values in both activation potential (ACP = 3.4) and absorption potential (AP = 4.7). On the other hand, "Club Med (I)" is an ad which has high values in all three dimensions (AP = 5.3, HT = 6.0, and ACP = 5.2), while "Seagrams" is an ad which has medium values in absorption potential (AP = 4.7), hedonic tone (HT = 4.1), and activation potential (ACP = 3.5). More specifically, "Drunk Driving" represents the high negative mood potency ad, "Club Med (I)" represents the high positive mood potency ad, and "Seagram" represents the neutral mood potency ad. The heterogeneity of these three ads can help to create maximum measurable variances in the three dimensions of mood potency for scale development.
4.3.2. Item-To-Total Correlation

The subjects used in this section were 175 undergraduate business students. The subjects were tested in seven groups in a classroom setting. For each group the slides of the three ads were projected on a large screen, and the subjects were told that the purpose of the study was "to understand what thoughts and feelings people naturally have when they see ads." Each ad was shown once. Immediately after seeing an ad, subjects reported their prior exposures to it on a two-point scale (never, at least once) and their attitudes towards the ad on four seven-point scale items (good-bad, favourable-unfavourable, effective-ineffective, interesting-uninteresting). These measures were followed by the 30 bipolar mood potency scale items for which the subjects either indicated their degree of agreement on 18 seven-point scale items anchored by "strongly agree" and "strongly disagree" for the absorption potential construct or expressed their feelings towards 12 seven-point bipolar scale items for the hedonic tone and activation potential constructs. (See Appendix 2 for the questionnaire). This process was repeated for each of the 3 ads. The order of presentation of the ads was randomized for different groups.

For analysis, these 175 subjects were randomly split into two groups. The first group (sample 1 or analysis sample), with 87 subjects was used to develop the mood potency scale. The remaining 88 subjects (sample 2 or hold-out sample) were used for cross-validation. To obtain a practical size of scale, the correlations of each item with the total score for each of the three dimensions of mood potency were computed with the analysis sample. Items were deleted when they did not have statistically significant correlation (e.g., $r^2 > .3$) with the dimension to which they were hypothesized to belong in. With this process, the number of items was reduced from 30 to 26. The item-to-total coefficient of correlation are given in Table 4.5, and they are
generally at a satisfactory level.

Initial Cronbach's coefficient alpha (Nunnally, 1978) is also reported for each scale in Table 4.5. These reliability coefficients were computed separately for each ad and the ranges on these coefficients across ads are quite narrow indicating that the scales exhibit a very satisfactory degree of reliability. The 26 items for the three scales of mood potency are listed in Table 4.6.

4.3.3 Reliability and Confirmatory Factor Analysis

The reliability and structure of the remaining 26 items then were further examined using confirmatory factor analyses and construct reliability coefficients. A confirmatory factor analysis was used to verify the three-factor structure of mood potency. The concept of confirmatory factor analysis is as follows: Given a set of observable response variables (the 26 items for hedonic tone, activation potential, and absorption potential), this process attempts to match a collected observable data set to a covariance structure as specified by a theoretical framework. Using the procedure suggested by Joreskog and Sorbom (1984), the confirmatory factor-analysis model was defined as follows:

\[
x = \Lambda \xi + \delta
\]  

(1)

where:
- \( x \) is a (26x1) column vector of observed variables (the 26 items for the mood potency scale)
- \( \Lambda \) is a (26x3) column pattern coefficient matrix of \( x \) on \( \xi \)
- \( \xi \) is a (3x1) column vector of dimensions (hedonic tone, activation potential, and absorption potential) derived from the observed variables (x)
- \( \delta \) is a (26x1) column vector of errors of measurement of \( x \)

The confirmatory factor analysis model for the 26 mood potency items is presented in Figure
4.1. Table 4.7 presents the correlation matrix of the 26 items for the analysis-sample data set. In general, a test of the overall goodness of fit between the proposed model and the sample variance-covariance matrix is provided by three common measures: Chi-square measure, Goodness-of-fit Index (GFI), and Root Mean Square Residual (RMSR).

The chi-square statistic provides a test of closeness of $\Sigma$ (the model's covariance matrix) and $S$ (the sample covariance matrix). The null hypothesis ($H_0$) is that $S$ corresponds to $\Sigma$ and that the alternative hypothesis ($H_1$) is that $S$ does not correspond to $\Sigma$. The null hypothesis ($S = \Sigma$) is rejected if the calculated chi-square value for the data is greater than the critical value for the chi-square value at a selected significant level. In other word, large chi-square values correspond to a bad fit and small values to a good fit. This test reverses the traditional role of hypothesis in statistical theory. That is, if the null hypothesis is rejected, then research hypothesis is also rejected. Therefore, the larger the value of $p$, the better is the fitness of the model. In general, $p$ values greater than or equal to about .1 provide adequate fit.

The use of chi-square measure involves at least three major problems. First, the chi-square measure is a valid test statistic only if all the observed variables have a multivariate normal distribution (Joreskog and Sorbom, 1984). Second, the chi-square measure is very sensitive to sample size $n$. With large $n$, chi-square will almost certainly be significant, even though the fit is quite good (Bentler, 1980). Third, the power of the chi-square measure is unknown (Bielby and Hauser, 1977). The implication of low power in traditional hypothesis testing is that one's model may be rejected when it is correct. The implication in structural equation modelling is more serious: one's model may find support when it is incorrect (Fornell, 1983). Although the chi-square measure provides useful information about the overall fitness
of the proposed model, the above problems suggest that it should not be used as the sole measure for overall assessment. Rather, it should be supplemented with other measures, such as goodness-of-fit index or root mean square residual.

Goodness-of-fit Index (GFI) is a measure of the relative amount of variances and covariances jointly accounted for by the model. Its values range from zero to one. Unlike chi-square, this measure is independent of the sample size and relatively robust against departures from normality. In general, the higher the value of GFI, the better is the fitness of the model.

The Root Mean Square Residual (RMSR) index is a measure of the average residual variances and covariances. Basically, a predicted correlation matrix is calculated using the estimated parameter values and the constrained values as bases. The computer compares this predicted matrix to the observed correlation matrix using the empirical data as bases. The difference between these two matrices is a called a residual matrix. The principle to use RMSR is: the smaller the residuals, the better the fit; the larger the residuals, the poorer the fit. In general, this measure as well as the GFI, are usually used to compare the fitness of two different models for the same data.

To assess the reliabilities of the three scales of mood potency, construct reliability has to be calculated for each construct (Fornell & Larcker, 1981; Werts, Linn, and Joreskog, 1974). Construct reliability assesses the internal consistency of a measure, is analogous to that of coefficient alpha, and is calculated as follows (Fornell & Larcker, 1981, p.45):

\[
\text{Construct Reliability} = \frac{\left( \sum_{i=1}^{n} \lambda_{y_i} \right)^2}{\left( \sum_{i=1}^{n} \lambda_{y_i} \right)^2 + \sum_{i=1}^{n} \text{Var}(e_i)}
\]  

(2)
The numerator for calculating construct reliability is equal to the square of the sum of the standardized factor loadings, which are represented by $\lambda_i$ in Equation 2. The denominator of Equation 2 is equal to the square of the sum of the standardized factor loadings plus the sum of the variance due to random measurement error for each loading (1 minus the square of each loading), which is represented by $\epsilon_i$. With this formula, one obtains a measure of scale reliability.

With the LISREL methodology (Joreskog and Sorbom, 1984), the chi-square statistic was nonsignificant for the 26-item model, indicating an inadequate fit of the confirmatory model to the data (chi-square = 1,044.4, d.f. = 296, p < .001). The goodness-of-fit index (GFI) and root mean square residue (RMSR) was .736 and .120 for the model respectively. Moreover, the analysis result revealed that eight items in the measurement model have low item reliabilities ($\lambda < .4$). These items were then deleted, leaving 4 items for hedonic tone, 3 items for activation potential, and 11 items for absorption potential.

A second confirmatory factor analysis was performed on the remaining 18 items (see Figure 4.2). This model produced a chi-square value of 365.66 with 132 degrees of freedom. Moreover, the analysis result revealed that all the eighteen items in the measurement model have high item reliabilities ($\lambda > .4$). The estimates of construct reliability based upon the LIRSEL results were .953, .878, and .951 for hedonic tone, activation potential, and absorption potential respectively. Though no hard and fast rules have been offered for evaluating the magnitude of reliability coefficients, Nunnally (1978) suggested some useful guidelines. In exploratory research, modest reliability in the range of 0.5 to 0.6 will suffice. For basic research, it is argued that a reliability beyond 0.7 is necessary. In applied settings, a reliability of 0.9 is the
minimum. The high reliability values of the three measurement scales for mood potency suggest that all three scales have achieved a very satisfactory level of reliability. The 18 items for the three scales of mood potency are listed in Table 4.8.

4.4 CONVERGENT VALIDITY

Convergent validity refers to the degree of agreement in two or more measures of the same construct. Traditionally, it has been assessed by the magnitudes of the correlations among these measures -- that is, by the "validity diagonal" in the multitrait-multimethod (MTMM) matrix developed by Campbell & Fiske (1959). More recently, however, convergent validity has been assessed by using confirmatory factor analytic methods to gauge the fit of the proposed measurement model to the covariance or correlation data at hand (Bagozzi and Phillips, 1982).

With LISREL VI (Joreskog & Sorbom, 1984), the 18-item model (M-1) testing the convergent validity of the measures produces a chi-square value of 365.66 with 132 degrees of freedom. The probability level of this chi-square value (p < .01) indicates that the goodness-of-fit of the model is below the common 0.1 acceptable level.

To improve the fitness of the model, constraints on some model parameters in M-1 have to be removed. A review of the modification indices obtained from the LISREL analysis on M-1 suggests that a correlation may exist between the errors terms of the indicators. The possibility of pairs of correlated errors provides an alternative explanation to why M-1 does not produce a good fit. Conceptually speaking a correlation between error terms is deemed possible since those data were all collected via seven-point scales on the same questionnaire. A correlated error term can be used to account for the common/shared method variances. This argument is
confirmed when some of the parameters (δ's) representing the correlation between error terms are set free in another LISREL analysis. The respecified model (M-2) gives a chi-square of 124.52 with 117 degree of freedom (p = .3) implying a good fit between the observed data and the specified model.

Since the respecified model (M-2) is nested in the original model (M-1), the chi-square difference between the two models can be used to evaluate the improvement of M-2 over M-1. The rationale of the chi-square difference test is as follows: Consider estimating two models, one of which is nested within the other in that it can be created from the other model by imposing additional model constraints. These constraints may be the fixing of specific coefficients at zero (as in M-1), or constraining some coefficients to be equal, or having some coefficients to have specific nonzero values. Imagine further that both models have been estimated such that the model with additional restrictions has a chi-square value of \( \chi^2_1 \) (d.f. = \( n_1 \)) and the unconstrained model has a chi-square value of \( \chi^2_2 \) (d.f. = \( n_2 \)). The model with additional restrictions should have a larger chi-square value and d.f. than the unconstrained model, because fewer coefficients are estimated for the more restricted model. That is, \( \chi^2_1 > \chi^2_2 \) and \( n_1 > n_2 \). In this case, M-1 has a chi-square value of 365.66 (d.f. =132) and M-2 has a chi-square value of 124.52 (d.f. =117). Since the difference between two chi-square values is also distributed as a chi-square with degrees of freedom equal to the difference between the degree of freedom for the models, a significant chi-square difference indicates that the additional constraints have significantly reduced the model's ability to fit the data. That is, the less constrained model has a better fit than the constrained model. Here the chi-square difference between the unconstrained model (M-2) and the constrained model (M-1) is 241.14 (d.f. =15) which is
statistically significant at .01 level. This finding implies that M-2 shows improvement over M-1 and has a significantly better fit than M-1. Moreover, two other goodness-of-fit indicators, Goodness-of-Fit Index (GFI) and Root Mean Square Residual (RMSR) also suggest that the respecified model (M-2) has a better fit than the original model (M-1)(see Table 4.9). The following discussion will therefore be based on this optimal model only.

In addition to the chi-square value, factor loadings can also be used to assess convergent validity. If the 18 measures of M-2 have convergent validity, they should all load highly on their corresponding constructs. Table 4.10 presents the factor loadings, standard errors of the estimates, and error variances for the M-2, where it can be seen that all loadings are relatively high and statistically significant at the .01 level. This finding provides further evidence for convergent validity.

4.5 DISCRIMINANT VALIDITY

Discriminant validity concerns the degree to which measures of conceptually distinct constructs differ. Traditionally, it has been assessed by the pattern of correlations across versus within traits in the MTMM matrix (Campbell and Fiske, 1959). More recently, like convergent validity, it has been assessed via LISREL -- in this case, two tests were usually performed.

First, tests were performed using the procedures recommended by Burnkrant and Page (1982, p.557). In these tests, by comparing the goodness-of-fit statistic for two measurement models, one modelling the two related constructs as perfectly correlated (the constrained model), the other without such as a constraint (the unconstrained model). The chi-square difference statistic for the degree to which the unconstrained model improves over the constrained model
would indicate whether the two constructs achieve discriminant validity (see Figure 4.3). With three closely interrelated constructs (HT, ACP, AP), six models require estimation in this study.

The three nested model comparisons resulted in chi-square difference values of 150.19, 282.14 and 1036.9 for the HT-ACP, HT-AP, and ACP-AP comparisons respectively (see Table 4.11). All these values are statistically significant at .01 level with one degree of freedom. This finding implies that the unconstrained model has a significant better fit than the constrained model for each of the three comparisons. Thus, these constructs are not perfectly correlated.

Second, to satisfy the requirements for discriminant validity, variance extracted estimates should be greater than the square of the correlation between constructs (see Fornell and Larcker, 1981, for a proof). The variance extracted estimate, which measures the amount of variance captured by a construct in relation to the variance due to random measurement error, is computed as follows (Fornell and Larcker, 1981, p.46):

\[
\text{Variance Extracted} = \frac{\sum_{i=1}^{n} \lambda_{yi}^2}{\sum_{i=1}^{n} \lambda_{yi}^2 + \sum_{i=1}^{n} \text{Var}(e_i)}
\]

(3)

The numerator of Equation 3 is equal to the sum of the squared factor loadings, and the denominator is equal to the sum of the squared factor loadings plus the sum of the variance due to random measurement error in each loading. The variance extracted estimates were .836, .707, and .641 for HT, ACP, and AP, respectively, and all exceed the square of the correlation between the constructs. This finding suggests that the HT, ACP, and AP are distinct constructs.

With the above analyses, the results clearly provide evidence that the mood potency
scales developed in this study has acceptable discriminant validity.

4.6 CROSS-VALIDATION

The findings obtained from the first part of the analysis provide encouraging evidence for reliability, convergent validity and discriminant validity for the 18 measures. In order to examine the cross-sample stability of these three scales for mood potency, additional analyses were conducted by using the hold-out sample.

4.6.1 Preliminary Analyses

To examine the stability of factor structure of the 18 measures, a confirmatory factor analysis was conducted by using the hold-out sample (sample 2) with LISREL VI (Joreskog and Sorbom, 1984). Again the three-factor correlated model (see Figure 4.2) did provide a good representation of the data in terms of structure. Although the overall chi-square statistics of this model was significant (chi-square = 157.59, d.f. = 115, p = .002), each of its factor loadings t-value exceeded 9.97 (p < .001). Moreover, the high value in Goodness-of-fit Index (GFI = .93) and the low value in Root Mean Square Residual (RMSR = .052) of this model indicate that the model has achieved a moderately acceptable level of fitness. The mean scores, standard deviations, reliability estimates, and variance extracted estimates for both samples (samples 1 and 2) are summarized in Table 4.12. The two samples produced similar values in these estimates and statistics providing a strong evidence for the cross-sample stability of these three scales for mood potency. In other words, the hold-out sample has an equivalent factor structure as the analysis sample.
4.6.2 Multi-Sample LISREL Analysis

A more stringent test of cross-sample stability, however, involves both the factor structure as well as the estimated parameters (i.e., the λ’s and the δ’s). The equivalence of the factor structure has already been confirmed by the previous analyses, analyses in this section therefore deal with the equivalence of the estimated parameters.

Three multi-sample LISREL analyses were conducted to test the following three equivalences between sample 1 and sample 2: (a) the equivalence of the factor loadings between sample 1 and sample 2 (Model 3: M-3), (b) the equivalence of the error terms between sample 1 and sample 2 (Model 4: M-4), and (c) the equivalence of all factor loadings and error terms between constructs between sample 1 and sample 2 (Model 5: M-5). With LISREL VI (Joreskog & Sorbom, 1983), chi-square value of 365.67 (d.f. = 252, p < .001), 448.67 (d.f. = 267, p < .001), and 467.64 (d.f. = 285, p < .001) were obtained for M-3, M-4, and M-5 respectively (See Table 4.9).

The probability level of these chi-square values (p < .001) indicates that each of the goodness-of-fit of these three models is below the common 0.1 acceptable level. However, the undesirable goodness-of-fit level can be attributed to a number of factors related to LISREL itself such as large sample size (N=479) and violation of the multi-normal distribution assumption. As suggested by Hayduk (1987), other goodness-of-fit indices such as GFI and RMSR should be used in supplement to chi-square value when sample size is greater than 200. A review of the GFI and RMSR in Table 4.9 indicates that these models, to a certain extent, have already achieved a moderate acceptable level of fitness.

Since M-3 and M-4 are nested in M-5, the chi-square difference between M-3 and M-5
(or M-4 and M-5) also has a chi-square distribution. The chi-square difference statistic can be used as an indicator of relative fit between M-3 and M-5, as well as between M-4 and M-5. Compared between M-4 and M-5, the former model has 18 degrees of freedom less but its chi-square value is only 18.98 smaller. This chi-square difference is not significant at .01 level showing that M-4 and M-5 have the same degree of fitness.

By the same token, M-3 and M-5 are also nested and can be compared. The chi-square difference between these two models is 101.97 (d.f. = 33) which is statistical significant at .01 level. This finding implies that M-3 has a significantly better fit than M-5.

As M-3 has a better fit than M-5 and M-4 and M-5 have the same degree of fitness, M-3 can be considered as the best among the three competing models. Moreover, a review of Table 4.9 reveals that M-3 has the highest Goodness-of-fit index (GFI=.912) among the three models. Therefore, the following discussion will be based on this model.

The results of the multi-sample LISREL analysis between sample 1 and sample 2 are presented in Table 4.13. An examination of the LISREL estimates reveals the two samples have the same values in factor loadings although they differ values in error terms.

To summarize, the above analyses provide supportive evidence for the cross-sample stability on factor structure and factor loadings between sample 1 and sample 2 for the three scales of mood potency.

4.7 TEST-RETEST RELIABILITY

Test-retest reliability of the 18 items for mood potency was examined over new subject sample and two advertisements. The scales were administered to 28 undergraduates twice with
the same advertisements within 5 weeks.

The correlation coefficients between Time 1 and Time 2 on the scales were presented in Table 4.14. On average, the test-retest reliability estimates were .653, .544, .873 for the hedonic tone, activation potential, and absorption potential scales respectively. Generally, the test-retest coefficients for absorption potential were consistently higher than those of hedonic tone and activation potential for both ads. This result may be due to the fact that the absorption potential scale contains more items than the other two other scales. To summarize, the above findings provide moderate support for the test-retest reliability.

4.8 CONCURRENT AND PREDICTIVE VALIDITY

Internal consistency is a necessary but insufficient condition for validity. The three dimensions -- hedonic tone, activation potential, and absorption potential -- may all relate to the same construct, but that does not prove that they relate to the specific construct -- mood potency -- that motivates the research in the first place. The final step is to show that the measure behaves as expected in relation to other constructs. Thus this section would try to assess whether the scale score can correctly predict some criterion measures.

The tests used to assess the validity of the mood potency measure developed and tested above comprise different forms of criterion-related validation. Two kinds of criterion validity exist. Specifically, concurrent validity is assessed by how well a measure and the criterion correlate at the same moment in time. By contrast, predictive validity concerns the extent to which the relevant measure is correlated with a future criterion (Carmines & Zeller, 1979, p.18).
4.8.1 Data Collection

Fifteen print ads, three from each of the following five product categories (insurance, toothpaste, airlines, pain reliever, and donation) were first selected for the criterion-related validation. 133 students not participating in the previous studies served as the subjects in this study. A given subject was first shown one of the fifteen ads. Then, the subject was told that the purpose of the study is to understand "what thoughts and feelings people naturally have when they see ads." After the subject had finished reading the ads, he/she was asked to fill out a questionnaire for the ad (see Appendix 3 for the questionnaire). The questionnaire was designed to measure the following constructs for each ad:

(a) Mood potency

The mood potency of an ad was measured by the 18-item scales developed in the previous section.

(b) Ad evaluation

Four seven-point adjectival items were selected for a summed item scale measure for the evaluation of ads. These items include "favourable-unfavourable," "good-bad," "interesting-uninteresting," and "like-dislike."

4.8.2 Preliminary Analyses

Table 4.15 is the matrix of the correlations between the three dimensions of mood potency, computed over all 133 observations (each dimension was measured by the scales described before). A relationship does exist between dimensions, the correlation coefficients range from 0.039 to 0.584. However, the correlations indicate that one dimension cannot be
fully predicted by another. It is not possible to pick up a single index, for no single dimension alone catches the richness of the characteristics of an ad. The extent of correlations implies that an ad may be high on one dimension but low on another. Three scatterplots illustrate the relationships between dimensions of mood potency. Figure 4.4 shows how the hedonic tone varies with the activation potential. Each point corresponds to the average scale scores of an ad, computed over all respondents interrogated on that ad. It is obvious that, despite their visible covariations, one dimension cannot be fully predicted by the other. For example, though they have similar hedonic values, "Colgate(II)" and "Qantas" are perceived differently in terms of the activation potential values. Figure 4.5 illustrates the relationship between hedonic tone value and absorption potential value, using average scores of each ad. Figure 4.6 illustrates the relationship between activation potential and absorption potential.

These scatter plots suggest the desirability of measuring the full mood potency profile of an ad because no dimension alone summarizes all the characteristics of an ad. Table 4.16 describes the average profiles of the ads on the three dimensions.

4.8.3 Concurrent Validity

The present study assessed concurrent validity by how strongly scales for the three mood potency scales correlated with the ad evaluation scores obtained from the same respondents who provided the mood potency data. As explained previously, ad evaluation was measured by the following 7-point bipolar items: (1) "favourable-unfavourable," (2) "good-bad," (3) "interesting-uninteresting," and (4) "like-dislike." With factor analysis, one factor explaining 70.7% variation of the data was obtained. Moreover, the 4 bipolar items had an item-to-total score
correlation of 0.7 or more, and a high reliability coefficient (Cronbach alpha = 0.86). Therefore, a summated score of these four items was computed to represent ad evaluation.

With ad evaluation as the dependent variable, and hedonic tone, activation potential, as well as absorption potential as the independent variables; a number of separate regressions were run. Table 4.17 reports the results of the regressions. The R-squares range from 0.50 to 0.72 implying that the three dimensions of mood potency are really good potential predictors for ad evaluation. Another major conclusion of the analyses is that the dimensions of the mood potency profile have different influences on the dependent variables. Sometimes one dimension is determinant and sometimes another dimension exerts the major influence. Analysis of the standardized regression weights shows that the ad evaluation is influenced above all by the absorption potential of the ad. Ads tend to be evaluated more favourably when they have a higher potential to attract the reader’s attention and involve him/her cognitively. In fact, past study has shown that attention to an ad is positively related to ad evaluation (Mackenzie, 1986). The second variable influencing ad evaluation is the level of hedonic tone. In general, consumers have a better evaluation on an ad when it has a higher hedonic value.

Interestingly, the activation potential dimension does not affect the ad evaluation in many product categories. One of the possible reasons for this phenomenon may be due to the high correlation between activation potential and absorption potential ($r^2 = .588, p < .01$).

4.8.4 Predictive Validity

The above results suggest highly satisfactory levels of concurrent validity. Clearly, however, these correlations are likely to be inflated for at least two reasons: consistency biases
(since the same respondents provided both kinds of data) and shared method variance (since those data were collected via similar scales on the same questionnaire). Therefore, an assessment of predictive validity should be regarded as more indicative of "true" levels of criterion validity. The external variable selected as a criterion was the simple ordering or classification of ads into positive mood potency, neutral mood potency, and negative mood potency ads. Based on the results of preliminary analyses in section 4.8.2, six ads were selected from the fifteen pre-test ads (see Appendix 9). These six ads included "Metropolitan Life", "Cathay Pacific", "Colgate(I)", "Advil", "Mony", and "Foster Parents Plan". These six ads were then independently judged by three judges who were knowledgable in the definitions. There was 100 percent agreement between the judges' determinations and the mood potency scales classifications for each of the six test ads.

In summary, the above analyses suggest that the mood potency scales have achieved a satisfactory level of predictive validity.

4.9 SUMMARY

The purpose of this study was to develop a scale for measuring the three dimensions of an ad's mood potency. Accepted psychometric scale-development procedures were followed which rigorously tested a large pool of items for their reliability and validity. With a series of studies, the current research resulted in a 18 bipolar-item scale, with 4 items for hedonic tone, 3 items for activation potential, and 11 items for absorption potential. The final scale demonstrated satisfactory level of reliability and validity.
CHAPTER 5
RESEARCH METHODOLOGY

5.0 OVERVIEW

This chapter covers the methodology used to test the hypotheses presented in Chapter 3. The study involves a number of pretests and a main experiment. The purpose of the pretests was to obtain the appropriate treatments for the main experiment. The main experiment was designed to examine the interaction effect of pre-processing mood and an ad’s mood potency on ad evaluations as well as changes in mood arousal and mood pleasure. More specifically, H1 - H5 stated in the previous conceptual model were tested in this study. Sections 5.1 - 5.2 address elements of the stimuli selection and procedure employed for the study.

5.1 PRETESTS

Before the main experiment was carried out, several pretests were conducted to select the appropriate experimental stimuli for this study. A summary of various pretests is listed in Table 5.1.

5.1.1 Pretests for Selection of Music

In the main experiment, music was used as the major treatment to create specific pre-processing mood states. The manipulation of mood pleasure with music has been successful in many studies in both marketing and psychology. For example, in studying mood-dependent effect on memory, Eich and Metcalfe (1989) has used classical music to create happy and sad
mood. Likewise, in studying the structural elements of music to induce mood, Alpert and Alpert (1990) has employed classical music for mood pleasure induction. However, the present study differs from the previous empirical study on mood in one major aspect: both mood pleasure and mood arousal were manipulated simultaneously and independently in the experiment.

In the context of this research, four conditions have to be met if mood pleasure and arousal are considered to be manipulated independently. First, the two high arousal music should not differ from each other on their arousal scores, but the high arousal-positive music should significantly differ from the high arousal-negative music on the pleasure score. Second, the two low arousal music should not differ from each other on the arousal scores, but the low arousal-positive music should significantly differ from the low arousal-negative music on the pleasure score. Third, the high arousal-positive music should differ significantly from the low arousal-positive music on the arousal score but not on the pleasure score. Finally, the high arousal-negative music should differ significantly form the low arousal-negative music on the arousal score but not on the pleasure score. If these conditions are met, the four pieces of music can be treated as manipulating the two underlying dimensions of pleasure and arousal independently. The experimental task, therefore, would be to find four pieces of music that met these four conditions.

1st Pretest for Selection of Music

Forty-four pieces of music were first taped and screened for selection of the four pieces of music, i.e., high arousal-positive, low arousal-positive, high arousal-negative and low arousal-negative. Eighty six undergraduates were included in the first pretest, with participation in the
study on a small group basis of 4 to 6 subjects per group. Subjects who agreed to participate were brought into a room in small groups and seated in front of a cassette recorder. Subjects were asked to listen to six pieces of music randomly selected from the pre-recorded music. Subjects were informed that the study was designed to examine musical appreciation and would therefore required them to listen to a collection of music. Then, the experimenter placed a tape in a cassette recorder. Subjects were told to listen carefully to the music, to form opinions or impressions of the music. Subjects were then required to answer questions about their impressions of each of the music. The question on mood arousal and pleasure induced by each piece of music was measured by the "Affect Grid" developed by Russell et al. (1989) (see Figure 5.1).

The result of this pretest are shown in Table 5.2. On the basis of these data, eleven pieces of music were first selected. These music fell into either the high arousal-positive music or low arousal-negative music categories. None of the music pretested in this pilot study could be classified as either high arousal-negative or low arousal-positive. To select the right pieces of music for the main experiment, a second pretest for the selection of music was conducted.

2nd Pretest for Selection of Music

In this study, five new pieces of music were added to the list of the eleven pieces of music selected from the first pretest. Twenty-two undergraduates not participating in the previous study served as subjects. The study was conducted in groups ranging from four to six subjects. Each subject was asked to listen to all the 16 pieces of music one by one. The experimenter followed the same procedure as specified in the 1st pretest. Results of the second
pretest are shown in Table 5.3. On the basis of these data, six pieces of music were selected. Of these six pieces of music, one could be classified as high arousal-positive, one as high arousal-negative, two as low arousal-positive, and two as low arousal-negative music.

3rd Pretest for Selection of Music

An issue in the previous pretests for music is the concern of the contextual effect. A context may be thought as the nature of the environment in which one exists on any given occasion. In psychological studies, a context has been shown to impact derived meaning, processing modes, mood states, and perception (Fiske & Taylor, 1984; Markus & Zajonc, 1985; Bransford & Johnson, 1972). Applied to our previous pretest on music, the implication is that a subject may have different reactions to a piece of music depending on whether he is exposed to this piece of music only or he is exposed to this piece of music after another piece of music. For example, a piece of music may be considered as happy if it is exposed alone. On the other hand, the same piece of music may be considered as very happy (mild happy or neutral) if it is exposed after a piece of very sad (very happy) music. To safeguard this issue, the six pieces of music chosen in the previous pretest were tested once more by another 48 undergraduate students not participating in the previous studies.

Subjects were tested "individually" throughout this pretest⁴. Each subject was informed that the study was designed to examine musical appreciation and therefore required him/her to listen to one or more than one piece of music. The experimenter then took him/her into a sound proof room and placed a tape in a cassette recorder. The subject was told to listen carefully to the music to form opinions or impressions of the music, and to be prepared to answer questions
about his/her impressions. The experimenter then turned on the cassette player.

After five minutes, the subject was asked to fill in a questionnaire with the following items: (i) subject's current mood states, including mood pleasure and arousal, (ii) subject's impressions on the music, and (iii) music evaluation. The mood pleasure and arousal were measured by the Affect Grid developed by Russell et al. (1989). Impressions on the music were measured by twenty two 7-point bipolar scales. Examples of these scales included: slow-fast, feminine-masculine, repetitive-varied, and intellectual-emotional. Music evaluation was measured by the following 7-point bipolar scales labelled with the following end-points: good-bad, like-dislike, feel positive-feel negative, react favorably-react unfavorably.

Results of this pretest are shown in Table 5.4. On the basis of these data, four pieces of music were selected that could be classified as high arousal-positive, high arousal-negative, low arousal-positive and low arousal-negative music. T-tests were done on these arousal and pleasure scores to verify whether these four pieces of music could be classified as mentioned above. The two high arousal music did not differ from each other on their arousal score (t(12) = 1.57, p = .148) but the high arousal-positive music was significantly different from the high arousal-negative music on the pleasure score (t(12) = 9.05, p < .001). Likewise, the two low arousal music did not differ from each other on their arousal scores (t(19) = .24, p = .811) but the low arousal-positive music was significantly different from the low arousal-negative music on the pleasure score (t(19) = -3.50, p < .05). Further, the high arousal-positive music differed significantly from the low arousal-positive music on the arousal score (t(12) = 3.14, p < .05). Likewise, the high arousal-negative music differed significantly from the low arousal-negative music on the arousal score (t(19) = -1.79, p < .20). These two sets of music i.e.,
high arousal-positive vs. low arousal-positive and high arousal-negative vs. low arousal-negative did not differ on the pleasure score. Thus, these four pieces of music could be treated as manipulating the two underlying dimensions of arousal and pleasure independently and would be used in the main study.

5.1.2 Pretests for Selection of Ads

Method

The design of the main experiment requires ads which have different values in mood potency but same value in ad evaluation. Given these criteria, two approaches can be followed to pick appropriate ads for the main study. The first approach is to select ads which are different in hedonic tone, activation potential, and absorption potential. If two levels are manipulated for each dimension, altogether 8 ads are required to get a complete manipulation of the three dimensions of mood potency. However, the first approach seems to suffer from the following inherent limitations: (a) hundreds to thousands of ads have to be pretested, (b) a large pool of subjects is required for both the pretests and the main experiment, (c) it is not easy to find 8 ads which have different values in mood potency dimensions but same value in ad evaluation measure.

The second approach is to select two ads, one is a high positive mood potency ad and the other is a high negative mood potency ad. Compared to the first approach, the second approach is much more simple and requires fewer subjects for both the pretests and main experiment. With this approach, it is expected that the effects of the two ads -- a high positive mood potency ad and a high negative mood potency ad -- can be generalized to ads with any
other combinations of hedonic tone, activation potential, and absorption potential. Therefore, 
the second approach can serve as a first step in studying the effect of mood potency. With the 
above rationale, the second approach is employed in this study.

Based on the above discussions, ads were tested in pilot studies to pick two appropriate 
one for the main study. Eight print ads for life insurance were first professionally produced 
to meet stimulus requirements on differentiation in "ad mood potency" for the pretest. Two of 
these ads are negative in mood potency, and the other six are positive in mood potency. The 
eight printed ads were pretested by 64 undergraduates not participating in the previous study. 
A given subject was shown one of the eight printed ads. Subjects were told that the purpose of 
the study was to understand "what thoughts and feelings people naturally have when they see 
ads." After the subjects had finished reading the ads, they were asked to complete a 
questionnaire without reference to the ads. The questionnaire measured the following constructs 
for each ad: (i) the mood potency of an ad, (ii) ad evaluation, and (iii) the production quality 
of an ad. The mood potency of an ad was measured by the 18-item scales as developed in 
Chapter 4. Ad evaluation was measured by the following 7-point bipolar scales anchored at he 
following end-points: good-bad, like-dislike, feel positive-feel negative, react favorably-react 
unfavorably. The mean of these four items was used as an index for ad evaluation. The 
production quality of an ad was measured by the following 7-point bipolar scale: professionally 
made-not professionally made. Results of this pretest are shown in Table 5.5.

Ads were selected according to their mean values on mood potency dimensions and ad 
evaluation. The two chosen ads (positive mood potency ad vs. negative mood potency ad) 
significantly differed in the mean values of the hedonic tone of an ad ($t(18) = -5.68, p < .01$)
with the negative mood potency ad rated as more negative ($x_{\text{mean}} = 2.68$, s.d. = .691, n = 8) than the happy mood potency ad ($x_{\text{mean}} = 5.27$, s.d. = 1.12, n = 10). No significant effects were evident between ad types on the scales relating to ad evaluation, activation potential, absorption potential, and production quality.

An issue in the previous pretest for ads is the concern that subjects might not evaluate the ads in a neutral mood state. If this is the case, the various mood states inherent in subjects would interact with the mood elicited by the ads which in turns would affect subsequent ad evaluation. To control for this confounding variable, the two chosen ads were tested once more by another 20 undergraduates not participating in the previous study. A given subject was shown one of the two printed ads after listening to a piece of neutral mood music for five minutes. Then, the experimenter followed the same procedure as specified in the 1st pretest for ads. Results revealed no significant effect for ad evaluation measure nor for activation potential or absorption measures. However, significant difference was found on the hedonic tone dimension ($p < .05$). Thus, consistent results were found for the two pretests on ads.

5.2 MAIN EXPERIMENT

In order to examine the interaction effect between pre-processing mood and ad's mood potency, a study was executed in which subjects evaluated an ad after listening to a piece of music. The ad's mood potency was manipulated such that it would elicit either a positive or negative feeling. Music was used to vary mood pleasure and mood arousal prior to ad processing.
5.2.1 Study and Design

The main experiment involved a 2x2x2 between-subject factorial design. The treatments included pre-processing mood arousal (high vs. low), pre-processing mood pleasure (positive vs. negative), and mood potency of an ad (positive vs. negative). A total of 128 male and female undergraduates at the University of British Columbia, Canada participated in the experiment to earn credit in an introductory marketing course; 16 subjects were randomly assigned to each of the cells. Subjects were tested "individually" throughout the course of the experiment. This arrangement was taken to prelude subjects from influencing each other's reaction to the music and the ad during the study.

5.2.2 Procedure

The experiment involved two phases, which were presented to the subjects as two brief but unrelated studies. The first phase was a mood manipulation in which both mood arousal and pleasure were manipulated simultaneously and independently. The second phase was an exposure of a print ad to a subject. In order to mask the connection between the phases, a large laboratory was partitioned into two separated small rooms and the two phases of the study were conducted in different rooms. Although the possibility of demand effects could not be eliminated entirely, note that in this between-subjects design the major interaction hypotheses should not have been apparent to the subjects.

Upon each subject's arrival, the experimenter asked the subject to read the first page of the questionnaire which contained a consent form and a cover story. The first study was described as a joint project conducted by the marketing and psychology departments aiming at
understanding the relationship between music structure and musical appreciation. The second study was introduced as a project conducted by the marketing department for a company in the business world. The study was purportedly interested in people's evaluations of the ad. The subject was told that the ad they would be examining was one planned for future use in Vancouver, and that some of them might have already appeared in national or local periodicals.

After the consent sheet was signed, the subjects were then provided with a copy of the matrix drawn in Figure 5.1 -- an adaptation of the "affect grid" designed by Russell, Weiss and Mendelsohn (1989) -- together with these instructions:

We will use the matrix to measure your feelings at a particular moment. Two types of feelings are of interest: one is your level of mood pleasure -- that is, how happy or sad you feel -- and the other is your level of arousal -- that is, how much internal energy you have. The center of the matrix represents neutral feelings: you are neither happy nor sad, and you are neither aroused or unaroused. As you move from the center column to the right, your mood changes for the better -- from feeling slightly happy to moderately happy to very happy and finally to extremely happy -- and as you move from the center column to the left, your mood changes for the worse -- from feeling slightly sad to moderately sad to very sad to extremely sad. In a similar manner, as you move upwards from the center row, your level of arousal becomes progressively higher, and as you move downwards from the center row, your level of arousal becomes progressively lower.

Taken together, for example, if you now feel very happy and excited, you should mark an X on A. On the other hand, if you feel very sad and moderately aroused, you should mark an X on B. Similarly, if you are experiencing slightly happy and average level of arousal, you should place an X on D. Finally, if you feel very sad and depressed, you should place an X on C.

Do you have any questions about the matrix? If not, as a practice, please mark the one square that best describes your current feelings.

After making their mark, the subjects were asked to explain what the mark meant to ensure they really understood how to use the matrix. Then, the experimenter placed a tape in a cassette recorder and the subjects were seated in a comfortable lounge chair. Through the cassette
recorder, one of the following four selections of music was played: "Divertimento #1 in D Major KV 136" (positive-high arousal), "Whatever We Imagine" (positive-low arousal), "Raga Bhopali" (negative-high arousal), and "Saraseeruhhasana" (negative-low arousal). These four pieces of music were chosen by the previous music pretests. Subjects were told to listen carefully to the music, to form opinions or impressions of the music. Five minutes following music onset, subjects were asked to fill in a questionnaire with the following items: (i) subjects' perception on music, (ii) subjects' evaluations of music, and (iii) subjects' current mood states, including mood pleasure and arousal after listening to the music (see Appendix 4 for the questionnaire).

After completing the questionnaire, subjects were told that the first experiment had been over and they were led to another part of the laboratory for the second experiment. Separate parts of the laboratory were used to bolster the "two-experiment" cover story. Subjects were then given an ad (either a positive mood potency ad or a negative mood potency ad) for examination. Forty seconds following exposure to the ad, subjects were asked to fill in a booklet containing the following items: (i) subject's current mood state, including mood arousal and pleasure, (ii) ad evaluation, (iii) ad's mood potency scales, (iv) product evaluation and (v) subject's cognitive responses when reading the ad (see Appendix 5 for the questionnaire). Then subjects were asked to complete a feedback form in which two open-ended questions were asked: (i) how could we improve this experiment (two studies) for the next group we run? (ii) what do you think is the true purpose of this experiment (two studies)? Upon completion of the questionnaire, each subject was thoroughly debriefed, thanked for his/her participation, and dismissed. The duration for each subject participation lasted for 30-40 minutes.
5.2.3 Measures

(a) Mood state

Mood state was measured twice, one after listening to a piece of music (pre-processing mood state) and the other after seeing an ad (post-processing mood state). On both occasions, mood state was measured by the "affect grid" designed by Russell, Weiss, and Mendelsohn (1989). The convergent and discriminant validities of this measure were assessed by the multi-trait multi-method matrix, which is a matrix of zero order correlations between different traits when each of the traits is measured by different methods (Campbell and Fiske, 1959). Convergent validity refers to the degree of agreement in two or more measures of the same trait. Discriminant validity concerns the degree to which measures of conceptually distinct traits differ. Other than the affect grid, subjects in this study were also asked to answer multi-item scales for mood pleasure and mood arousal. For mood pleasure, the following 7-point Likert scales were used:

- happy - unhappy
- pleasing - displeasing
- delighted - distressed
- joyful - depressing

For mood arousal, the following 7-point Likert scales were used:

- stimulating - relaxing
- exciting - calm
- arousing - unarousing

The reliability of the 4-item pleasure scale and 3-item arousal scale were .967 and .851 respectively. The results for the multi-trait multi-method matrix are presented in Table 5.6. Evidence of convergent validity of the measure is provided by the extent to which it correlates highly with other methods designed to measure the same construct. Table 5.6 shows that the
convergent validity coefficients for mood pleasure and mood arousal were .875 and .790 respectively. These coefficients were acceptable high and significant at .01 level. These findings provide support for convergent validity. On the other hand, the evidence of discriminant validity is indicated by "predictably low correlations between the measure of interest and other measures that are supposedly not measuring the same variable or concept (Heeler and Ray, 1972, p.362). Table 5.5 shows that these correlation coefficients ranged from .103 to .301 which were much lower than the coefficients for convergent validities. Thus, evidence for discriminant validity for the affect grid was also established.

(b) Ad Evaluation

Measure of overall attitude for the ad was taken using 7-point Likert scales. Four indicators of attitudes were used (see Olney, Batra, & Holbrook, 1990). These four indicators were scales anchored at the following end-points:

- good - bad
- like - dislike
- feel positive - feel negative
- react favorably - react unfavorably

The reliability coefficient of this measure was found to be .876, an acceptable high level for psychological measures. Therefore, the mean of these four items was used as an index for ad evaluation.

(c) Mood Potency of an Ad

The mood potency of an ad was measured by the 18-item scales developed in Chapter 4. The reliability coefficients for the three basic dimensions of this construct -- hedonic tone,
activation potential and absorption potential -- were .935, .732, and .909 respectively.

(d) Product Evaluation

Measure of overall attitude for the product -- life insurance was taken using 7-point Likert scales. Four indicators of product evaluation were used. These four indicators were scales labeled with the following end-points:

- good - bad
- like - dislike
- feel positive - feel negative
- react favorably - react unfavorably

The reliability coefficient of this measure was found to be .90, an acceptable high level for psychological measures. Therefore, the mean of these four items was used as an index for product evaluation.

(e) Cognitive Response

Subjects were asked what they were thinking or feeling as they read the ad. Coding independently, two judges assessed the overall affective tone or valence of each subject's comments, classifying these cognitions as positive, negative or neutral comments. Positive cognitions included support arguments and ad execution bolsters. Negative cognitions included counter arguments and ad execution discounts. A coding scheme is shown in Appendix 6. This coding scheme is similar to that developed by Batra and Ray (1986). Overall, the judges agreed on 95 percent of their ratings. In case of a disagreement, a third judge determined the appropriate category.
Affective Intensity

Other than initial mood valence, initial mood arousal, gender, age, and ethnic origin, affective intensity would be used as one of the potential covariates for controlling for alternative explanations in this study. Research in psychology has identified stable individual differences in the level of intensity with which individuals experience their mood (Larsen and Diener, 1985, 1987). In other words, some individuals when exposed to an mood-eliciting event or stimulus, consistently manifest more intense affective response than others. For example, Larsen and Diener (1987) have found that some individuals respond with stronger affective responses to mood-provoking events which occur naturally in daily life (e.g., success or failure at accomplishing a small task, see a violent scene on the evening TV news) than others. Similar to these findings, studies in marketing also report that subjects respond differently to the same emotional ad (Aaker et al., 1986 and Edell and Burke, 1987). In order to explain this individual difference, Larsen and Diener (1985) have developed the "Affective Intensity" construct to reflect the strength of a person's affective responses to daily events. This individual difference dimension is defined at one end of a continuum by persons who experience affects mildly and with minor fluctuations; the other end of the continuum reflects persons who experience their affects strongly. In addition, a 40-item scale labelled "The Affective Intensity Measure (AIM)" has also been developed by Larsen (1984) to assess the characteristic intensity with which an individual experiences affect (see Appendix 7 for the questionnaire).

In this study, it is proposed that the moderating effect of affective intensity is similar to arousal level, since individuals high in affective intensity are also high in arousal level. In order to control for this effect, affective intensity was measured in this study. Affective intensity
measure was taken from a questionnaire to the subjects administered in class three weeks before the main study. The reliability of this scale was found to be .876 in this study, an acceptable high level for psychological measure.

5.3 SUMMARY

This chapter reviewed the methodology used to test the hypotheses presented in Chapter 3. The study was described as a 2x2x2 factorial design. The measures for the constructs in the model (Pre-processing Mood Pleasure, Pre-processing Mood Arousal, Mood Potency of an Ad, Ad Evaluation, Product Evaluation, and Cognitive Responses) and for the covariate, affective intensity (AIM) were described. The criteria and procedure for stimuli selection were also discussed. In addition, the development of and reliabilities for the scales used to measure the model constructs were also discussed. Reliabilities on these measures were sufficiently high.
6.0 OVERVIEW

In this chapter, the analyses for the main study are presented. First, the possibility of demand characteristics is addressed, followed by a check for the appropriate covariates. Next, the success of the manipulations is examined. Then, the analysis and findings on the main hypotheses are discussed. Finally, the additional analyses on cognitive responses and product evaluations are included in the last section.

Notation: For purposes of simplifying discussions in text form, a notational scheme is devised as follows: AD will refer to the ad type factor (manipulated at two levels: positive mood potency ad versus negative mood potency ad), PREVA will refer to the pre-processing mood pleasure or mood pleasure state of a subject before an exposure of an ad (manipulated at two levels: positive versus negative), PREAR will refer to the pre-processing mood arousal or mood arousal state of a subject before an exposure of an ad (manipulated at two levels: high arousal level versus low arousal level), POSTVA will refer to the post-processing mood pleasure or mood pleasure state of a subject after an exposure of an ad, POSTAR will refer to the post-processing mood arousal or mood arousal state of a subject after an exposure of an ad, MOODVA will refer to the initial/inherent mood pleasure of a subject before the experiment started, MOODAR will refer to the initial/inherent mood arousal of a subject before the experiment started, ATT$_{ad}$ will refer to the overall evaluation of an ad, and ATT$_{pd}$ will refer to the overall evaluation of a product. This notational scheme is summarized in Table 6.1.
6.1 DEMAND CHARACTERISTICS CHECK

Before the data were analyzed, the potential of demand characteristics of this study was evaluated first. Demand characteristics was defined as the totality of cues which convey an experimental hypothesis to the subject (Orne, 1962, p.779). Demand characteristics occurs when the experimental treatment gives the subject a hint about the "correct" response or the response that the experimenter would like a subject to make. The existence of demand characteristics may confound the effect of experimental manipulation. In this study, subjects were asked to fill out the Affect Grid twice, once after listening to a piece of music, and the other after reading a print ad. This procedure may sensitize the subjects to speculate the true purpose of the study and to connect the two pretended unrelated studies (music appreciation and ad evaluation studies). Two approaches were employed to evaluate the potential of demand characteristics in this studies.

First, demand characteristics was assessed by asking the subjects with the following question: "How could we improve this experiment (two studies) for the next group we run?" Responses included comments largely irrelevant to the hypotheses (examples: "Play more interesting music, like rock or pop music", "make more interesting ads", "conduct the study with more than one subject at a time", "we should listen to more than one piece of music"). These comments support a lack of awareness of the hypotheses. Had they been awareness of the hypotheses that the interaction between the ad and the mood induced by the music was studied, they would not have suggested changing the type of music/ad, listening to more than one music, or conducting the study with more than one subject at a time.

Second, evidence of demand characteristics was then further assessed by asking the
subjects to indicate what they thought the experiment's true purpose was. Coding independently, two judges assessed these responses, classifying them into four categories: accurately stated hypothesis, approximately stated hypothesis, stated wrong hypothesis, and no answer. Overall, the judges agreed on 98 percent of their ratings. In case of a disagreement, a third judge determined the appropriate category.

Most of the subjects just repeated what they had been told about the objective of the study was. Three subjects, two in the high arousal-negative condition and one in the high arousal-positive condition, identified the true purpose of the study. Data for these three subjects were deleted from the sample. Thus, altogether 125 responses were analyzed in the subsequent analysis. With the findings of above analyses, demand characteristics were not considered to be problems in this study.

6.2 CONCERN FOR POTENTIAL CONFOUNDING EFFECTS

Although assigned by a randomization process, subjects exposed to the different experimental conditions might still differ in their initial mood pleasure, initial mood arousal, gender, age, ethnic origin, or affective intensity measure (AIM). These possible differences would bias the results of statistical tests of the main study. To reduce these potential confounding effects and to increase the power of statistical tests, a number of analyses (e.g., one-way ANOVA and chi-square test) were conducted with each of these variables as dependent variables and the eight experimental treatment groups as an independent categorical variable. Results of these tests are presented in Table 6.2. As revealed by these data, no significant differences (p > .05) were found among the eight experimental groups for initial mood
pleasure, gender, age, ethnic origin, or affective intensity measure (AIM). However, initial mood arousal (MOODAR) is the only variable which differs significantly among groups (p < .05). More specifically, the high arousal groups were found to have higher initial mood arousal as compared to the low arousal groups. To help control for this variation, initial mood arousal would be used as a covariate in the main analysis.

6.3 MANIPULATION CHECKS

As described in Section 5.1, treatments were thoroughly pretested to ensure that the manipulations would operate as expected. Even so, it is useful to consider results bearing on the manipulations' influence within the study itself. In this regard, two manipulation checks were performed using the data from the main study. The first involved ascertaining whether the music selected induced the appropriate mood pleasure and arousal conditions. The second was a check to see that the two ads were perceived as intended on the positive/negative mood potency.

6.3.1 Mood Check

The mean scores for arousal and pleasure for the four pieces of music are reported in Table 6.3. T-tests were done on these arousal and pleasure scores to check the manipulations. The two high arousal music did not differ from each other on their arousal scores (t(59) = 1.49, p > .05) but the high arousal-positive music was significantly different from the high arousal-negative music on the pleasure score (t(59) = 13.99, p < .001). Likewise, the two low arousal music did not differ from each other on their arousal scores (t(62) = 1.87, p > .05) but the low
arousal-positive music was significantly different from the low arousal-negative music on the pleasure score ($t(62) = 13.99, p < .001$). Further, the high arousal-positive music differed significantly from the low arousal-positive music on the arousal score ($t(61) = 8.94, p < .001$). Likewise, the high arousal-negative music differed significantly from the low arousal-negative music on the arousal score ($t(60) = 10.62, p < .001$). These two sets of music i.e., high arousal-positive versus low arousal-positive and high arousal-negative versus low arousal-negative did not differ on the pleasure score. Thus, these findings suggest that the music worked as expected and induced the appropriate mood on the subjects.

6.3.2 Ad Mood Potency Check

The two test print ads were also examined to ensure that they were evaluated appropriately on the positive/negative mood potency as well. Thus, each ad was scored on the mood potency scale. When examined marginally across music type on hedonic tone, the positive mood potency ad scored on average, $X_{mean} = 4.32$ (s.d. = .649, n = 63) whereas the negative mood potency ad was rated as $X_{mean} = 2.725$ (s.d. = .702, n = 62). The difference between the means observed to be significant through the use of t-test ($t(123) = 13.23, p < .001$). This finding suggests that these two ads were perceived as intended on the positive/negative hedonic tone dimension. However, these two ads were also found to be significantly different on the activation potential and absorption potential ($p < .05$). More specifically, the negative mood potency ad had higher mean values on both the activation potential and absorption potential dimensions over the positive mood potency ad.

In summary, the manipulation of mood potency of an ad was not as clean as observed
6.4 MAIN ANALYSIS

Analyses of covariance (ANCOVA) were conducted to test the proposed hypotheses. Pre-processing mood pleasure and pre-processing mood arousal, as well as ad type served as the independent variables. Moreover, initial mood arousal served as the covariate. The primary interest for this research was to examine the main and interaction effects of these variables on ad evaluation, change in mood pleasure, and change in mood arousal. The discussion of the analysis of the main study is organized around the hypotheses. Before the results of the hypotheses testing are presented, the assumptions of ANCOVA will first be examined. Then, H1-H5 stated in Chapter 3 are evaluated one by one. For each of the hypotheses, the analysis is addressed first, then the results presented.

The general ANCOVA model can be expressed as:

\[ DV = \mu + \alpha + \beta + \gamma + \alpha\beta + \alpha\gamma + \beta\gamma + \alpha\beta\gamma + \omega \]

and

\[ DV_{adj} = DV - \omega(X - X_{mean}) \]

where

- \( DV \) = unadjusted dependent variable
- \( DV_{adj} \) = adjusted dependent variable
- \( \mu \) = overall mean
- \( \alpha \) = pre-processing mood pleasure effect
- \( \beta \) = pre-processing mood arousal effect
- \( \gamma \) = ad type effect
- \( \alpha\beta, \alpha\gamma, \beta\gamma \) = two-way interaction effect
- \( \alpha\beta\gamma \) = three-way interaction effect
- \( \omega \) = effect of covariate or linear regression coefficient
- \( X \) = the covariate
- \( X_{mean} \) = the covariate sample mean
6.4.1 A check of ANCOVA Assumptions

Before performing analyses of covariance to test the five research hypotheses, the data were analyzed to confirm they were consistent with the assumptions of ANCOVA. The usual ANCOVA assumptions are (e.g., Glass and Hopkins, 1984, pp.503-505): (i) For each treatment population, the distribution of experimental errors is assumed normal (which implies that the distribution of dependent variable measures is normal). (ii) For each population, the distribution of experimental errors has a variance which is assumed to be the same for each population -- homogeneity of variance. (This implies that each population has the same variance of dependent variable observations). (iii) The error associated with any pair of observations are assumed to be independent. (iv) The population within-groups regression coefficients are homogeneous; that is, $\omega_1 = \omega_2 = \ldots = \omega_8$ for the 8 treatment levels. (v) The covariate (MOODAR) is measured without error. (vi) There exists a linear relationship between the covariate and the dependent variable.

On the possible departures from normality, Glass and Hopkins (1984) suggested that this assumption could be tested by Kolmogorov-Smirnoff (K-S) test of normality. With three dependent variables (ATT, VACH, ARCH) and eight experimental groups, altogether 24 tests were conducted. Each test showed that, for the eight treatment groups of the experiment, departure from normality was not a problem in this study. Moreover, evidence from the statistical literature indicates that the distribution of ratio of mean squares (F-ratio) seems little affected by departures from normality (Glass and Hopkins, 1984, p.352).

Methods of detecting heterogeneity of variance have been proposed by Bartlett (1937), Cochran (1941) and Hartley (1950). These tests were performed on the data. Values of
Cochran's C (Max. Variance/Sum of Variances), Bartlett-Box F, and Hartley's Max. Variance/Min. Variance were computed. Each test showed that, for the eight treatment groups of the experiment, the null hypothesis:

\[ H_0 : \sigma_1^2 = \sigma_2^2 = \ldots = \sigma_8^2 \]

was accepted strongly in the main experiment for the dependent variable -- attitude toward the advertisement (ATTd), but not for the other dependent variables -- change in mood pleasure (VACH) and change in mood arousal (ARCH). Thus, the violation of homogeneity of variance may be a problem for testing Hypotheses 2 and 3 but not for Hypotheses 1, 4, and 5.

Bartlett (1937), indeed, has presented a formula for deriving transformations on the data that may stabilize the within-group variances and may also result in a close approximation to the normal distribution. Four of the more useful transformations are the square-root transformation, the arc sine transformation, the logarithmic transformation, and the reciprocal transformation which seem appropriate when the data are frequency counts, proportions, or markedly skewed, respectively (Meyers, 1972). Since the values of VACH and ARCH were either greater than or less than unity, the arc sine transformation, the logarithmic transformation and the square root transformation would not be appropriate; instead only the reciprocal transformation was made in this study (see Appendix 8). The reciprocal transformation resulted in appreciable reduction of heterogeneity of variance and the null hypotheses for homogeneity of variances were accepted for both VACH and ARCH. Thus, the violation of homogeneity of variance was no longer a problem for testing Hypotheses 2 and 3 with the reciprocal transformation.

Independence of observations requires that the observations within groups were not influenced by each other. In this study, treatments were individually administered and
observations were collected independently. Thus, the third assumption -- independence of errors -- should be met in the data.

The fourth assumption concerns the homogeneity of regression coefficients among the eight treatment groups. Violation of this assumption results when there is an interaction between treatment and covariate scores. To test this assumption, interaction terms between the covariate and the three treatment factors were included in the ANCOVA models for the three dependent variables. Significance on these interaction terms would indicate differential impacts across treatments. Probability levels associated with the sum of squares for these interaction terms are summarized in Table 6.4. Significant interaction terms were found for the dependent variables - VACH and ATTad, but not for ARCH. According to Atiqullah (1964), the violation of this assumption results in loss of power in statistical tests. Thus, it makes the tests for the hypotheses 1, 2, 4 and 5 become more conservative.

The fifth assumption implies that the covariate (MOODAR) is measured without error. In this study, this construct was measured by the Affect Grid developed by Russell et al. (1989). Evidence for validities and reliabilities have been established for this measure in this study (see section 5.2.3a) and some other previous research (see Russell et al., 1989). Thus, this assumption should be met in this study.

The last assumption concerns the linear relationship between the covariate and dependent variables. Nonlinearity will result in biased estimates of effects. However, as suggested by Glass and Hopkins (1984), the bias will not be severe if subjects are randomly assigned to groups, as in this study.

To summarize, most of the assumptions for ANCOVA were satisfied in this study. The
only two violations were heterogeneity of variances and regression coefficients. However, the violation of homogeneity of variances were corrected by reciprocal transformation. On the other hand, heterogeneity of regression coefficients would result in loss of power. The implication of low power in hypothesis testing is that one's model may be rejected when it is correct. Thus, it makes the hypotheses testing in this study more conservative and less likely to be significant.

6.4.2 H1: The Main Effects of an Ad's Mood Potency on Ad Evaluation

(a) Analysis: The first hypothesis was stated as:

H1: There exists a main effect of an ad's mood potency on ad evaluation.

H1a: The evaluation is less favorable for a negative mood potency ad than for a positive mood potency ad.

In fact, the examination of this hypothesis can help to extend existing mood-related research stream by empirically testing the predictions made by three contrasting models (i.e., the mood accessibility model, the mood consistency model, and the mood management model). With the mood management model, H1 predicts that a positive mood potency ad is preferred to a negative mood potency ad by subjects both in good and bad moods for different reasons. More specifically, individuals in good moods prefer a positive mood potency ad because it can help to maintain positive states. On the other hand, individuals in bad moods prefer a positive mood potency ad because it can help to diminish negative mood states.

In contrast to H1, the mood accessibility model predicts a main effect of mood on attitude change. With this model, ad is expected to have a more favorable evaluation after good moods than after bad moods (see Axelrod, 1963; Goldberg and Gorn, 1987). In short, the mood
accessibility model, unlike the mood management model, focuses only on the effect of prior mood, without explicitly considering the affective tone of an ad.

Furthermore, the prediction of hypothesis 1 is also different from the expectation of the mood consistency model. According to the mood consistency model, subjects feel uncomfortable with ads that are inconsistent with their pre-existing feelings, and prefer ads which are consistent with their pre-existing mood states. Mood states and ads are considered consistent if they involve or induce the same types of feelings. With this approach, researchers may hypothesize that when subjects are in positive mood states, they are expected to prefer a positive mood potency ad to a negative mood potency ad. On the other hand, when they are in negative mood states, they are expected to prefer a negative mood potency ad to a positive mood potency ad (e.g., Kamins, Marks, and Skinner, 1991).

To test H1 against the other two competing models, a three-factor ANCOVA was performed as indicated in Section 6.4. The three independent variables included the pre-processing mood pleasure (PREVA: 2 levels), the pre-processing mood arousal (PREAR: 2 levels), and the ad type (AD: 2 levels). The model for testing H1 contained the three main factors (PREVA, PREAR, AD), the four interaction terms (AD*PREVA, AD*PREAR, PREVA*PREAR, AD*PREVA*PREAR), and a covariate -- initial mood arousal (MOODAR).

In this analysis, the dependent variable was the overall attitude towards an ad or an evaluation over an ad (ATT_ad). This variable was measured by asking the subjects to evaluate an ad on 4 bipolar statements. The reliability of this construct was 0.876, an acceptable level for psychological measures. The mean of these four items was used as an index for ad evaluation.
For H1 to be supported, the main effect of ad type should be statistically significant. For the mood accessibility model to be supported, the main effect of pre-processing mood pleasure (PREVA) should be statistically significant and the main effect of ad type should not be statistically significant. Finally, for the mood consistency model to be supported, the AD*PREVA interaction effect should be statistically supported.

(b) Findings: Results of the above analysis are presented in Table 6.6. Examination of the main effect term of ad type (AD) indicates that the main effect of ad type was statistically significant ($F = 14.869, p < .001$). A further examination of the simple main effects of ad type revealed that in the good pre-processing mood condition, the positive mood potency ad had a better evaluation over the negative mood potency ad (3.83 vs. 3.28). At the same time, a similar pattern (4.15 vs. 3.30) was observed in the bad pre-processing mood condition. These findings suggest that a positive mood potency ad is always preferred to a negative mood potency ad by subjects in both good and bad moods, although these two ads have the same level of evaluation when subjects are in neutral moods.

An examination of Table 6.6 also revealed that the main effect term of mood pleasure ($F = .817, p = .368$) and AD*PREVA interaction term ($F_1 = .490, p = .485$) were not statistically significant indicating that the mood accessibility model and mood consistency model were not supported in this study.

In summary, the results of the above analyses were in consistent with the prediction of Hypothesis 1 but not with the mood accessibility model and the mood consistency model. Thus, Hypothesis 1 was supported.
6.4.3 H2: The Interacting Effect Between Pre-processing Mood Pleasure and Ad Type on Changes in Mood Pleasure.

(a) Analysis: The second hypothesis concerned the interacting effect between a consumer’s mood pleasure and ad type on changes in a consumer’s mood pleasure. This hypothesis specifically stated that:

H2: There exists an interaction effect between a consumer’s mood pleasure and an ad’s characteristics on change in mood pleasure.

H2a: When subjects are in a negative pre-processing mood state, they will experience a greater change in mood pleasure after an exposure to a positive mood potency ad than to a negative mood potency ad.

H2b: When subjects are in a positive pre-processing mood state, they will experience a greater change in mood pleasure after an exposure to a negative mood potency ad than to a positive mood potency ad.

To test for the above hypothesis, a three-factor ANCOVA was performed with the three factors being those of the pre-processing mood pleasure (PREVA: 2 levels), the pre-processing mood arousal (PREAR: 2 levels), and the ad type (AD: 2 levels). The model for testing H2 contained the three main factors (PREVA, PREAR, AD), the three two-way interaction terms (AD*PREVA, AD*PREAR, PREVA*PREAR), one three-way interaction term (AD*PREVA*PREAR), and a covariate -- initial mood arousal (MOODAR).

In this analysis, the dependent variable was the change in mood pleasure after an exposure of an ad. This variable is defined as the difference between post-processing mood pleasure and pre-processing mood pleasure (VACH = POSTVA - PREVA).

For the overall test of H2, the AD*PREVA interaction term should be significant, indicating the different types of ad have differential impacts on the changes of a subject’s mood pleasure.
(b) Findings: Results of cell means and ANCOVA are presented in Table 6.7 and Table 6.8 respectively. Findings support H2, subjects in the positive pre-processing mood condition had a greater change in mood pleasure after an exposure of a negative mood potency ad (av. = -2.91) than those after an exposure of a positive mood potency ad (av. = -.55). Importantly, the findings for the subjects in the negative pre-processing mood condition exhibited an opposite pattern. That is, they had a greater change in mood pleasure after an exposure of a positive mood potency ad (av. = 1.70) than after an exposure of a negative mood potency ad (av. = 0.28). Use of Newman-Keuls analysis at .05 level revealed that the differences of these two means at different mood conditions were both significant.

The ANCOVA table also revealed that the interaction effect between pre-processing mood pleasure (PREVA) and ad type (AD) approached significance (F = 3.603, p = .060), leading marginal support to the predictions of the mood disruption mechanism.

Overall, these findings suggest that a positive mood potency ad has a greater ability in disrupting the maintenance/rehearsal of negative mood, while a negative mood potency ad has a greater ability in disrupting the maintenance/rehearsal of positive mood. In summary, Hypothesis 2 was marginally supported in this study.

6.4.4 H3: The Interacting Effect Between Pre-processing Mood Pleasure and Ad Type on Changes in Mood Arousal.

(a) Analysis: The third hypothesis concerned the interacting effect between a consumer’s mood pleasure and ad type on changes in a consumer’s mood arousal. This hypothesis specifically stated that:
H3: These exists an interaction effect between a consumer's mood pleasure and an ad's characteristics on change in mood arousal.

H3a: When subjects are in a negative pre-processing mood state, they will experience a greater change in mood arousal after an exposure to a positive mood potency ad than to a negative mood potency ad.

H3b: When subjects are in a positive pre-processing mood state, they will experience a greater change in mood arousal after an exposure to a negative mood potency ad than to a positive mood potency ad.

To test for the above hypothesis, a three-factor ANCOVA was performed with the three factors being those of the pre-processing mood pleasure (PREVA: 2 levels), the pre-processing mood arousal (PREAR: 2 levels), and the ad type (AD: 2 levels). The model for testing H3 contained the three main factors (PREVA, PREAR, AD), the three two-way interaction terms (AD*PREVA, AD*PREAR, PREVA*PREAR), one three-way interaction term (AD*PREVA*PREAR), and a covariate -- initial mood arousal (MOODAR).

In this analysis, the dependent variable was the change in mood arousal after an exposure of an ad. This variable is defined as the difference between post-processing mood arousal and pre-processing mood arousal (ARCH = POSTAR - PREAR).

For the overall test of H3, the AD*PREVA interaction term should be significant, indicating the different types of ad have differential impacts on the changes of a subject's mood arousal.

(b) Findings: Results of cell means and ANCOVA are presented in Table 6.7 and Table 6.9 respectively. Examination of the AD*PREVA interaction term indicates that the interaction was not statistically significant (F = 1.015, p = .316). In general, subjects in the positive pre-processing mood condition showed no difference in arousal change, whether seeing a positive
mood potency ad or seeing a negative mood potency ad. Furthermore, the findings for the subjects in the negative pre-processing mood condition exhibited the same pattern. To summarize, Hypothesis 3 was not supported by the data in this study.

6.4.5 H4: The Interacting Effect Between Pre-processing Mood Pleasure and Ad Type on Ad Evaluation

(a) Analysis: While the first hypothesis focused on the main effect of ad type on ad evaluation, H4 and H5 focused on the conditions under which the main attitudinal effect is more pronounced or more likely to occur. H4 was specifically stated as:

H4: There exists an interaction effect between pre-processing mood pleasure and mood potency of an ad on ad evaluation.

H4a: The difference in ad evaluation associated with the mood potency of an ad is greater when subjects are in negative pre-processing mood states than when they are in positive pre-processing mood states.

The tests for this hypothesis involved the same analytical model as was used for the H1. For H4 to be supported, the AD*PREVA interaction term should be statistically significant.

(b) Findings: Cells means appear in Table 6.5 and ANCOVA results appear in Table 6.6. Findings provide directional support for H4: The difference in ad evaluation associated with the mood potency of an ad was greater when subjects were in negative pre-processing mood states than when they are in positive pre-processing mood states (.85 vs. .55), but this difference failed to reach conventional levels of statistical significance (F = .490, p = .48).

The above findings suggested that although H4 was directionally supported, it was not supported by the data in this study.
6.4.6 H5: The Interacting Effect Between Pre-processing Mood Arousal and Ad Type on Ad Evaluation

(a) Analysis: The last hypothesis concerned the interacting effect between pre-processing mood arousal and ad type on ad evaluation. This hypothesis was specifically stated as:

H5: There exists an interaction effect between pre-processing mood arousal and mood potency of an ad on ad evaluation.

H5a: The difference in ad evaluation associated with the mood potency of an ad is greater when subjects are at a high arousal level than when they are at a low arousal level.

The tests for this hypothesis involved the same analytical model as was used for H1. For H5 to be supported, the AD*PREAR interaction term should be statistically significant.

(b) Findings: Results for ad evaluation (ATTad) were in accord with the prediction of H5. As revealed by Table 6.6, the interaction term AD*PREAR was statistically significant (F = 5.46, p < .05).

A further examination of the marginal means (see Table 6.5) showed that at a high pre-processing mood arousal level individuals rated a positive mood potency ad more favorable than a negative mood potency ad (4.29 vs. 3.14). Moreover, the difference of these two means was found to be statistical significant at .05 level by the Newman-Keuls analysis. On the other hand, this difference was not significant when the individuals were at a low pre-processing mood arousal level (3.70 vs. 3.43).

Thus, Hypothesis 5 was supported with the above findings.
According to the conceptual model proposed in Chapter 3, a subject in a particular mood will go through the following underlying process after an exposure of an ad: First, the affective responses elicited by the ad will interact with the pre-processing mood of the subject. Then, this interaction will help to disrupt the maintenance/rehearsal of the subject’s prior mood. Finally, the change in mood state will in turn determine the subsequent evaluation of the ad. Partial support for this model was provided by previous analyses. However, the three endogenous variables (ATT\(_{ad}\), VACH, ARCH) were examined independently in the previous sections. Thus, the interrelationships of these constructs have not been fully explored. To examine the relationships of these related variables simultaneously, three alternative structural models are proposed and tested against one another with data collected previously in the main experiment. The examination of this model can help to better understand the underlying process responsible for the attitudinal effects. These models are described as the followings and illustrated in Figure 6.1.

**Mediation Effect Model** (MEM), which posits an indirect flow of causation from pre-processing mood and ad type through change in mood to ad evaluation. With this model, the change in mood pleasure (VACH) and change in mood arousal (ARCH) are both considered to be the mediators intervening between pre-processing mood, ad type and ad evaluation.

**Direct Effect Model** (DIEM), which assumes no causal relationship between change in mood and ad evaluation; instead pre-processing mood and ad type are postulated to affect change in mood and ad evaluation directly and independently. In short, this model assumes there exists no mediation effect.
Dual Effects Model (DUEM), which specifies direct effects of pre-processing mood and ad type on ad evaluation; in addition to the indirect effect from pre-processing mood and ad type through change in mood to ad evaluation.

The proposed alternative models were estimated by using LISREL VI (Jereskog and Sorbom, 1984). This estimation procedure provides full-information maximum-likelihood estimates of the parameter for the model. For the model estimation, a matrix of Pearson product-moment correlations was used as an input to LISREL (see Table 6.10). Table 6.11 reports estimation results for goodness-of-fit measures and parameters for these models.

Since MEM and DUEM are nested, the chi-square difference between MEM and DUEM should have a chi-square distribution. The chi-square difference statistic can be used as an indicator of relative fit between MEM and DUEM. Compared MEM to DUEM, the latter model shows a substantial improvement over MEM. The chi-square difference between these two models is 18.66 with 7 degrees of freedom which is significant at .01 level. These findings show that DUEM has a better fit than MEM.

By the same token, DIEM and DUEM are also nested and can be compared. The chi-square difference between these two models is 8.47 (d.f. = 2) which is statistical significant at .01 level. These findings imply that DUEM has a significantly better fit than DIEM.

As the Dual Effects Model (DUEM) has a better fit than the Mediation Effect Model (MEM) and Direct Effect Model (DIEM), it can be considered as the best among the three competing models. In addition, DUEM is also found to outperform MEM and DIEM on other criteria, such as GFI and RMSR. Thus, the following discussion will be based on DUEM only.

Overall, the findings suggest that DUEM provides a reasonable good fit to the data.
First, the chi-square value for this model is 37.08 with 28 degrees of freedom \( p = .117 \) implying a good fit between the observed data and the specified model. Second, this model has achieved a high value in GFI (0.957) and a reasonable low value in RMSR (0.04). Third, none of the normalized residuals are greater than 2. Fourth, the modification indices of this model indicate that further improvement of this model seems to be impossible. Finally, the t-values show that the model has achieved a moderate fit of internal structure. All \( \lambda \)'s and \( \psi \)'s are significant at .01 level.

Moreover, an inspection of the individual structural parameter estimates reveals that \( \gamma_{11} \) (PREVA \( \rightarrow \) VACH), \( \gamma_{13} \) (AD \( \rightarrow \) VACH), \( \gamma_{36} \) (PREAR*AD \( \rightarrow \) VACH), and \( \beta_{31} \) (VACH \( \rightarrow \) ATT\(_{ad}\)) are significant at .01 level. Altogether, these findings provide evidence that VACH do mediate the effects from pre-processing mood and ad type on ad evaluation; in addition to some direct effects from pre-processing mood and ad type on ad evaluation.

To summarize, the process model proposed in Chapter 3 was found to be partially supported by the analyses in this section. A number of interesting findings can be observed from these analyses. First, change in mood pleasure (VACH) was found to be a variable mediating the relationship between ad types, pre-processing mood and ad evaluation. Second, findings revealed that change in mood arousal (ARCH) did not mediate the effect from pre-processing mood and ad type on ad evaluation. Although there exist correlations between pre-processing mood and ad type with ARCH, no significant relationship was found between ARCH and ad evaluation. Finally, both direct and indirect effects from ad type and pre-processing mood on ATT\(_{ad}\) exist\(^7\).
6.4.8 Summary

In general, empirical support were found for some of the hypotheses generated in this study. The first hypothesis was supported indicating a positive mood potency ad was always preferred to a negative mood potency ad because of the mood management mechanism. In terms of the second and third hypotheses regarding predictions on change in mood pleasure/arousal due to an exposure of an ad, only the change in mood pleasure yielded evidence to support the mood disruption mechanism as proposed in Chapter 4. Finally, the last two hypotheses regarding the conditions under which the attitudinal effect of ad type is more pronounced or more likely to occur, only arousal was found to be a factor moderating the mood management mechanism.

In addition, the path analysis provides further evidence to support the mood disruption and mood management mechanisms.

6.5 ADDITIONAL ANALYSES

Given the findings above, two additional analyses were conducted to better understand the phenomena that the hypotheses sought to address. More specifically, the additional analyses addressed to the following related questions: (1) Does cognition produce the results congruent with ad evaluation? (2) Can the results obtained on ad evaluation be generalized to product evaluation?

6.5.1 Does Cognition Produce the Results Congruent with Ad Evaluation?

Additional evidence germane to understanding the process responsible for the observed attitudinal effects could be provided by an examination of subjects' cognitive response. In this
study, subjects were asked what they were thinking or feeling as they read the ad. Coding independently, two judges assessed the overall affective tone or valence of each subject's comments, classifying these cognitions as positive, negative or neutral comments. Positive cognitions included support arguments and ad execution bolsters. Negative cognitions included counter arguments and ad execution discounts (see Appendix 6). Overall, the judges agreed on 95 percent of their ratings. In case of a disagreement, a third judge determined the appropriate category.

The cognitive response as a function of pre-processing mood pleasure (PREVA), pre-processing mood arousal (PREAR), and ad type (AD) is presented in Table 6.12, while the ANCOVA results are presented in Table 6.13. As revealed by these two tables, two interesting findings were found. First, the number of thoughts generated was unaffected by the manipulations. No significant difference was found for the total number of cognitions generated under different conditions ($F = .857, p = .555$). On average, about 3 cognitions were generated in each of the eight treatment conditions. Second, as expected, a higher number of negative thoughts was produced following a negative mood potency ad than following a positive mood potency ad (2.03 vs. 1.46). In contrast, a higher number of positive thoughts was produced following a positive mood potency ad than following a negative mood potency ad (0.76 vs. 0.58).

To examine whether cognitions produces the results congruent with ad evaluation, a 2x2x2 ANCOVA was performed with the same model for H1, H4 and H5 but with the dependent variable being that of valenced cognitive score (VALCR). Valenced cognitive score, is derived as the number of positive cognitions minus the number of negative cognitions (see
Kamins, Marks, and Skinner, 1991). If the attitudinal effects on ad (H1, H5) was due to the mood management mechanism, a similar pattern of effects should be observed for the cognitive responses. More specifically, as compared to a positive mood potency ad, a negative mood potency ad should generate more negative thoughts. In addition, this effect would be more pronounced under high pre-processing mood arousal states than under low pre-processing mood arousal states. In other word, a main effect of AD and an interaction effect between AD and PREAR should be obtained.

ANCOVA results with this score as dependent variable and PREVA, PREAR, AD as independent variables are presented in Table 6.15. In accord with the predictions derived from the mood management model stated in Hypothesis 1, a significant main effect of ad type (AD) was found (F = 7.219, p < .05). That is, subjects reading the positive mood potency ad exhibited relatively less unfavorable cognitions than the negative mood potency ad. Means of the valenced cognitive score are presented in Table 6.14. A simple main effect analysis indicated that a significantly higher proportion of unfavorable thoughts were produced following negative mood potency ad no matter whether the ad was placed after happy music (-0.19 vs. 0.76) or sad music (-0.27 vs. 0.51). These findings provided consistent and parallel results as proposed by Hypothesis 1.

Interestingly, as revealed in Table 6.15, neither significant main effect for PREVA nor interaction effect between AD and PREVA on valenced cognitive score was found. These findings provided no support for mood accessibility model and mood consistency model.

A further examination of Table 6.15 also revealed that the PREAR*AD term was statistical significant (F = 15.236, p < .05) indicting that the difference in valenced cognitive
score between the positive mood potency ad and the negative mood potency ad approached significance only at a high arousal level (1.31 vs. -0.42) but not at a low arousal level (0.05 vs. -0.15). Importantly, this finding provides indirect support for hypothesis 5.

A more compelling test of the mediating role played by cognitive response involved the use of valenced cognitive score as a covariate in an ANCOVA on ad attitude (ATT<sub>ad</sub>). In this analysis, the previously significant interaction between pre-processing mood arousal and ad type on ATT<sub>ad</sub> as found in Section 6.4.6 (F = 5.465, p = .021) was rendered nonsignificant (F = 1.596, p = .155). In addition, the previously significant main effect of ad type on ATT<sub>ad</sub> as found in Section 6.4.2 (F = 14.839, p = .000) was rendered less significant (F = 5.748, p = .008).

In sum, the results involving valenced cognitive score are largely congruent with a process based on mood management process.

6.5.2 Music-ad Combinations on Product Evaluation

Since ATT<sub>ad</sub> is likely to have a major influence on ATT<sub>pd</sub>, there is pragmatic value in examining whether the effects of music-ad combination on ad evaluation as found in H1, H4 and H5 could be generalized to product evaluation. To start with, once again regular analysis of covariance (ANCOVA) was performed on product evaluation as the dependent variable and PREVA, PREAR, AD as independent variables. The results of this ANCOVA are summarized in Table 6.16. As can be seen from this table, none of the main or interaction effect was found to be significant (p < .05). Thus, the results obtained on ad evaluation failed to be generalized to product evaluation (ATT<sub>pd</sub>) in this study.
6.6 SUMMARY

This chapter covered the analysis from the main experiment of this study. First, results from the demand characteristics check showed that demand artifacts was not considered to be a problem in this study. Second, results form the manipulation checks revealed some problems with the ad type in terms of cleanly satisfying design criteria. Third, the tests on the five hypotheses generated encouraging support for the mood disruption and mood management mechanisms. Finally, additional analyses helped to better understand the phenomena under study by examining cognitive responses and product evaluation. A summary of the ANCOVA results for all the dependent variables is listed in Table 6.17. These findings are further interpreted in the next chapter.
CHAPTER 7
DISCUSSION AND CONCLUSION

7.0 OVERVIEW

This chapter contains a summary of the results presented in the previous chapters and a
discussion of the interpretation of these findings. The first section focuses on findings from the
scale development, pretests, support for the hypotheses, and other tests of interest. Then, the
limitations of this study are addressed in terms of generalizability, design, experimental
execution, and external validity issues. Following that, the implications of the study are
summarized and future research directions are proposed.

7.1 SUMMARY OF RESULTS

7.1.1 Scale Development

Pilot work demonstrated that reliable and valid scales could be developed to measure the
three basic dimensions of an ad’s mood potency. The scales were comprised of 18 items, with
4 items for hedonic tone, 3 items for activation potential, and 11 items for absorption potential.
The new classification of ads provides an additional taxonomy of ads other than the
transformational versus informational ad classification or thinking versus feeling ads taxonomy.
Moreover, this scale also has advantages over the traditional positive vs. negative measure by
including the dimensions of activation potential and absorption potential.

7.1.2 Pretests and Manipulation Checks

Several questions were raised in the pretests and the manipulation checks on the
effectiveness of the treatments. The first question involves the potential of ads to induce different mood states. While both positive and negative mood potency ads were tested, people's reactions to the positive mood potency ad were never as strong as their reactions to the negative mood potency ad. As to whether print ads are not so good at inducing positive mood, or people are less likely to admit feelings of pleasantness toward an ad, additional research is required.

A second question concerns the approach to classification of ads and music. Within cell variance on both ads and music ranged from medium to high. This variance indicates people are not uniform in their perceptions of a given stimulus. Thus, analysis which involves grouping people according to the ad or music stimuli may not be as appropriate as grouping people according to their own reactions to the ad and music. This issue may lend support to the ideas that affective responses to advertising are not inherent in the ad or music but reside within the individual (Edell and Burke, 1987).

A third question concerns the results of manipulation check on an ad's mood potency. As shown in Section 6.3.2, the manipulation of mood potency of an ad was not as clean as observed in the pretest. The findings suggested that the two ads were perceived as intended on the positive/negative hedonic tone dimension. However, these two ads were also found to be significantly different on activation potential and absorption potential. More specifically, the negative mood potency ad had higher mean values on both activation potential and absorption potential dimensions over the positive mood potency ad. According to the discussion in Section 3.4.1(c), the nature and level of mood potency is a "joint function" of an ad's hedonic tone, activation potential, and absorption potential. The nature of mood potency is generally determined by the hedonic tone of an ad, while the level of mood potency is determined by the
activation potential and absorption potential of an ad. Thus, the negative mood potency ad would have a higher level of mood potency than the positive mood potency ad. With these findings, the main experiment would compare a higher negative mood potency ad with a moderate positive mood potency ad, rather than a high negative mood potency ad with a high positive mood potency ad. Thus, the test would become more conservative.

7.1.3 Hypotheses

Five hypotheses were developed in Chapter 4. In the next subsections, each of the hypotheses is reviewed and the relevant empirical results are summarized.
(a) **H1: The Main Attitudinal Effect of Ad Type**

In essence, this prediction is a test of mood management mechanism. Data from the study supported this assertion. It was observed that positive mood potency ad was always preferred to negative mood potency ad by subjects either in a good or bad mood condition. However, these two types of ad had the same level of evaluation when subjects were in a neutral mood condition as shown in the pretest. Thus, this finding indicates that the evaluation of an ad may change due to the pre-processing mood state of a subject and the nature of an ad.

(b) **H2 and H3: Mood Change Due to Mood Disruption Mechanism**

Hypothesis 2 and Hypothesis 3 concerned the change in mood pleasure and arousal following an exposure of different types of ad. The hypotheses asserted that mood maintenance/rehearsal mechanism would be disrupted by the incongruent mood induced by an ad. Of these two hypotheses, only the change in mood pleasure yielded empirical support (H2).
In general, the pattern of results which will be further discussed in the next section, provides encouraging support to mood disruption mechanism as a means of predicting mood change.

(c) **H4 and H5: Conditions when the Attitudinal Effect is more Pronounced**

The final two hypotheses concerned the conditions under which the attitudinal effect occurred in H1 is more pronounced. Hypothesis 4 proposed that mood management mechanism was most likely to occur when a subject was in a negative mood state rather than in a positive mood state. It was observed that the difference in ad evaluation associated with mood potency of an ad was greater when subjects were in negative pre-processing mood states than when they were in positive pre-processing mood states. Although directional support was found for this hypothesis, the test did not reach statistical significance.

Hypothesis 5 asserted that mood management mechanism was most likely to occur when a subject was at a high arousal level than at a low arousal level. Data from this study supported this assertion. It was observed that the difference in ad evaluation between a positive and a negative mood potency ad approached significant only at a high arousal level but not at a low arousal level. Thus, this findings indicate that, arousal is a basic and important variable in studying mood management mechanism.

(d) **Additional Analyses:**

Several additional analyses were conducted to better understand the phenomenon that the hypotheses sought to address. Overall, three important findings were obtained in this study: (1) Cognition produced results congruent with ad evaluation. (2) Cognition and change in mood
pleasure mediated the impact of an ad and pre-processing mood on ad evaluation. (3) The results obtained on ad evaluation could not be generalized to product evaluation.

(e) **Summary:**

Three of the five hypotheses in this study got empirical supports (H1, H2, and H5). Overall, two hypotheses in this study generated no support (H3 and H4). Moreover, findings from the additional analyses on cognitive responses provided congruent and symmetric results as found in H1, H2, and H5 which helped better understand the underlying psychological process being examined in this study.

7.2 **DISCUSSION**

As it was discussed earlier, previous research on mood has tended to focus on the impact of mood on ad evaluation. The present study suggests that, although this line of research has provided important insights into the understanding of mood effect, it is inconsistent with the findings in this study. Indeed, no main effect of pre-processing mood on subsequent ad evaluation was found in this study. More specifically, the findings of this study have shown that the main effect of mood does not operate when the ad itself can elicit affective response. This result suggests that the nature of an ad may moderate the impact of mood on subsequent ad evaluation, especially when the ad can elicit strong affective feelings.

Of special interest for the present study was the process by which the mood of a subject interacts with the mood elicited by an ad, and the effect of this process on subsequent ad evaluation. Two complementary explanations, mood management and mood disruption
mechanisms, have been advanced in this study to explain and predict these underlying mechanisms.

According to the mood management mechanism, individuals are motivated to maintain good mood states and repair bad mood states. Consistent with this expectation, it was observed that a positive mood potency ad was always preferred to a negative mood potency ad by subjects either in a good or a bad mood condition. However, these two types of ad had the same level of evaluation when subjects were in a neutral mood condition as shown in the pretest. These results provided empirical support for the mood management interpretation.

Some previous studies (e.g., Gardner and Wilhelm, 1987; Kuykendall and Keating, 1990), although, have suggested that in general mood management mechanism only occurred when subjects were in a negative mood but not in a positive mood, findings in this study showed that subjects were motivated to manage moods in both conditions. In addition, evidence in this study further suggested that arousal is an important condition for the occurrence of mood management mechanism. Mood management mechanism was not observed when the pre-processing mood arousal was low. Rather, this mechanism influenced ad attitude only when the pre-processing mood arousal was high. This result might explain why mood management prediction could not be obtained in some previous studies which manipulated mood pleasure at a moderately mild or low arousal level. Thus, this study can help to resolve some of the inconsistent results of past research on mood management.

Moreover, the results of this study also send a clearer signal concerning the viability of demand characteristics. A demand interpretation would predict a main effect of pre-processing mood on ad evaluation. However, the main effect of mood on ad evaluation was not found in
this study. Thus, this demand characteristics explanation could be ruled out.

Other competing explanations also appear unable to accommodate the results of this study. Consider, for instance, one may argue that the main effect of ad evaluation is not due to the mood management mechanism but rather due to the simple fact that people just prefer positive ads to negative ads. As revealed by the findings in Table 6.6, the main effect of ad type occurs only at a high arousal level but not at a low arousal level. If people just prefer positive ads to negative ads, the main effect of ad type should occur across different levels of manipulation and should not be affected by the arousal levels. Thus, this competing explanation could also be ruled out.

One of the most common criticisms on past empirical studies with the mood management perspective is the failure to include a post-measure of mood, thus findings of past studies were considered to be speculative rather than conclusive (Morris, 1989). The examination of changes in mood in this study, therefore, can provide supporting evidence for a mood management explanation. According to the mood disruption mechanism proposed in this study, it is predicted that subjects in a particular mood will show greater changes in mood pleasure and arousal after an exposure to an ad of incongruent mood rather than an ad of congruent mood. As expected, findings on the change in pleasure provided encouraging empirical support for the mood disruption mechanism. It was found that subjects in a negative pre-processing mood state experienced a greater change in mood pleasure after an exposure to a positive mood potency ad than a negative mood potency ad. On the other hand, a reverse pattern was observed when the subjects were in a positive pre-processing mood state. This pattern is indicative of mood disruption mechanism.
Unlike the change in pleasure, no significant difference was found for the change in mood arousal. The lack of sensitivity of the change in arousal may be due to the inherent nature of arousal. Compared to the change in pleasure, the change in arousal may be more subtle. Therefore, subjects might not be able to feel or express the changes. Some forms of physiological measures, such as change in systolic blood pressure (see Sanbonmatsu and Kardes, 1988) or heart beat, could perhaps help to alleviate this problem in future research. To summarize, the findings in this study provide partial support for mood disruption mechanism.

Results from the thought-listing measure are also encouraging. For subjects in both positive and negative mood conditions, cognitive response data were congruent with ad evaluation measure. That is, subjects reading a positive mood potency ad exhibited relatively fewer favorable cognitions than a negative mood potency ad no matter whether the ad was placed after a happy music or a sad music. Moreover, this finding was more pronounced when the subjects were at a high arousal level. These findings provided consistent and symmetric results as obtained for ad evaluation. Taken together, both motivational and cognitive interpretations supported the mood management explanation.

Of course, it is premature to conclude based on a single test that a mood management mechanism do as operate. Future research should conduct with other settings and stimulus. Moreover, a different result has been obtained by Kamins, Marks, and Skinner (1991). In this study, they have examined the interaction between mood and affective response of an ad by using the mood consistency model. Findings revealed that a happy ad was evaluated more favorably in the context of a happy TV program whereas a sad ad is more effective in the context of a sad TV program. Clearly, an important task facing researchers is to identify the
conditions under which each of these models would work.

As far as product evaluation is concerned, no significant effect for ad type, pre-processing mood pleasure and pre-processing mood arousal was found. The low correlation between ad evaluation and product evaluation may be due to two plausible explanations. First, a general rather than a specific measure had been used to measure product evaluation. In this study, evaluation over insurance rather than evaluation over Metropolitan insurance was used. This non-specificity in measure may limit the possibility of affect transfer from ad evaluation to product evaluation through the association mechanism. Second, the lack of sensitivity of the product evaluation question may also be due to its placement in the questionnaire. Unlike the felt mood and the ad evaluation questions, which were asked after an exposure of an ad, the product evaluation questions were asked only at the end of the questionnaire, after the ad’s mood potency measure.

To summarize, results on change in pleasure, ad evaluation and cognitive responses provided encouraging and consistent supports for mood disruption and mood management mechanisms.

7.3 LIMITATIONS OF STUDY

While the above results provide insights into the study of advertising, mood disruption, mood management, and affective responses, several limitations with the study need to be addressed. These limitations center around aspects of generalizability, the design, execution of the experiment, and issues with external validity.
7.3.1 Generalizability

Three aspects of generalizability should be noted in this study. First, this research addresses the relationship between the mood created by music and ad in a rather molar manner. Common wisdom and theoretical conceptualizations (e.g., Bower, 1981; Plutchik, 1980) suggest that mood can be defined much more specifically than merely "good" or "bad". Shaver et al. (1987), for example, provide a more refined categorization of affect. With this conceptualization, affect can be categorized at three levels: superordinate level, basic level, and subordinate level. A diagrammatic illustration is presented in Figure 7.1. Thus, future research should study a wider scope or more refined dimensions of mood.

Second, the ad in the main study is designed for a limited domain, life insurance. Questions remain for whether the results obtained in this study can be generalized to other product/service categories.

Third, only four pieces of music were used in the main study. Care was taken to ensure that these music were different on the intended mood dimensions. Nevertheless, the generalizability of the present findings is limited. While perhaps beyond the scope of a simple study, evidence across studies using different music to manipulate mood should provide results that are either consistent or inconsistent with the findings of this study.

7.3.2 Design Limitation

In this study, mood potency of an ad is defined as the capacity of an ad to induce an affective state to an individual by activating his/her mood-related cognitions. Moreover, this construct is represented by the three characteristics of an ad: hedonic tone, activation potential,
and absorption potential. Due to the complexity in research design, only hedonic tone was manipulated in this study. To have a more complete picture, all three characteristics should be manipulated simultaneously and independently in some future creative research.

7.3.3 Experimental Execution

The execution of the experiment suffered from three areas of imperfection. First, the forced exposure condition of the lab experiment did not accurately represent the way in which "normal" print ad reading may occur. Thus, subjects were very likely more involved with the ads than might naturally have occurred. The laboratory setting may also have impacted subject’s willingness to respond affectively, given that subjects were expecting to be tested in some forms of academic research. Thus, these results were biased if it was the case that some affective responses were more readily suppressed or expressed under laboratory conditions.

The second criticism of the execution concerns the method of response elicitation. One problem with the pen and pencil rating test of mood states is that of trying to ascertain mood via cognitive tasks. This forcing of cognitions onto what is theorized to be affective can cause either changes in the affective responses or the existence of reported affective responses were consciously experienced. Some forms of physiological measures, such as EMG, could perhaps help to alleviate this problem in future research.

The third criticism of the execution relates to the manipulation of mood potency of an ad. As shown in Section 6.3.2, the manipulation of mood potency of an ad was not as clean as observed in the pretest. This discrepancy may indicate that people’s perceptions of an ad’s activation potential and absorption potency change in different mood states.
7.3.4 External Validity

The main issues with external validity are those of the exposure condition (discussed above) and the use of students as subjects. Thus, while the design did enable internal control, external validity was sacrificed. To achieve external validity, future research should be conducted with participants other than students as the subjects. Moreover, TV programs and TV ads other than music and print ads should also be used as stimuli.

7.4 IMPLICATIONS OF STUDY

Despite the above noteworthy limitations, it is believed that this research represents an important step toward furthering our understanding of the interaction between mood and affective responses elicited by an ad. Moreover, this research has several key implications for both researchers and advertising managers. These implications are summarized in the following sections.

7.4.1 Research Implications

(1) The application of mood management and mood disruption mechanisms to the advertising context issue provides a more theoretically-driven basis for understanding and explaining the interaction between ad characteristics and pre-processing mood. Moreover, findings provide further evidence that more existing theories developed in psychology can be applied in the advertising or marketing domain.

(2) The use of Russell’s framework for the basic dimensions of mood enables research on mood to be based in theory instead of empirical observation.
(3) This study has shown the importance of measuring multiple dimensions of mood. Both pleasure and arousal were necessary to characterize adequately affective reactions to the music and ad. If only one dimension is investigated, the overall affective impact of a stimulus may be underestimated, overestimated, or misunderstood. As revealed by the testing of Hypothesis 5, the mood management mechanism occurs only at a high arousal level but not at a low arousal level.

(4) The new classification of ads into positive mood potency ad, negative mood potency ad, or neutral mood potency ad provides an additional taxonomy of ads other than the transformational vs. informational ads classification or thinking vs. feeling ads taxonomy.

(5) Our study also speaks to the literature showing that music can evoke a number of outcomes that are desirable from a marketing perspective. Prior evidence has revealed the potential for music to alter brand choice (Gorn, 1982), product attitudes (Park and Young, 1986), as well as shopping and purchasing behaviors (Milliman, 1982) The findings in this study suggest that music has the potential to induce mood arousal and mood pleasure simultaneously and independently.

7.4.2 Managerial Implications

The results of this study not only contribute to our understanding of research on advertising context and affective responses but also have implications for managerial decisions on ad placing, design, and copytesting in the following ways:

(1) The results of this research have important implications for managerial planning of ad placement. Past studies have mainly focused on providing answers to the research question:
How does the mood generated by a TV program or an editorial climate in a magazine or newspaper influence the perception of embedded advertisements? Advertisers seem implicitly to believe that negative mood may adversely influence the perception of their ads. For example, Coca Cola USA wants to stay away from news programs as a matter of corporate policy because news programs may create unpleasant moods ("G.F.,Coke", 1980). H.J. Heinz Company has a stated marketing policy to avoid programs that are overly violent because the feelings aroused by such a media environment may become associated with the product (Farris, 1983). Simply stated, advertisers try to avoid media environments that may arouse unpleasant moods.

Unlike past research, the results of this study run counter to the generally held belief that ads should not placed in a negative mood context and instead suggest that practitioners should take a broader view by examining the interaction between pre-processing mood ad type on ad evaluation.

(2) The study has important implications for ad design. With the findings of this study, an advertiser can design an appropriate ad for a particular media environment that would lead to the most desirable ad responses. For example, if an advertiser has information about the media environment, he/she can design an ad by varying the combination of an ad’s hedonic tone, activation potential, and absorption potential so as to create an ad which either has a maximum impact on negative mood or has a minimum impact on positive mood.

(3) Any effects induced by mood found in this analysis have implications for ad copy testing and pre-testing. These two tests are typically conducted in the absence of mood effect. Significant effects in this study indicate that ad managers need to consider this potential effects in conducting copy testing and pre-testing. More specifically, copytesting should be conducted
not just in the context of neutral mood, but also in the context of positive and negative moods.

7.5 FUTURE RESEARCH

The results of this study open several areas of follow-up and new research. These areas are summarized in the following points.

(1) The first area of future research concerns the testing of the mood management model against the mood consistency model. These two models have different predictions on the interaction effect between mood and affective responses elicited by an ad on subsequent ad evaluation. It seems to be a fruitful research to determine under what conditions each of these processes would operate.

(2) This research was limited to mood generated by music. Future work should extend to mood generated by TV program, radio program, and editorial climate of printed media. This line of research can help to establish the external validity of the theoretical framework proposed in this study.

(3) The various dimensions of mood potency of an ad (HT, ACP, AP) may have differential impacts on cognitive response and ad evaluation. However, due to the complexity in research design, only hedonic tone was manipulated in this study. To have a more complete picture, all the dimensions of mood potency should be manipulated simultaneously in some future well-designed and creative studies.

(4) Although the ad's mood potency scales are helpful to both practitioners and academics in ad classification, two unanswered questions have to be addressed in future research: (a) Can the mood potency scale be used in measuring the mood potency of ads in other
media, such as TV commercials or billboard ads? (b) What are the relationships between ad characteristics, such as layout or content, and mood potency dimensions?

(5) Given the findings that the mood elicited by an ad can have an impact on the pre-processing mood of a subject, future research also needs to examine whether the mood of an ad itself can influence processing of prior and subsequent ads in a pod.

(6) Although the findings of this study show that there is an interaction effect between mood and the affective responses of an ad on ad evaluation, they do not address whether this effect would continue to manifest itself following additional ad processing experiences. For example, suppose the subjects in this study had been asked to read more than one ad, would the effect generated within the first ad evaluation carry over into subsequent post-processing and evaluation.

(7) As with most behavioral studies of advertising effects, the generalizability of the findings over time was not examined. Though results obtained using immediate measurement of ad evaluation may point to the potential importance of the interaction effect between mood and ad type on ad evaluation, such results are necessarily of limited interest or value. What is crucial from a pragmatic standpoint is the generalizability of the findings over time. Thus, it is important that future research should examine how the interaction between mood and ad type on ad evaluation endure at later points in time.

(8) Another area of research worthy of pursuit concerns the application of the model developed in this study to product/service consumption. For example, products can be categorized into 3 types according to their abilities in eliciting mood. These categories include: (a) feel-good product, e.g., clothing and automobiles, (b) feel-bad products, e.g., life insurance,
and (c) no-feel products, e.g., detergents. Future research can study product choice behavior of consumers in different mood states. In addition, research is needed to examine the affective meaning of product choice strategies to consumers.

(9) A final area of research concerns that of repeat exposure effects. In this study, the two ads were unfamiliar to the subjects. A question arises as to what respondents may do if the ad is familiar.
Figure 1.1
The Proposed Model
The Mehrabian-Russell Model

Figure 2.1:
Mehrabian's Model of Environmental Response
Source: Mehrabian and Russell (1974)
Figure 2.2
Two Dimensional Structure of Mood

Figure 2.3:
The two hypothetical arousal curves suggested by reversal theory. One is represented by a continuous line and the other by a dashed line. The curve represented by a dotted line shows, for comparison, a form of curve suggested by optimal arousal theory.

Source: Smith & Apter (1975)
Figure 2.4
The Relationship Among the Four Types of Activation

Source: Russell (1980)
Figure 3.1
A Diagrammatic Illustration of how the different mood states can be positioned as a combination of pleasure and arousal
Figure 4.1
A Three-Factor Correlated Structure Model for 26 Items
Figure 4.2
A Three-Factor Correlated Structure Model for 18 Items
Model I: Two-Factor Model

\[ \phi \neq 1 \]

Model II: One-Factor Model

\[ \phi = 1 \]

Note: In this test, model I was compared to model II. The difference between models is evaluated by a chi-square test with one degree of freedom.
Figure 4.4
Relationship Between Hedonic Tone and Activation Potential

Relationship between HT and AP
Figure 4.5
Relationship Between Hedonic Tone and Absorption Potential
Figure 4.6
Relationship Between Activation Potential and Absorption Potential

Relationship between ACP and AP
Figure 5.1
Affect Grid
Russell et al. (1989)
Figure 6.1
Three Alternative Process Models

(I) Mediation Effect Model (MEM)

(II) Direct Effect Model (DIEM)

(III) Dual Effects Model (DUEM)
Figure 7.1
Affect Categorization
Shaver et al. (1987)

Superordinate Level

positive

negative

Basic Level

love
joy
surprise
anger
sadness
fear

Subordinate Level*

affection
adoration
pride
bliss
amazement
astonished
rage
disgust
grief
despair
horror
dread

* The affect listed at the subordinate level are examples of the many affects perceived to be at the subordinate level.
Table 3.1
Classification of Ads According to Mood Potency Dimensions

<table>
<thead>
<tr>
<th>Nature</th>
<th>Positive Mood Potency</th>
<th>Neutral Mood Potency</th>
<th>Negative Mood Potency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HT</td>
<td>Positive</td>
<td>Neutral</td>
<td>Negative</td>
</tr>
<tr>
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<td>High</td>
<td>High</td>
</tr>
<tr>
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<td>High</td>
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<tr>
<td>Moderate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HT</td>
<td>Positive</td>
<td>Neutral</td>
<td>Negative</td>
</tr>
<tr>
<td>ACP</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
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<td>Low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HT</td>
<td>Positive</td>
<td>Neutral</td>
<td>Negative</td>
</tr>
<tr>
<td>ACP</td>
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<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>AP</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Note:
HT = hedonic tone
ACP = activation potential
AP = absorption potential
Table 3.2
The Degree of Mood Pleasure Congruence Between An Ad and An Individual

<table>
<thead>
<tr>
<th>The Pre-processing Mood Pleasure of An Individual</th>
<th>Mood Pleasure elicited by an ad</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Positive</td>
</tr>
<tr>
<td>Congruence</td>
<td>Mood (case I)</td>
</tr>
<tr>
<td>Incongruence</td>
<td>Mood Incongruence (case II)</td>
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<tr>
<td>Negative</td>
<td>Mood Incongruence (case III)</td>
</tr>
<tr>
<td>Congruence</td>
<td>Mood Congruence (case IV)</td>
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</tbody>
</table>
Table 3.3
A Comparison of Different Competing Hypotheses on Ad Evaluation

Pre-processing Mood

<table>
<thead>
<tr>
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<th>Negative</th>
</tr>
</thead>
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<tr>
<td></td>
<td>High Arousal</td>
<td>Low Arousal</td>
</tr>
<tr>
<td>Positive Mood</td>
<td>A</td>
<td>B</td>
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<tr>
<td>Potency Ad</td>
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<td></td>
</tr>
<tr>
<td>Negative Mood</td>
<td>E</td>
<td>F</td>
</tr>
<tr>
<td>Potency Ad</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictions with the Mood Accessibility Paradigm:

\[
A > C ; \quad B > D \\
E > G ; \quad F > H \\
\]

or \[
A + B > C + D \\
E + F > G + H \\
\]

but \[
A = E ; \quad B = F ; \quad C = G ; \quad D = H \\
\]

or \[
A + B = E + F ; \quad C + D = G + H \\
\]

Predictions with the Consistency Approach:

\[
A > E ; \quad B > F \\
C < G ; \quad D < H \\
\]

or \[
A + B > E + F \\
C + D < G + H \\
\]

Predictions with the Model in this study:

\[
A > E ; \quad B > F \\
C > G ; \quad D > H \\
\]

or \[
A + B > E + F \\
C + D > D + H \\
\]

---

note: A, B, C, ..., H are the mean of ad evaluations within the respective cells
Table 4.1  
Scale Development Procedure For Mood Potency Of An Ad

<table>
<thead>
<tr>
<th>Step</th>
<th>Objective(s)</th>
<th>Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item Generation</td>
<td>To generate a pool of items to measure mood potency (52 items)</td>
<td>Literature review, Dictionary search, Expert interview</td>
</tr>
<tr>
<td>Content Validity</td>
<td>To examine the face validity of the items (30 items)</td>
<td>Faculty members &amp; Ph.D. students served as judges</td>
</tr>
<tr>
<td>Internal Scale Reliability</td>
<td>Item reduction, To assess the internal consistency of the scale (26 items)</td>
<td>175 students were asked to evaluate 3 selected ads, Cronbach’s coefficient alpha, Confirmatory factor analysis</td>
</tr>
<tr>
<td>Convergent &amp; Discriminant Validity</td>
<td>To assess the convergent and discriminant validity (18 items)</td>
<td>Confirmatory factor analysis (87 subjects)</td>
</tr>
<tr>
<td>Cross-validation</td>
<td>To assess the stability of the scales across samples</td>
<td>Confirmatory factor analysis (175 subjects)</td>
</tr>
<tr>
<td>Test-retest Reliability</td>
<td>To examine the stability of the scales over time</td>
<td>28 subjects were asked to evaluate 2 ads twice within 4 weeks, Test-retest reliability coefficients</td>
</tr>
<tr>
<td>Concurrent &amp; Predictive Validities</td>
<td>To relate the scales with other criterion variables</td>
<td>133 students were asked to evaluate one of the fifteen ads, Regression analysis</td>
</tr>
</tbody>
</table>
Table 4.2
Examples of some of the items in measuring Mood Potency

Absorption Potential

- I paid a lot of attention to this ad.
- My mind wandered while I was reading the ad.
- The ad was very absorbing.
- I spent a lot of mental energy while reading the ad.
- The ad made me mentally exhausted.
- The ad captured my attention.
- The ad keeps running through my mind after I have seen it.
- It required a lot of effort to follow the ad.
- The ad was too complex, I wasn't sure what was going on.
- I learned something from the ad that I didn't know before.
- When I was reading the ad I thought how that product might be useful to me.
- It is a very attractive ad.
- The ad was worth remembering.
- I could not concentrate when I was reading the ad.
- When I was reading the ad I kept on asking myself whether the idea in the ad is convincing or not.
- It is the kind of ad that I want to read it as soon as I saw it.
- When I was reading the ad I attempted to compare the brand advertised with other related brands in the same product category.
- It is an eye-catching ad.
- I spent little effort to finish reading the ad.
- The ad made me curious.
- The ad made me forget what I was thinking before.
- The ad made me generate a lot of thoughts unrelated to the ad.
- The ad made me generate a lot of thoughts unrelated to the product advertised.
- I could not help myself concentrating on this ad as far as I first saw it.
- It is the kind of ad I can remember for a long time once I have seen it.
- The ad made me generate a lot of thoughts related to the ad.
- The ad made me generate a lot of thoughts related to the product advertised.
- It is a cognitive involving ad.
- The ad did not keep my attention.
- It is the kind of ad that kept running through my mind after I have seen it.
- There was nothing special about the ad that made it different from the others.
- The ad did not really hold my attention.
- When I was reading the ad I attempted to relate the product advertised to myself.
- The ad did not seem to be speaking directly to me.
- The ad reminded me of some past experience or feelings I have had in my own life.
Table 4.2 (Continued)
Examples of some of the items in measuring Mood Potency

Hedonic Tone

- The ad made me feel happy/unhappy
- The ad made me feel pleased/displeased
- The ad made me feel annoyed/gratified
- The ad made me feel satisfied/unsatisfied
- The ad made me feel contented/melancholily
- The ad made me feel hopeful/despairing
- The ad made me feel delighted/distressed
- The ad made me feel joyful/depressed
- The ad made me feel glad/sad

Activation Potential

- The ad made me feel stimulated/relaxed
- The ad made me feel excited/calm
- The ad made me feel frenzied/sluggish
- The ad made me feel jittery/dull
- The ad made me feel wide-awake/sleepy
- The ad made me feel aroused/unaroused
- The ad made me feel active/inactive
- The ad made me feel drowsy/alert
Table 4.3

The Mean Ratings of Attention Drawing, Elaboration Potency, Hedonic Tone, Activation Potential, and Ad Evaluation for 12 Ads

<table>
<thead>
<tr>
<th>AD</th>
<th>ATT</th>
<th>EP1</th>
<th>EP2</th>
<th>EP3</th>
<th>AP1</th>
<th>HT</th>
<th>ACP</th>
<th>E</th>
</tr>
</thead>
<tbody>
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<td>Wrigley's</td>
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<td>3.4</td>
<td>4.2</td>
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<td>4.2</td>
<td>3.4</td>
<td>2.6</td>
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<td>4.8</td>
<td>4.5</td>
<td>4.8</td>
<td>5.2</td>
<td>3.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Sea &amp; Ski</td>
<td>6.0</td>
<td>4.2</td>
<td>4.8</td>
<td>4.5</td>
<td>5.0</td>
<td>4.2</td>
<td>5.0</td>
<td>3.8</td>
</tr>
<tr>
<td>Hitachi</td>
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<td>4.3</td>
<td>4.1</td>
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<td>4.3</td>
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<td>4.0</td>
<td>4.1</td>
<td>4.1</td>
<td>4.1</td>
<td>3.5</td>
<td>4.2</td>
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<td>5.3</td>
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<td>4.8</td>
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<td>5.0</td>
<td>3.9</td>
<td>3.8</td>
<td>3.9</td>
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</tbody>
</table>

| TOTAL           | 5.5 | 4.6 | 4.0 | 4.3 | 4.7 | 4.1 | 3.7 | 4.6 |

ATT: Index for Attention drawing
EP1: 1st index for Elaboration potency
EP2: 2nd index for Elaboration potency
EP3: 3rd index for Elaboration potency
AP1: Index for Absorption potential
HT: Index for Hedonic Tone
ACP: Index for Activation Potential
E: Ad Evaluation
Table 4.4

Correlation Between Indices of Attention Drawing, Elaboration Potency, Hedonic Tone, Activation Potential, and Ad Evaluation for 12 Ads

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<th>EP2</th>
<th>EP3</th>
<th>AP1</th>
<th>HT</th>
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ATT: Index for Attention drawing
EP1: 1st index for Elaboration potency
EP2: 2nd index for Elaboration potency
EP3: 3rd index for Elaboration potency
AP1: Index for Absorption Potential
HT: Index for Hedonic Tone
ACP: Index for Activation Potential
E: Ad Evaluation
Table 4.5
Item-To-Total Correlations of Various Scales

<table>
<thead>
<tr>
<th>Item</th>
<th>1st Ad (n=80)</th>
<th>2nd Ad (n=82)</th>
<th>3rd Ad (n=83)</th>
<th>Total (n=245)</th>
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</tbody>
</table>

* : Item-To-Total Coefficient of Correlation
Note: n is less than 87 because of missing data
Table 4.6
26 Items For The Three Scales of Mood Potency

I. HEDONIC TONE

1. The ad made me feel happy/unhappy.
2. The ad made me feel pleased/displeased.
3. The ad made me feel annoyed/gratified
4. The ad made me feel delighted/distressed.
5. The ad made me feel joyful/depressed.
6. The ad made me feel sad/glad

II. ACTIVATION POTENTIAL

7. The ad made me feel stimulated/relaxed.
8. The ad made me feel excited/calm.
9. The ad made me feel wide-awake/sleepy
10. The ad made me feel aroused/unaroused.
11. The ad made me feel inactive/active
12. The ad made me drowsy/alert

III. ABSORPTION POTENTIAL

13 The ad was very absorbing.
14. The ad captured my attention.
15. It is the kind of ad that I want to read it as soon as I see it.
16. The ad is eye-catching.
17. I could not help concentrating on this ad as soon as I first saw it.
18. There was nothing special about the ad that made it different from the others.
19. The ad did not really hold my attention.
20. The ad keeps running through my mind after I have stopped reading it.
21. The ad made me forget what I was thinking before.
22. It is the kind of ad I can remember for a long time once I have seen it.
23. The ad made me generate a lot of thoughts related to the ad.
24. The ad made me generate a lot of thoughts related to the product advertised.
25. When I was reading the ad I attempted to related the product advertised to myself.
26. The ad was worth remembering.
Table 4.7
Correlation matrix for the 26 items

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<th>s2</th>
<th>s3</th>
<th>s4</th>
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<th>s8</th>
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Table 4.8  
18 Items For The Final Scale of Mood Potency

I. HEDONIC TONE

1. The ad made me feel happy/unhappy.  
2. The ad made me feel pleased/displeased.  
3. The ad made me feel delighted/distressed.  
4. The ad made me feel joyful/depressed.

II. ACTIVATION POTENTIAL

5. The ad made me feel stimulated/relaxed.  
6. The ad made me feel excited/calm.  
7. The ad made me feel aroused/unaroused.

III. ABSORPTION POTENTIAL

8. The ad was very absorbing.  
9. The ad captured my attention.  
10. It is the kind of ad that I want to read it as soon as I see it.  
11. The ad is eye-catching.  
12. I could not help concentrating on this ad as soon as I first saw it.  
13. There was nothing special about the ad that made it different from the others.  
14. The ad did not really hold my attention.  
15. The ad keeps running through my mind after I have stopped reading it.  
16. The ad made me forget what I was thinking before.  
17. It is the kind of ad I can remember for a long time once I have seen it.  
18. The ad made me generate a lot of thoughts related to the ad.
Table 4.9
Goodness-of-Fit of Various Competing Models

<table>
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<th>Model</th>
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Table 4.10
Factor Loading, Standard Error, and Error Variance of Each Measure

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Note: N = 245, chi-square = 124.52; SE = standard error 117

* all estimates are statistical significant at .05 level
Table 4.11
Chi-square Differences for Three Models Comparisons

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### Table 4.12
Means, Standard Deviations, Reliability and Variance Extracted Estimates

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Note: HT : hedonic tone  
ACP: activation potential  
AP: absorption potential
Table 4.13  
LISREL Estimates for M-3

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<td>0.871 (23.88)</td>
</tr>
<tr>
<td>$\lambda_{x18}$</td>
<td>0.725 (18.27)</td>
<td>0.725 (18.27)</td>
</tr>
<tr>
<td><strong>Error Terms</strong></td>
<td></td>
<td></td>
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<tr>
<td>$\delta_{1,1}$</td>
<td>0.212 ( 9.64)</td>
<td>0.203 ( 8.74)</td>
</tr>
<tr>
<td>$\delta_{2,2}$</td>
<td>0.309 (10.13)</td>
<td>0.216 ( 8.99)</td>
</tr>
<tr>
<td>$\delta_{3,3}$</td>
<td>0.113 ( 7.18)</td>
<td>0.138 ( 7.66)</td>
</tr>
<tr>
<td>$\delta_{4,4}$</td>
<td>0.077 ( 5.27)</td>
<td>0.116 ( 6.92)</td>
</tr>
<tr>
<td>$\delta_{5,5}$</td>
<td>0.285 ( 8.43)</td>
<td>0.292 ( 8.61)</td>
</tr>
<tr>
<td>$\delta_{6,6}$</td>
<td>0.356 ( 9.16)</td>
<td>0.373 ( 9.33)</td>
</tr>
<tr>
<td>$\delta_{7,7}$</td>
<td>0.229 ( 7.57)</td>
<td>0.313 ( 8.60)</td>
</tr>
<tr>
<td>$\delta_{8,8}$</td>
<td>0.480 (10.13)</td>
<td>0.362 (10.05)</td>
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<tr>
<td>$\delta_{9,9}$</td>
<td>0.276 ( 8.96)</td>
<td>0.274 ( 9.45)</td>
</tr>
<tr>
<td>$\delta_{10,10}$</td>
<td>0.594 (10.37)</td>
<td>0.383 (10.23)</td>
</tr>
<tr>
<td>$\delta_{11,11}$</td>
<td>0.432 (10.12)</td>
<td>0.415 (10.23)</td>
</tr>
<tr>
<td>$\delta_{12,12}$</td>
<td>0.332 ( 9.48)</td>
<td>0.317 ( 9.79)</td>
</tr>
<tr>
<td>$\delta_{13,13}$</td>
<td>0.586 (10.23)</td>
<td>0.350 (10.03)</td>
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<tr>
<td>$\delta_{14,14}$</td>
<td>0.340 ( 9.43)</td>
<td>0.344 ( 9.79)</td>
</tr>
<tr>
<td>$\delta_{15,15}$</td>
<td>0.363 ( 9.23)</td>
<td>0.279 ( 9.11)</td>
</tr>
<tr>
<td>$\delta_{16,16}$</td>
<td>0.534 (10.23)</td>
<td>0.401 (10.19)</td>
</tr>
<tr>
<td>$\delta_{17,17}$</td>
<td>0.301 ( 8.95)</td>
<td>0.209 ( 8.50)</td>
</tr>
<tr>
<td>$\delta_{18,18}$</td>
<td>0.666 (10.30)</td>
<td>0.353 ( 9.84)</td>
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Table 4.13 (Continued)
LISREL Estimates for M-3

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Estimated Values (Sample 1)</th>
<th>Estimated Values (Sample 2)</th>
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</thead>
<tbody>
<tr>
<td>Error Terms</td>
<td></td>
<td></td>
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<tr>
<td>δ2,1</td>
<td>.081 (4.11)</td>
<td>.027 (1.55)</td>
</tr>
<tr>
<td>δ5,1</td>
<td>.101 (5.19)</td>
<td>.057 (2.85)</td>
</tr>
<tr>
<td>δ5,2</td>
<td>.082 (3.66)</td>
<td>.023 (1.19)</td>
</tr>
<tr>
<td>δ6,1</td>
<td>.057 (3.01)</td>
<td>.027 (1.31)</td>
</tr>
<tr>
<td>δ11,3</td>
<td>.100 (4.95)</td>
<td>.044 (2.37)</td>
</tr>
<tr>
<td>δ11,4</td>
<td>.062 (3.49)</td>
<td>.025 (1.39)</td>
</tr>
<tr>
<td>δ11,9</td>
<td>.132 (4.77)</td>
<td>.133 (5.02)</td>
</tr>
<tr>
<td>δ13,12</td>
<td>.586 (4.87)</td>
<td>.186 (6.45)</td>
</tr>
<tr>
<td>δ16,8</td>
<td>.090 (2.56)</td>
<td>.012 (.46)</td>
</tr>
<tr>
<td>δ17,15</td>
<td>.125 (4.30)</td>
<td>.050 (2.37)</td>
</tr>
<tr>
<td>δ18,15</td>
<td>.065 (1.76)</td>
<td>.015 (.64)</td>
</tr>
<tr>
<td>δ18,17</td>
<td>.130 (3.71)</td>
<td>.009 (.42)</td>
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Note: figure within the ( ) is the t-value.
**Table 4.14**  
Results of Test-Retest Reliability Analysis

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<th># of observation</th>
<th>Item #</th>
<th>Reliability coefficient</th>
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<td>4</td>
</tr>
<tr>
<td>Activation potential</td>
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<td>3</td>
</tr>
<tr>
<td>Absorption potential</td>
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<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.5920</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.3791</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.8284</td>
</tr>
<tr>
<td>Ad 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedonic tone</td>
<td>28</td>
<td>4</td>
</tr>
<tr>
<td>Activation potential</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>Absorption potential</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.7158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.7092</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.9084</td>
</tr>
<tr>
<td>Ad 1 + Ad 2</td>
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<td></td>
</tr>
<tr>
<td>Hedonic tone</td>
<td>56</td>
<td>4</td>
</tr>
<tr>
<td>Activation potential</td>
<td>28</td>
<td>3</td>
</tr>
<tr>
<td>Absorption potential</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.6539</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.5441</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.8734</td>
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</table>
Table 4.15
Correlations Between Dimensions of Mood Potency

<table>
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<tr>
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<th>Hedonic Tone</th>
<th>Activation Potential</th>
<th>Absorption Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hedonic Tone</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Activation Potential</td>
<td>.0394</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Absorption Potential</td>
<td>.3329*</td>
<td>.5844*</td>
<td>1.000</td>
</tr>
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</table>

*: significant at .001 level
Table 4.16
Mood Potency Profiles of the 15 Selected Ads*

<table>
<thead>
<tr>
<th>Advertisement</th>
<th>Hedonic Tone</th>
<th>Activation Potential</th>
<th>Absorption Potential</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance</td>
<td>3.74</td>
<td>3.44</td>
<td>3.46</td>
<td>27</td>
</tr>
<tr>
<td>Metropolitan</td>
<td>4.50</td>
<td>3.70</td>
<td>4.17</td>
<td>10</td>
</tr>
<tr>
<td>Mony</td>
<td>3.04</td>
<td>3.80</td>
<td>3.41</td>
<td>9</td>
</tr>
<tr>
<td>State Farm</td>
<td>3.75</td>
<td>2.57</td>
<td>2.50</td>
<td>8</td>
</tr>
<tr>
<td>Toothpaste</td>
<td>3.92</td>
<td>3.62</td>
<td>3.56</td>
<td>28</td>
</tr>
<tr>
<td>Colgate(I)</td>
<td>3.90</td>
<td>3.81</td>
<td>3.72</td>
<td>11</td>
</tr>
<tr>
<td>Crest</td>
<td>3.50</td>
<td>3.92</td>
<td>4.19</td>
<td>9</td>
</tr>
<tr>
<td>Colgate(II)</td>
<td>4.58</td>
<td>2.83</td>
<td>2.31</td>
<td>8</td>
</tr>
<tr>
<td>Airline</td>
<td>4.42</td>
<td>3.51</td>
<td>3.77</td>
<td>29</td>
</tr>
<tr>
<td>Qantas</td>
<td>3.87</td>
<td>3.30</td>
<td>3.16</td>
<td>10</td>
</tr>
<tr>
<td>Cathay Pacific</td>
<td>4.92</td>
<td>3.76</td>
<td>4.30</td>
<td>11</td>
</tr>
<tr>
<td>British Airline</td>
<td>4.28</td>
<td>3.33</td>
<td>3.72</td>
<td>8</td>
</tr>
<tr>
<td>Pain Reliever</td>
<td>3.45</td>
<td>3.28</td>
<td>3.14</td>
<td>28</td>
</tr>
<tr>
<td>Tylenol</td>
<td>3.12</td>
<td>3.33</td>
<td>2.50</td>
<td>10</td>
</tr>
<tr>
<td>Bayer</td>
<td>3.46</td>
<td>3.52</td>
<td>3.83</td>
<td>8</td>
</tr>
<tr>
<td>Advil</td>
<td>3.77</td>
<td>3.06</td>
<td>3.30</td>
<td>10</td>
</tr>
<tr>
<td>Donation</td>
<td>2.53</td>
<td>4.14</td>
<td>4.20</td>
<td>27</td>
</tr>
<tr>
<td>Foster Parents Plan</td>
<td>2.57</td>
<td>4.13</td>
<td>4.60</td>
<td>10</td>
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<tr>
<td>Childreach</td>
<td>2.58</td>
<td>4.16</td>
<td>3.25</td>
<td>8</td>
</tr>
<tr>
<td>Has, has not</td>
<td>2.44</td>
<td>4.14</td>
<td>4.38</td>
<td>9</td>
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</table>

*: Average score = 4
Table 4.17
Influence of the Mood Potency Dimensions on Ad Evaluation
(standardized regression weights)

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<th></th>
<th>Hedonic Tone</th>
<th>Activation Potential</th>
<th>Absorption Potential</th>
<th>R-square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>.310*</td>
<td>.186**</td>
<td>.522*</td>
<td>.534</td>
</tr>
<tr>
<td>Product Category:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>.303***</td>
<td>-0.04</td>
<td>.623*</td>
<td>.536</td>
</tr>
<tr>
<td>Toothpaste</td>
<td>-.019</td>
<td>-.068</td>
<td>.754*</td>
<td>.507</td>
</tr>
<tr>
<td>Airline</td>
<td>.647*</td>
<td>-.112</td>
<td>.396**</td>
<td>.726</td>
</tr>
<tr>
<td>Pain Reliever</td>
<td>.450*</td>
<td>.199</td>
<td>.462*</td>
<td>.671</td>
</tr>
<tr>
<td>Donation</td>
<td>.319</td>
<td>.435**</td>
<td>.437**</td>
<td>.478</td>
</tr>
</tbody>
</table>

*: significant at .01 level
**: significant at .05 level
***: significant at .10 level
Table 5.1  
A Summary of Various Pretests

<table>
<thead>
<tr>
<th>Description</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>(I) Pretests for Selection of Music</td>
<td></td>
</tr>
<tr>
<td>1st Pretest 46 pieces of music were pretested with 86 subjects. Each subject was asked to listen to 6 pieces of music.</td>
<td>11 pieces of music were first selected.</td>
</tr>
<tr>
<td>2nd Pretest 22 subjects were asked to evaluate 16 pieces of music.</td>
<td>6 pieces of music were selected.</td>
</tr>
<tr>
<td>3rd Pretest 6 pieces of music were tested with 48 subjects. Each subject was asked to listen to one pieces of music for 5 minutes.</td>
<td>The procedure was effective in inducing the appropriate mood states.</td>
</tr>
<tr>
<td>(II) Pretests for Selection of Ads</td>
<td></td>
</tr>
<tr>
<td>1st Pretest 8 ads for life insurance were evaluated by 64 subjects.</td>
<td>2 ads were selected.</td>
</tr>
<tr>
<td>2nd Pretest The 2 chosen ads were evaluated by another 20 subjects.</td>
<td>The 2 ads satisfied the treatment requirement</td>
</tr>
</tbody>
</table>
TABLE 5.2
Results of Music Pretest (1st Study)

<table>
<thead>
<tr>
<th>Music #</th>
<th>Pleasure</th>
<th>Arousal</th>
<th>Music Evaluation</th>
<th># of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1*</td>
<td>7.41</td>
<td>6.91</td>
<td>7.5</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(1.08)</td>
<td>(1.73)</td>
<td>(1.69)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6.93</td>
<td>7.06</td>
<td>7.6</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>(1.16)</td>
<td>(1.98)</td>
<td>(1.63)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>5.66</td>
<td>7.00</td>
<td>8.25</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>(1.43)</td>
<td>(2.08)</td>
<td>(1.21)</td>
<td></td>
</tr>
<tr>
<td>4*</td>
<td>7.36</td>
<td>7.54</td>
<td>8.54</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>(0.80)</td>
<td>(1.29)</td>
<td>(1.12)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>6.18</td>
<td>5.27</td>
<td>8.00</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>(1.53)</td>
<td>(2.37)</td>
<td>(1.34)</td>
<td></td>
</tr>
<tr>
<td>6*</td>
<td>6.23</td>
<td>4.53</td>
<td>7.66</td>
<td>12</td>
</tr>
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<td></td>
<td>(1.01)</td>
<td>(1.56)</td>
<td>(1.23)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6.46</td>
<td>6.00</td>
<td>7.60</td>
<td>15</td>
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<td></td>
<td>(1.40)</td>
<td>(2.10)</td>
<td>(1.50)</td>
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</tr>
<tr>
<td>8</td>
<td>6.18</td>
<td>6.12</td>
<td>7.56</td>
<td>16</td>
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<td>(1.70)</td>
<td>(1.23)</td>
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</tr>
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<td>9</td>
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<td>7.07</td>
<td>13</td>
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<td>(1.75)</td>
<td>(1.18)</td>
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<tr>
<td>10</td>
<td>5.80</td>
<td>4.50</td>
<td>6.60</td>
<td>10</td>
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<tr>
<td></td>
<td>(1.61)</td>
<td>(1.71)</td>
<td>(1.07)</td>
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<tr>
<td>11</td>
<td>7.50</td>
<td>5.00</td>
<td>7.90</td>
<td>10</td>
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<tr>
<td></td>
<td>(1.17)</td>
<td>(2.49)</td>
<td>(1.19)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>4.10</td>
<td>5.20</td>
<td>7.40</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(1.79)</td>
<td>(1.22)</td>
<td>(1.17)</td>
<td></td>
</tr>
</tbody>
</table>

Note:
For mood pleasure: 1 = very negative, 9 = very positive
For mood arousal: 1 = low level, 9 = high level
For Music Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation
Numbers in the ( ) are standard deviations
*: Music with an "**" were music selected for the 2nd music pretest.
TABLE 5.2 (Continued)
Results of Music Pretest (1st Study)

<table>
<thead>
<tr>
<th>Music #</th>
<th>Pleasure</th>
<th>Arousal</th>
<th>Music Evaluation</th>
<th># of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classical Music</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
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<td>6.90 (1.19)</td>
<td>7.40 (1.43)</td>
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</tr>
<tr>
<td>14*</td>
<td>7.20 (1.13)</td>
<td>7.20 (0.78)</td>
<td>7.80 (1.22)</td>
<td>10</td>
</tr>
<tr>
<td>15</td>
<td>4.23 (1.64)</td>
<td>4.92 (2.72)</td>
<td>7.69 (1.75)</td>
<td>13</td>
</tr>
<tr>
<td>16*</td>
<td>2.53 (1.40)</td>
<td>3.93 (2.57)</td>
<td>7.66 (1.71)</td>
<td>15</td>
</tr>
<tr>
<td>17*</td>
<td>2.35 (1.39)</td>
<td>4.35 (2.09)</td>
<td>7.85 (1.46)</td>
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<tr>
<td>18</td>
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<td>4.50 (2.25)</td>
<td>7.81 (1.64)</td>
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</tr>
<tr>
<td>19*</td>
<td>5.69 (1.97)</td>
<td>7.00 (1.29)</td>
<td>7.30 (1.37)</td>
<td>13</td>
</tr>
<tr>
<td>20</td>
<td>4.57 (1.95)</td>
<td>5.07 (1.85)</td>
<td>7.07 (1.43)</td>
<td>14</td>
</tr>
<tr>
<td>21</td>
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<td>4.30 (2.45)</td>
<td>7.70 (1.49)</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td>4.10 (1.28)</td>
<td>4.80 (2.25)</td>
<td>7.20 (1.03)</td>
<td>10</td>
</tr>
</tbody>
</table>

Note:
For mood pleasure: 1 = very negative, 9 = very positive
For mood arousal: 1 = low level, 9 = high level
For Music Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation
Numbers in the ( ) are standard deviations
*: Music with an "**" were music selected for the 2nd music pretest.
**TABLE 5.2 (Continued)**
Results of Music Pretest (1st Study)

<table>
<thead>
<tr>
<th>Music #</th>
<th>Pleasure</th>
<th>Arousal</th>
<th>Music Evaluation</th>
<th># of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rock and Roll</td>
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<td></td>
<td></td>
<td></td>
</tr>
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<td>5.18</td>
<td>5.36</td>
<td>7.72</td>
<td>11</td>
</tr>
<tr>
<td></td>
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**Note:**
For mood pleasure: 1 = very negative, 9 = very positive
For mood arousal: 1 = low level, 9 = high level
For Music Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation
Numbers in the ( ) are standard deviations
*: Music with an ** were music selected for the 2nd music pretest.
TABLE 5.2 (Continued)
Results of Music Pretest (1st Study)

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<td>(1.93)</td>
<td>(1.54)</td>
<td>(1.47)</td>
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</table>

Note:
For mood pleasure: 1 = very negative, 9 = very positive
For mood arousal: 1 = low level, 9 = high level
For Music Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation
Numbers in the ( ) are standard deviations
*: Music with an ** were music selected for the 2nd music pretest.
TABLE 5.3
Results of Music Pretest (2nd Study)

<table>
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<th>Mood Pleasure</th>
<th>Mood Arousal</th>
<th>Music Evaluation</th>
<th>N</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>6.364</td>
<td>5.030</td>
<td>22</td>
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<td>7.227</td>
<td>7.364</td>
<td>5.667</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>6.136</td>
<td>5.455</td>
<td>4.515</td>
<td>22</td>
</tr>
<tr>
<td>14</td>
<td>6.864</td>
<td>7.000</td>
<td>5.015</td>
<td>22</td>
</tr>
<tr>
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<td>2.955</td>
<td>3.894</td>
<td>22</td>
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<td>2.591</td>
<td>3.924</td>
<td>22</td>
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<td>7.545</td>
<td>3.924</td>
<td>22</td>
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<td>5.652</td>
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<td>6.864</td>
<td>4.773</td>
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<td>3.667</td>
<td>22</td>
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<td>6.727</td>
<td>2.667</td>
<td>22</td>
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<td>110*</td>
<td>6.909</td>
<td>4.136</td>
<td>4.924</td>
<td>22</td>
</tr>
</tbody>
</table>

Note:
For Mood Pleasure: 1 = very negative, 9 = very positive
For Mood Arousal: 1 = low level, 9 = high level
For Music Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation

*: Music with an "*" were music selected for the 3rd music pretest.
### TABLE 5.4
Results of Music Pretest (3rd Pretest)

<table>
<thead>
<tr>
<th>Music #</th>
<th>Mood Pleasure</th>
<th>Mood Arousal</th>
<th>Music Evaluation</th>
<th>N</th>
</tr>
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<td>4*</td>
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<td>(0.548)</td>
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<td>(1.775)</td>
<td>(1.267)</td>
<td>(0.797)</td>
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<tr>
<td></td>
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<td>(1.434)</td>
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</tr>
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<td>(1.240)</td>
<td>(1.679)</td>
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<td>(1.915)</td>
<td>(1.834)</td>
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<td>(1.704)</td>
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Note:
- For Mood Pleasure: 1 = very negative, 9 = very positive
- For Mood Arousal: 1 = low level, 9 = high level
- For Music Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation
- Numbers in the ( ) are standard deviations
- *: Music with an "*" were music selected for the main experiment.
TABLE 5.5
Results of Pretest on Ads

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<th>Ad Number</th>
<th>Hedonic Tone</th>
<th>Activation Potential</th>
<th>Absorption Potential</th>
<th>Ad Evaluation</th>
<th>N</th>
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<td>(1.074)</td>
<td>(1.066)</td>
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<td>(0.713)</td>
<td>(0.906)</td>
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<td>(0.587)</td>
<td>(1.500)</td>
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Note:
For Hedonic Tone: 1 = very negative, 7 = very positive
For Activation Potential and Absorption Potential:
1 = low level, 7 = high level
For Ad Evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation
Numbers in the ( ) are standard deviations
*: Ads with an "*" were ads selected for the main experiment.
## TABLE 5.6
Results of Multi-Trait Multi-Method

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<th>Likert Scale</th>
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<td>Mood Arousal</td>
<td>Mood Tone</td>
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</table>

*:* Coefficient of correlation
Table 6.1
Notation

Variable Abbreviations

AD: Ad Type Factor
MOODVA: Score on Initial Mood Pleasure
MOODAR: Score on Initial Mood Arousal
PREVA: Score on Pre-processing Mood Pleasure
PREAR: Score on Pre-processing Mood Arousal
POSTVA: Score on Post-processing Mood Pleasure
POSTAR: Score on Post-processing Mood Arousal
ATT$_{ad}$: Score on Overall Ad Evaluation
ATT$_{pd}$: Score on Overall Product Evaluation

MOODVA Listening to a piece of music \( \rightarrow \) PREVA Exposure to an ad \( \rightarrow \) POSTVA, POSTAR

\(^{188}\)
<table>
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<tr>
<th>Dependent Variable</th>
<th>Method of Analysis</th>
<th>Statistical Values</th>
<th>Result</th>
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<td>Initial Mood Pleasure</td>
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<td>ANOVA</td>
<td>F = 2.144, p &lt; .05</td>
<td>s.</td>
</tr>
<tr>
<td>AIM</td>
<td>ANOVA</td>
<td>F = .3983, p &gt; .1</td>
<td>n.s.</td>
</tr>
<tr>
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<td>Chi-square = 5.71, p &gt; .1</td>
<td>n.s.</td>
</tr>
<tr>
<td>Ethnic Origin</td>
<td>Chi-square test</td>
<td>Chi-square = 7.669, p &gt; .1</td>
<td>n.s.</td>
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</table>

Note:  
s: significant  
ns: not significant
Table 6.3
Results of Manipulation Check

<table>
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<th>Mood Valence</th>
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<th>N</th>
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<td>(1) Mood Manipulation</td>
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<tr>
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<td></td>
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</tbody>
</table>

<table>
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<th>Absorption Potential</th>
<th>N</th>
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### Table 6.4
Covariate - Factor Interaction

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TABLE 6.5
Cell Means of Ad Evaluation

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Positive Pre-Processing Mood

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Negative Pre-Processing Mood

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Note:
For ad evaluation: 1 = unfavorable evaluation, 7 = favorable evaluation

*: Adjusted means
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<th>Significant Level</th>
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<td>Mood Pleasure (PREVA)</td>
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<td>Ad Mood Potency (AD)</td>
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<td>Mood Pleasure x Ad Mood Potency (PREVA*AD)</td>
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<td>Mood Arousal x Ad Mood Potency (PREAR*AD)</td>
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<td>3-way Interaction</td>
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TABLE 6.7
Cell Means of Changes in Mood Pleasure and Arousal

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<tr>
<td>Positive mood potency ad</td>
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<td>Negative mood potency ad</td>
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<td><strong>Low Arousal</strong></td>
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<td>Positive mood potency ad</td>
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<td><strong>Negative Pre-processing Mood</strong></td>
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*: Adjusted means
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<td>Main Effects</td>
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<td>Mood Pleasure x Mood Arousal x Ad Mood Potency (PREVA<em>PREAR</em>AD)</td>
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TABLE 6.9
Changes in Mood Arousal
Analysis of Covariance Results

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# TABLE 6.10
Correlation Matrix for LISREL

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<th>ARCH</th>
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<th>ATT _2</th>
<th>ATT _3</th>
<th>ATT _4</th>
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<td>0.34</td>
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Table 6.11
LISREL Estimates for The Three Alternative Models

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<th>Parameters</th>
<th>Mediation Effect Model (MEM)</th>
<th>Direct Effect Model (DIEM)</th>
<th>Dual Effects Model (DUEM)</th>
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<td>Dual Effects</td>
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<td>Model (MEM)</td>
<td>Model (DIEM)</td>
<td>Model (DUEM)</td>
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<td>0.685 (-)</td>
<td>0.684 (-)</td>
<td>0.663 (-)</td>
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<tr>
<td></td>
<td>0.843 (8.50)</td>
<td>0.847 (8.41)</td>
<td>0.837 (8.30)</td>
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<tr>
<td></td>
<td>0.832 (6.95)</td>
<td>0.817 (6.89)</td>
<td>0.823 (6.83)</td>
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<tr>
<td></td>
<td>0.822 (6.76)</td>
<td>0.835 (6.78)</td>
<td>0.841 (6.72)</td>
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<td>Structural Model</td>
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<td>( \gamma_{11} ) (PREVA --&gt; VACH)</td>
<td>-0.598 (-5.18)</td>
<td>-0.598 (-5.18)</td>
<td>-0.598 (-5.18)</td>
</tr>
<tr>
<td>( \gamma_{12} ) (PREAR --&gt; VACH)</td>
<td>0.122 (1.05)</td>
<td>0.122 (1.05)</td>
<td>0.122 (1.05)</td>
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<tr>
<td>( \gamma_{13} ) (AD --&gt; VACH)</td>
<td>0.305 (2.64)</td>
<td>0.305 (2.64)</td>
<td>0.305 (2.64)</td>
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<td>( \gamma_{14} ) (PREVA*PREAR --&gt; VACH)</td>
<td>-0.214 (-1.54)</td>
<td>-0.214 (-1.54)</td>
<td>-0.214 (-1.54)</td>
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<td>( \gamma_{15} ) (PREVA*AD --&gt; VACH)</td>
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<td>0.132 (0.93)</td>
<td>0.132 (0.93)</td>
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<td>( \gamma_{16} ) (PREAR*AD --&gt; VACH)</td>
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<td>-0.054 (-0.39)</td>
<td>-0.054 (-0.39)</td>
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<td>( \gamma_{17} ) (PREVA<em>PREAR</em>AD --&gt; VACH)</td>
<td>0.135 (0.90)</td>
<td>0.135 (0.90)</td>
<td>0.135 (0.90)</td>
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<td></td>
<td>0.196 (-1.36)</td>
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<td>-0.196 (-1.36)</td>
</tr>
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<td>( \gamma_{21} ) (PREVA --&gt; ARCH)</td>
<td>-0.610 (-4.24)</td>
<td>-0.610 (-4.24)</td>
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<td>( \gamma_{22} ) (PREAR --&gt; ARCH)</td>
<td>-0.285 (-1.98)</td>
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<td>0.152 (0.88)</td>
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<td>( \gamma_{24} ) (PREVA*PREAR --&gt; ARCH)</td>
<td>0.286 (1.62)</td>
<td>0.286 (1.62)</td>
<td>0.286 (1.62)</td>
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<td>( \gamma_{25} ) (PREVA*AD --&gt; ARCH)</td>
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<td>0.150 (0.87)</td>
<td>0.150 (0.87)</td>
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<td>-0.174 (-0.93)</td>
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<td>( \gamma_{31} ) (PREVA --&gt; ATT_a)</td>
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<td>0.205 (1.17)</td>
<td>0.205 (1.17)</td>
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<td>( \gamma_{32} ) (PREAR --&gt; ATT_a)</td>
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<td>-0.152 (-0.89)</td>
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<td>( \gamma_{33} ) (AD --&gt; ATT_a)</td>
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<td>0.138 (0.84)</td>
<td>0.138 (0.84)</td>
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<td>( \gamma_{34} ) (PREVA*PREAR --&gt; ATT_a)</td>
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<td>0.111 (0.58)</td>
<td>0.111 (0.58)</td>
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<td>( \gamma_{35} ) (PREVA*AD --&gt; ATT_a)</td>
<td>-0.147 (-0.75)</td>
<td>-0.147 (-0.75)</td>
<td>-0.147 (-0.75)</td>
</tr>
<tr>
<td>( \gamma_{36} ) (PREAR*AD --&gt; ATT_a)</td>
<td>0.411 (2.11)</td>
<td>0.411 (2.11)</td>
<td>0.411 (2.11)</td>
</tr>
<tr>
<td>( \gamma_{37} ) (PREVA<em>PREAR</em>AD --&gt; ATT_a)</td>
<td>-0.108 (-0.52)</td>
<td>-0.108 (-0.52)</td>
<td>-0.108 (-0.52)</td>
</tr>
<tr>
<td>( \beta_{31} ) (VACH --&gt; ATT_a)</td>
<td>0.351 (3.58)</td>
<td>0.363 (2.81)</td>
<td>0.363 (2.81)</td>
</tr>
<tr>
<td>( \beta_{32} ) (ARCH --&gt; ATT_a)</td>
<td>-0.025 (-0.27)</td>
<td>0.053 (0.33)</td>
<td>0.053 (0.33)</td>
</tr>
<tr>
<td>( \chi^2 )</td>
<td>55.74</td>
<td>45.55</td>
<td>37.08</td>
</tr>
<tr>
<td>d.f</td>
<td>35</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td>p</td>
<td>0.014</td>
<td>0.034</td>
<td>0.117</td>
</tr>
<tr>
<td>GFI</td>
<td>0.941</td>
<td>0.950</td>
<td>0.937</td>
</tr>
<tr>
<td>RMSR</td>
<td>0.087</td>
<td>0.048</td>
<td>0.040</td>
</tr>
</tbody>
</table>

Note: figure within the ( ) is the t-value.
Table 6.12  
Cognitive Response: Average Number of  
Negative, Neutral, and Positive Cognitions  

<table>
<thead>
<tr>
<th></th>
<th>Positive Cognition</th>
<th>Neutral Cognition</th>
<th>Negative Cognition</th>
<th>Total Cognition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Pre-processing Mood</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Arousal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Mood Potency Ad</td>
<td>1.00</td>
<td>0.81</td>
<td>1.25</td>
<td>3.06</td>
</tr>
<tr>
<td>Negative Mood Potency Ad</td>
<td>0.56</td>
<td>1.19</td>
<td>1.63</td>
<td>3.38</td>
</tr>
<tr>
<td><strong>Low Arousal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Mood Potency Ad</td>
<td>0.80</td>
<td>1.20</td>
<td>1.07</td>
<td>3.33</td>
</tr>
<tr>
<td>Negative Mood Potency AD</td>
<td>0.56</td>
<td>1.31</td>
<td>1.88</td>
<td>2.81</td>
</tr>
<tr>
<td><strong>Negative Pre-processing Mood</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Arousal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Mood Potency Ad</td>
<td>1.20</td>
<td>0.33</td>
<td>2.20</td>
<td>3.47</td>
</tr>
<tr>
<td>Negative Mood Potency Ad</td>
<td>0.31</td>
<td>0.33</td>
<td>2.20</td>
<td>3.50</td>
</tr>
<tr>
<td><strong>Low Arousal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Mood Potency Ad</td>
<td>0.47</td>
<td>0.38</td>
<td>1.88</td>
<td>3.00</td>
</tr>
<tr>
<td>Negative Mood Potency Ad</td>
<td>0.50</td>
<td>0.56</td>
<td>1.88</td>
<td>2.94</td>
</tr>
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</table>
Table 6.13
ANCOVA Results for Cognitive Response (F values)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>PREVA</th>
<th>PREAR</th>
<th>AD</th>
<th>PREVA*PREAR</th>
<th>PREVA*AD</th>
<th>PREAR*AD</th>
<th>PREVA*</th>
<th>PREAR*AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) # of positive cognitions</td>
<td>.429</td>
<td>4.788***</td>
<td>1.423</td>
<td>.040</td>
<td>.026</td>
<td>2.068</td>
<td>.612</td>
<td></td>
</tr>
<tr>
<td>(2) # of negative cognitions</td>
<td>.039</td>
<td>.772</td>
<td>8.351**</td>
<td>.722</td>
<td>.506</td>
<td>4.072**</td>
<td>.967</td>
<td></td>
</tr>
<tr>
<td>(3) # of neutral cognitions</td>
<td>1.018</td>
<td>1.156</td>
<td>17.263*</td>
<td>.012</td>
<td>.173</td>
<td>.104</td>
<td>.406</td>
<td></td>
</tr>
<tr>
<td>(4) total # of all cognitions</td>
<td>.158</td>
<td>.003</td>
<td>1.080</td>
<td>.013</td>
<td>1.076</td>
<td>.751</td>
<td>.972</td>
<td></td>
</tr>
</tbody>
</table>

*: p < .01, **: p < .05, ***: p < .10
TABLE 6.14
Cell Means of Valenced Cognitive Score

<table>
<thead>
<tr>
<th></th>
<th>Mean of Valenced Cognitive Score*</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive Pre-processing Mood</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Arousal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive mood potency ad</td>
<td>1.26</td>
<td>16</td>
</tr>
<tr>
<td>Negative mood potency ad</td>
<td>-.23</td>
<td>15</td>
</tr>
<tr>
<td><strong>Low Arousal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive mood potency ad</td>
<td>.28</td>
<td>16</td>
</tr>
<tr>
<td>Negative mood potency ad</td>
<td>-.16</td>
<td>16</td>
</tr>
<tr>
<td><strong>Negative Pre-processing Mood</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>High Arousal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive mood potency ad</td>
<td>1.34</td>
<td>15</td>
</tr>
<tr>
<td>Negative mood potency ad</td>
<td>-.36</td>
<td>15</td>
</tr>
<tr>
<td><strong>Low Arousal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive mood potency ad</td>
<td>-.26</td>
<td>16</td>
</tr>
<tr>
<td>Negative mood potency ad</td>
<td>-.19</td>
<td>16</td>
</tr>
</tbody>
</table>

Note:
For ad evaluation:  1 = unfavorable evaluation, 7 = favorable evaluation

*: adjusted means
### TABLE 6.15
Valenced Cognitive Score
Analysis of Covariance Results

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>F-Statistics</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covariate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Mood Arousal (MOODAR)</td>
<td>4.25</td>
<td>.041</td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Pleasure (PREVA)</td>
<td>.251</td>
<td>.617</td>
</tr>
<tr>
<td>Mood Arousal (PREAR)</td>
<td>3.342</td>
<td>.070</td>
</tr>
<tr>
<td>Ad Mood Potency (AD)</td>
<td>7.219</td>
<td>.008</td>
</tr>
<tr>
<td><strong>2-way Interactions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Pleasure x Mood Arousal (PREVA*PREAR)</td>
<td>.130</td>
<td>.719</td>
</tr>
<tr>
<td>Mood Pleasure x Ad Mood Potency (PREVA*AD)</td>
<td>.144</td>
<td>.705</td>
</tr>
<tr>
<td>Mood Arousal x Ad Mood Potency (PREAR*AD)</td>
<td>4.288</td>
<td>.041</td>
</tr>
<tr>
<td><strong>3-way Interaction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Pleasure x Mood Arousal x Ad Mood Potency (PREVA<em>PREAR</em>AD)</td>
<td>.213</td>
<td>.645</td>
</tr>
</tbody>
</table>
## TABLE 6.16
Product Evaluation
Analysis of Covariance Results

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>F-Statistics</th>
<th>Significant Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Covariate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Mood Arousal (MOODAR)</td>
<td>1.438</td>
<td>.233</td>
</tr>
<tr>
<td><strong>Main Effects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Pleasure (PREVA)</td>
<td>.324</td>
<td>.570</td>
</tr>
<tr>
<td>Mood Arousal (PREAR)</td>
<td>.510</td>
<td>.477</td>
</tr>
<tr>
<td>Ad Mood Potency (AD)</td>
<td>.367</td>
<td>.546</td>
</tr>
<tr>
<td><strong>2-way Interactions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Pleasure x Mood Arousal (PREVA*PREAR)</td>
<td>.265</td>
<td>.608</td>
</tr>
<tr>
<td>Mood Pleasure x Ad Mood Potency (PREVA*AD)</td>
<td>.223</td>
<td>.638</td>
</tr>
<tr>
<td>Mood Arousal x Ad Mood Potency (PREAR*AD)</td>
<td>1.547</td>
<td>.216</td>
</tr>
<tr>
<td><strong>3-way Interaction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mood Pleasure x Mood Arousal x Ad Mood Potency</td>
<td>2.124</td>
<td>.148</td>
</tr>
<tr>
<td>(PREVA<em>PREAR</em>AD)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.17
ANCOVA Results For All Dependent Variables (F Values)

<table>
<thead>
<tr>
<th>Effect</th>
<th>VACH</th>
<th>ARCH</th>
<th>VALCR</th>
<th>ATT_sd</th>
<th>ATT_pd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariate - MOODAR</td>
<td>.015</td>
<td>.026</td>
<td>4.25(^b)</td>
<td>.354</td>
<td>1.438</td>
</tr>
<tr>
<td>PREVA</td>
<td>92.613(^a)</td>
<td>.046</td>
<td>.251</td>
<td>.817</td>
<td>.324</td>
</tr>
<tr>
<td>PREAR</td>
<td>.271</td>
<td>43.645(^a)</td>
<td>3.342(^c)</td>
<td>.858</td>
<td>.510</td>
</tr>
<tr>
<td>AD</td>
<td>45.636(^a)</td>
<td>2.254</td>
<td>7.219(^a)</td>
<td>14.839(^a)</td>
<td>.367</td>
</tr>
<tr>
<td>PREVA*PREAR</td>
<td>1.850</td>
<td>.278</td>
<td>.130</td>
<td>.031</td>
<td>.265</td>
</tr>
<tr>
<td>PREVA*AD</td>
<td>3.603(^c)</td>
<td>1.015</td>
<td>.144</td>
<td>.490</td>
<td>.223</td>
</tr>
<tr>
<td>PREAR*AD</td>
<td>.007</td>
<td>.317</td>
<td>4.288(^b)</td>
<td>5.465(^b)</td>
<td>1.547</td>
</tr>
<tr>
<td>PREVA<em>PREAR</em>AD</td>
<td>2.461</td>
<td>2.949(^e)</td>
<td>.213</td>
<td>.152</td>
<td>2.124</td>
</tr>
</tbody>
</table>

a: p < .01  
b: p < .05  
c: p < .10
Footnotes

1. Many emotion theorists, like Bower (1981), Watson and Tellegen (1985), seem to use the term "mood" interchangeably with other terms such as affect or emotion. However, there is a small group of theorists including the behaviourist Vincent Nowlis (1965), the neuropsychologist Karl Pribram (1970), the psychodynamicist Edith Jacobson (1957), and the cognitivist Alice Isen (1984), who have attempted to preserve a distinctive meaning for the term mood.

As compared with emotions, which are thought to instigate a relatively limited set of responses, moods are capable of altering our affective, cognitive, and behavioral responses to a wide array of objects and events. Isen (1984) suggests that the pervasiveness or lack of specificity of mood is its most defining characteristics, especially when one attempts to distinguish between mood and emotion.

In addition to the consensus that the effects of mood are general and pervasive whereas those of emotion are relatively specific, mood theorists also agree that moods are typically less intense than emotions.

A third area of agreement concerns the role or function played by moods. Nowlis, Pribram, and Jacobsen, explicitly concur that moods inform us about our general state of being. Pribram (1970) describes them as "monitors" that reflect our appraisal of our life circumstances. Jacobsen (1957) called them "barometers of the ego" (p.75), and Nowlis (1965,1970; Nowlis & Nowlis, 1956), who has been most explicit on this point, defines moods as:

"an intervening variable or predispositional factor that is a source of information or discriminable stimuli to the organism, about the current functioning characteristics of the organism." (Nowlis & Nowlis, 1956, p.352)

In this capacity, moods are seen as facilitating self-regulation.

In summary, moods can be defined in this study as:

"affective states that are capable of influencing a broad array of potential responses, many of which seem quite unrelated to the mood-precipitating event. As compared to emotions, moods are typically less intense affective states and are thought to be involved in the instigation of self-regulatory processes."

Moreover, the term "mood" will be used interchangeably with other terms such as affect or event in this study; unless it is specified.

2. Researchers often confront data that is most conveniently discussed by splitting it into groups. The grouping may reflect different data sources (different cities, countries, or
organizations), different time periods, different experimental conditions, or groupings created from the variables available within a data set (e.g., grouping on sex, religion, or age). As long as group membership is clearly defined (i.e., the groups are mutually exclusive) and as long as the data for each group constitute a random sample from its respective population, a multi-sample LISREL analysis is appropriate. It is permissible to model husbands and their wives, or parents and their children. All one needs is an input covariance or correlation matrix for the two groups.

Though each such group might be modeled with separate LISREL run, two or more groups may be stacked together for simultaneous estimation. Stacking groups together allows some of the effect coefficients to be constrained to be equal between the groups while other coefficients vary between the groups. Since many variables may display differential effects in the different groups, stacking permits estimation of models containing multiple interactions between the variable providing the grouping and the other variables in the model (Hayduk, 1987).

In this study, stacked model could be used to test whether the estimates from model developed on the data of the analysis sample differ significantly from the estimates obtained when the same model is tested on the data of the hold-out sample -- that is, as a test of whether there was substantial "capitalizing on chances" during model development.

3. Titles of the Music Tested in this Study

**Classical Music**

(1) Mozart: Divertimento
   Allegro

(2) Mozart: Divertimento #1 in D Major KV 136
   Allegro

(3) Mozart: Divertimento #1 in D Major KV 136
   Presto

(4) Mozart: Eine Kleine Nachtmusik
   Allegro

(5) Mozart: Eine Kleine Nachtmusik
   Romance: Andante

(6) Mozart: Eine Kleine Nachtmusik
   Menuetto: Allegretto, Trio

(7) Mozart: Eine Kleine Nachtmusik
Rondo: Allegro

(8) Mozart: Posthorn (Serenade)
    Adagio Maestoso - Allegro Con Spirito

(9) Mozart: Posthorn (Serenade)
    Menuetto: Allegretto

(10) Mozart: Posthorn (Serenade)
    Concertante: Andante Grazioso

(11) Mozart: Posthorn (Serenade)
    Rondo: Allegro Ma Non Troppo

(12) Mozart: Posthorn (Serenade)
    Andantino

(13) Mozart: Posthorn (Serenade)
    Menuetto: Trio I, Trio II

(14) Mozart: Posthorn (Serenade)
    Finale: Presto

(15) J.S. Bach: Ave Maria

(16) St. Saens: The Swan

(17) Schumann: Traumerei

(18) Grainger: Irish Tune from Country Derry

(19) Rimsky-Korsakov: The Flight of the Bumble Bee

(20) Lehár: Vilja - Lied (from "The Merry Widow")

(21) Albinoni/Giazotto: Adagio in G minor

(22) Mozart: Divertimento, #1 in D Major
    Andante

Rock and Roll

(31) Blaze of Glory
(33) Epic
(34) Poison
(35) Suicide Blonde
(36) Cradle of Love
(37) Your Mama Don’t Dance
(38) Love in an Elevator
(39) Dr. Feelgood
(40) Sweet Chile O’mine
(41) Beds Are Burning

Jazz Music

(51) You can count on me (Spyro Gyra)
(52) What Exit (Spyro Gyra)
(53) Kokomo (Wilson - Porter)
(54) Didn’t He Ramble (Traditional)
(55) Para Tilatino (Spyro Gyra)
(56) The Unknown Soldier (Spyro Gyra)
(57) Old San Juan (Spyro Gyra)
(58) Georgia On My Mind (Carmichael)
(59) If I Could be with You An Hour Tonight (Cramer - Johnson)
(60) Sleepy Time Down South (L. & O. Rene-Mase)
(61) Bus Stop (Morton)
(62) Joanna - A Theme from Hong Kong (Newman)
Other Music

(71) Bilitis
(72) Nadia’s Theme
(90) Raga Bhopali (Mohanam)
(91) Saraseeruhasana - Naada Loludai
(110) Whatever We Imagine (David Foster)

4. It was observed that when subjects were asked to listen to a music in groups, "theater effect" occurred. That is, each subject’s reaction was influenced by the presence of other subjects in the laboratory. For example, a subject’s affective response would vary depending on whether the other subjects presence laugh, sigh, or keep silence when a sad (happy) music was being played.

5. In fact, the results did not change even with these three subjects included in the analysis.

6. In fact, the ANCOVA tests with either raw data or reciprocal transformations did not result in any significant differences. Therefore, only the results for raw data analysis were reported in later sections.

7. Another approach to examine the mediating role played by the change in pleasure (VACH) or change in arousal (ARCH) is the use of VACH or ARCH in an ANCOVA on ad attitude (ATTm).

With VACH as a covariate, the previously highly significant main effect of ad type on ATTm in Section 6.4.2 (F = 14.838, p = .000) was rendered less significant (F = 4.737, p = .032). In addition, the effect of the covariate VACH on ATTm was also found to be highly significant (F = 14.722, p = .000).

On the other hand, when ARCH was used as a covariate, the previously significant main effect of ad type and interaction effect between ad type and pre-processing mood arousal on ATTm still remain. In addition, the covariate ARCH was found to be insignificant (F = .223, p = .638).

In summary, the above findings provided consistent evidence suggesting that VACH, not ARCH, mediated the effects of ad type and pre-processing mood on ad attitude.
Bibliography


Rodgers, R., & O.H. Hammerstein (1951), *The King and I*, New York: Williamson Music Co., Inc..


Appendix 1
The Questionnaire for the 1st Pretest of Ads

Instruction: The purpose of this study is to understand "what thoughts and feelings people naturally have when they see ads." You are requested to fill in a short questionnaire for each ad. Please DO NOT turn to next page until you are told to do so.

******************************************************************************

Personal Information:

(1) Sex: Male _____ Female _____

(2) Ethnic Origin:
British _____
French _____
German _____
Italian _____
Chinese _____
Native People _____
Others __________________ (specify)
Name of the ad: ______________________

1. It is an eye-catching ad.  strongly agree 7 6 5 4 3 2 1  strongly disagree
2. The ad made me generate a lot of thoughts related to the ad/product advertised  strongly agree 7 6 5 4 3 2 1  strongly disagree
3. The ad made me feel pleasant 7 6 5 4 3 2 1  unpleasant
4. The ad made me feel aroused 7 6 5 4 3 2 1  unaroused
5. The ad made me generate a lot of thoughts related to the ad/product advertised  strongly agree 7 6 5 4 3 2 1  strongly disagree
6. I like the ad  strongly agree 7 6 5 4 3 2 1  strongly disagree

Name of the ad: ______________________

1. It is an eye-catching ad.  strongly agree 7 6 5 4 3 2 1  strongly disagree
2. The ad made me generate a lot of thoughts related to the ad/product advertised  strongly agree 7 6 5 4 3 2 1  strongly disagree
3. The ad made me feel pleasant 7 6 5 4 3 2 1  unpleasant
4. The ad made me feel aroused 7 6 5 4 3 2 1  unaroused
5. The ad made me generate a lot of thoughts related to the ad/product advertised  strongly agree 7 6 5 4 3 2 1  strongly disagree
6. I like the ad  strongly agree 7 6 5 4 3 2 1  strongly disagree

Name of the ad: ______________________

1. It is an eye-catching ad.  strongly agree 7 6 5 4 3 2 1  strongly disagree
2. The ad made me generate a lot of thoughts related to the ad/product advertised  strongly agree 7 6 5 4 3 2 1  strongly disagree
3. The ad made me feel pleasant 7 6 5 4 3 2 1  unpleasant
4. The ad made me feel aroused 7 6 5 4 3 2 1  unaroused
5. The ad made me generate a lot of thoughts related to the ad/product advertised  strongly agree 7 6 5 4 3 2 1  strongly disagree
6. I like the ad  strongly agree 7 6 5 4 3 2 1  strongly disagree
Appendix 2
The Questionnaire for Scale Development

Instruction: The purpose of this study is to understand "what thoughts and feelings people naturally have when they see ads." You are requested to fill in a short questionnaire for each ad. Please DO NOT turn to next page until you are told to do so.

**********************************************************************************************

Personal Information:

(1) Sex: Male ______ Female ______

(2) Ethnic Origin:
   British ______
   French ______
   German ______
   Italian ______
   Chinese ______
   Native People ______
   Others ___________________ (specify)
Name of the Ad: __________________________

PART I: Ad Evaluation

(1) Have you seen this ad before?

Never ______ At Least Once ______

(2) The ad is

<table>
<thead>
<tr>
<th></th>
<th>7 6 5 4 3 2 1</th>
<th>7 6 5 4 3 2 1</th>
<th>7 6 5 4 3 2 1</th>
<th>7 6 5 4 3 2 1</th>
<th>7 6 5 4 3 2 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Favorable</td>
<td>Favorable</td>
<td>Favorable</td>
<td>Favorable</td>
<td>Favorable</td>
<td>Favorable</td>
</tr>
<tr>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Interesting</td>
<td>Interesting</td>
<td>Interesting</td>
<td>Interesting</td>
<td>Interesting</td>
<td>Interesting</td>
</tr>
<tr>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
</tr>
</tbody>
</table>

PART II: Your Thoughts and Feelings when you see this ad.

Instruction: Please evaluate the following statements for this ad.

1. The ad made me feel happy 7 6 5 4 3 2 1 unhappy 7 6 5 4 3 2 1
2. The ad made me feel stimulated 7 6 5 4 3 2 1 relaxed 7 6 5 4 3 2 1
3. The ad was very absorbing. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
4. The ad made me feel pleased 7 6 5 4 3 2 1 displeased 7 6 5 4 3 2 1
5. The ad made me feel annoyed 7 6 5 4 3 2 1 gratified 7 6 5 4 3 2 1

6. The ad captured my attention. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
7. The ad keeps running through my mind after I have stopped reading it. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
8. The ad made me feel excited 7 6 5 4 3 2 1 calm 7 6 5 4 3 2 1
9. When I was reading the ad I kept on asking myself whether the idea in the ad is convincing or not. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
10. The ad made me feel wide-awake 7 6 5 4 3 2 1 sleepy 7 6 5 4 3 2 1
11. It is the kind of ad that I want to read it as soon as I see it. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
12. When I was reading the ad I attempted to compare the brand advertised with other related brands in the same product category. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
13. The ad is eye-catching. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
14. The ad made me feel delighted 7 6 5 4 3 2 1 distressed 7 6 5 4 3 2 1
15. The ad made me forget what I was thinking before. strongly agree 7 6 5 4 3 2 1 strongly disagree 7 6 5 4 3 2 1
16. The ad made me generate a lot of thoughts unrelated to the ad.  

17. The ad made me feel joyful.  

18. The ad made me feel aroused.  

19. The ad made me generate a lot of thoughts unrelated to the product advertised.  

20. I could not help concentrating on this ad as soon as I first saw it.  

21. It is the kind of ad I can remember for a long time once I have seen it.  

22. The ad made me generate a lot of thoughts related to the ad.  

23. The ad made me generate a lot of thoughts related to the product advertised.  

24. The ad made me feel sad.  

25. The ad made me feel inactive.  

26. There was nothing special about the ad that made it different from the others.  

27. The ad did not really hold my attention.  

28. When I was reading the ad I attempted to relate the product advertised to myself.  

29. The ad made me feel drowsy.  

30. The ad was worth remembering.
Appendix 3
The Questionnaire for Examining Concurrent and Predictive Validity

QUESTIONNAIRE #1

Instruction: The purpose of this study is to understand "what thoughts and feelings people naturally have when they see ads." You are requested to fill in a short questionnaire for a specific ad. Thanks for your help and cooperation.

**********************************************************************

Personal Information:

(1) Sex: Male _____ Female _____

(2) Ethnic Origin:
   British _____
   French _____
   German _____
   Italian _____
   Chinese _____
   Native People _____
   Others __________________ (specify)
Name of the Ad: ____________________________

PART I: Ad Evaluation

(1) Have you seen this ad before?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>At Least Once</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7 6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

(2) The ad is

<table>
<thead>
<tr>
<th></th>
<th>Favorable</th>
<th>Good</th>
<th>Interesting</th>
<th>Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unfavorable</td>
<td>7 6 5 4 3 2 1</td>
<td>Bad</td>
<td>Uninteresting</td>
<td>Ineffective</td>
</tr>
</tbody>
</table>

PART II: Your Thoughts and Feelings when you see this ad.

Instruction: Please evaluate the following statements for this ad.

1. The ad made me feel happy 7 6 5 4 3 2 1 unhappy
2. The ad made me feel stimulated 7 6 5 4 3 2 1 relaxed
3. The ad was very absorbing. strongly agree 7 6 5 4 3 2 1 strongly disagree
4. The ad made me feel pleased 7 6 5 4 3 2 1 displeased
5. The ad captured my attention. strongly agree 7 6 5 4 3 2 1 strongly disagree

6. The ad keeps running through my mind after I have stopped reading it. strongly agree 7 6 5 4 3 2 1 strongly disagree
7. The ad made me feel excited 7 6 5 4 3 2 1 calm
8. It is the kind of ad that I want to read it as soon as I see it. strongly agree 7 6 5 4 3 2 1 strongly disagree
9. The ad is eye-catching. strongly agree 7 6 5 4 3 2 1 strongly disagree
10. The ad made me feel delighted 7 6 5 4 3 2 1 distressed

11. The ad made me forget what I was thinking before. strongly agree 7 6 5 4 3 2 1 strongly disagree
12. The ad made me feel joyful 7 6 5 4 3 2 1 depressed
13. The ad made me feel aroused 7 6 5 4 3 2 1 unaroused
14. I could not help concentrating on this ad as soon as I first saw it. strongly agree 7 6 5 4 3 2 1 strongly disagree
15. It is the kind of ad I can remember for a long time once I have seen it. strongly agree 7 6 5 4 3 2 1 strongly disagree
16. The ad made me generate a lot of thoughts related to the ad. strongly agree 7 6 5 4 3 2 1 strongly disagree
17. There was nothing special about the ad that made it different from the others. strongly agree 7 6 5 4 3 2 1 strongly disagree
18. The ad did not really hold my attention. strongly agree 7 6 5 4 3 2 1 strongly disagree
Appendix 4
1st Questionnaire for the Main Experiment

QUESTIONNAIRE ON
MUSIC APPRECIATION

RESEARCH NUMBER: _______________________

TREATMENT: ___________________________
Q1: INSTRUCTION:

We will use the following matrix to measure your feelings at a particular moment. Two types of feelings are of interest: one is your level of pleasure - that is, how happy or sad you feel - and the other is your level of arousal.

The center of the matrix represents neutral feelings: you are neither happy nor sad, and you are neither aroused or unaroused. As you move from the center column to the right, your mood changes for the better - from feeling slightly happy to moderately happy to very happy and finally to extremely happy - and as you move from the center column to the left, your mood changes for the worse - from feeling slightly sad to moderately sad to very sad to extremely sad. In a similar manner, as you move upwards from the center row, your level of arousal becomes progressively higher, and as you move downwards from the center row, your level of arousal becomes progressively lower.

Taken together, for example, if you now feel very happy and excited, you should mark an X on A. On the other hand, if you feel very sad and moderately aroused, you should mark an X on B. Similarly, if you are experiencing slightly happy and average level of arousal, you should place an X on D. Finally, if you feel very sad and depressed, you should place an X on C.

<Please DO NOT turn to the next page until you are told to do so>
YOUR CURRENT MOOD

INSTRUCTION: With the following matrix, please mark the one square that best describes your mood right now.
MUSIC APPRECIATION

NUMBER OF THE MUSIC: ________________________

Q1: INSTRUCTION:

Please circle the appropriate numbers that best describe the music you just heard.

Fast 1 2 3 4 5 6 7  Slow 1 2 3 4 5 6 7
Displeasing 1 2 3 4 5 6 7  Pleasing 1 2 3 4 5 6 7
Feminine 1 2 3 4 5 6 7  Masculine 1 2 3 4 5 6 7
Stimulating 1 2 3 4 5 6 7  Relaxing 1 2 3 4 5 6 7
Old 1 2 3 4 5 6 7  New 1 2 3 4 5 6 7
Simple 1 2 3 4 5 6 7  Complex 1 2 3 4 5 6 7
Familiar 1 2 3 4 5 6 7  Unusual 1 2 3 4 5 6 7
Warm 1 2 3 4 5 6 7  Cold 1 2 3 4 5 6 7
Joyful 1 2 3 4 5 6 7  Depressing 1 2 3 4 5 6 7
Repetitive 1 2 3 4 5 6 7  Varied 1 2 3 4 5 6 7
Heavy 1 2 3 4 5 6 7  Light 1 2 3 4 5 6 7
Quiet 1 2 3 4 5 6 7  Loud 1 2 3 4 5 6 7
Happy 1 2 3 4 5 6 7  Unhappy 1 2 3 4 5 6 7
Constant 1 2 3 4 5 6 7  Changing 1 2 3 4 5 6 7
Exciting 1 2 3 4 5 6 7  Calm 1 2 3 4 5 6 7
Soft 1 2 3 4 5 6 7  Hard 1 2 3 4 5 6 7
Regular 1 2 3 4 5 6 7  Irregular 1 2 3 4 5 6 7
Delighted 1 2 3 4 5 6 7  Distressed 1 2 3 4 5 6 7
Serious 1 2 3 4 5 6 7  Humorous 1 2 3 4 5 6 7
Intellectual 1 2 3 4 5 6 7  Emotional 1 2 3 4 5 6 7
Jagged 1 2 3 4 5 6 7  Smooth 1 2 3 4 5 6 7
Arousing 1 2 3 4 5 6 7  Unarousing 1 2 3 4 5 6 7
Q2: Music Evaluation

1. This music is good
   7 6 5 4 3 2 1
   This music is bad

2. I dislike this music
   7 6 5 4 3 2 1
   I like this music

3. This music is interesting
   7 6 5 4 3 2 1
   This music is not interesting

Q3. If you have a choice, how long would you like to listen to this music?

   minute(s)  0 1 2 3 4 5 6 7 8 9 10  minute(s)

Q4: INSTRUCTION

With the following matrix, please mark the one square that best describes your mood right now.
Appendix 5
2nd Questionnaire for the Main Experiment

QUESTIONNAIRE ON AD EVALUATION

Instruction: The purpose of this study is to understand "what thoughts and feelings people naturally have when they see ads." You are requested to fill in a short questionnaire for a number of specific ads. Thanks for your help and cooperation.

*************************************************************************

Personal Information:

(1) Sex: Male _____ Female _____

(2) Ethnic Origin:
    Caucasian/White _____
    Chinese _____
    Indian _____
    Others ____________________ (specify)

(3) Your Research Number: ____________________
INSTRUCTION: With the following matrix, please mark the one square that best describes your mood right now.
**PART I: Ad Evaluation**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Adjectives</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) The ad is pleasant</td>
<td>7 6 5 4 3 2 1</td>
<td>unpleasant</td>
</tr>
<tr>
<td>(2) The ad is professionally made</td>
<td>7 6 5 4 3 2 1</td>
<td>not professionally made</td>
</tr>
<tr>
<td>(3) The ad is bad</td>
<td>7 6 5 4 3 2 1</td>
<td>good</td>
</tr>
<tr>
<td>(4) I like the ad</td>
<td>7 6 5 4 3 2 1</td>
<td>dislike the ad</td>
</tr>
<tr>
<td>(5) The ad is enjoyable</td>
<td>7 6 5 4 3 2 1</td>
<td>not enjoyable</td>
</tr>
<tr>
<td>(6) The ad is not informative</td>
<td>7 6 5 4 3 2 1</td>
<td>informative</td>
</tr>
<tr>
<td>(7) I react favorably to the ad</td>
<td>7 6 5 4 3 2 1</td>
<td>react unfavorably to the ad</td>
</tr>
<tr>
<td>(8) The ad is not helpful to me</td>
<td>7 6 5 4 3 2 1</td>
<td>helpful to me</td>
</tr>
<tr>
<td>(9) The ad is entertaining</td>
<td>7 6 5 4 3 2 1</td>
<td>not entertaining</td>
</tr>
<tr>
<td>(10) The ad is not important to me</td>
<td>7 6 5 4 3 2 1</td>
<td>important to me</td>
</tr>
<tr>
<td>(11) The ad is useful to me</td>
<td>7 6 5 4 3 2 1</td>
<td>not useful to me</td>
</tr>
<tr>
<td>(12) I feel negative to the ad</td>
<td>7 6 5 4 3 2 1</td>
<td>positive to the ad</td>
</tr>
<tr>
<td>(13) The ad is fun to read</td>
<td>7 6 5 4 3 2 1</td>
<td>not fun to read</td>
</tr>
</tbody>
</table>

**PART II: Your Thoughts and Feelings when you see this ad.**

Instruction: Please evaluate the following statements for this ad.

1. The ad made me feel | happy | 7 6 5 4 3 2 1 | unhappy |
2. The ad made me feel | stimulated | 7 6 5 4 3 2 1 | relaxed |
3. The ad was very absorbing. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
4. The ad made me feel | pleased | 7 6 5 4 3 2 1 | displeased |
5. The ad captured my attention. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
6. The ad keeps running through my mind after I have stopped reading it. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
7. The ad made me feel | excited | 7 6 5 4 3 2 1 | calm |
8. It is the kind of ad that I want to read it as soon as I see it. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
9. The ad is eye-catching. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
10. The ad made me feel | delighted | 7 6 5 4 3 2 1 | distressed |
11. The ad made me forget what I was thinking before. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
12. The ad made me feel | joyful | 7 6 5 4 3 2 1 | depressed |
13. The ad made me feel | aroused | 7 6 5 4 3 2 1 | unaroused |
14. I could not help concentrating on this ad as soon as I first saw it. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
15. It is the kind of ad I can remember for a long time once I have seen it. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
16. The ad made me generate a lot of thoughts related to the ad. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
17. There was nothing special about the ad that made it different from the others. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
18. The ad did not really hold my attention. | strongly agree | 7 6 5 4 3 2 1 | strongly disagree |
PART III: Product Evaluation

(1) Life insurance is good to me  7 6 5 4 3 2 1  bad to me
(2) I dislike  7 6 5 4 3 2 1  like life insurance
(3) I react favorably to  7 6 5 4 3 2 1  unfavorably to life insurance
(4) I feel negative  7 6 5 4 3 2 1  positive to life insurance

(5) Will you buy insurance in the coming five years?
    Definitely yes  10 9 8 7 6 5 4 3 2 1 Definitely no

PART IV: Please write down all your thoughts and feelings while reading the advertisement.
Appendix 6
CODING SCHEME FOR COGNITIVE RESPONSES

(1) Ad-related vs. Ad-unrelated Statements

Ad-related statements are statements containing a direct reference to the ad as a whole or to the material seen in it.

Ad-unrelated statements are statements containing comments unrelated to the ad.

(2) Valence of the Statements

Positive statements: Statements which are positive or favorable in tone including:

(i) Support arguments: Statements which are directed in favor of the idea or use of the product in the advertising message.

   e.g., Life insurance is good for every family.

(ii) Execution bolstering: statements including positive reactions to execution credibility and/or execution elements and style.

   e.g., This ad reminds me something about a happy/warm family.
       I like the smiling faces of the ad.
       This ad made me feel happy.

Negative statements: Statements which are negative or unfavorable in tone including:

(i) Counter arguments: Statements which are directed against the idea or the use of the product in the advertising message.

   e.g., Life insurance is useless to me.

(ii) Execution discounting: statements including negative reactions to execution credibility and/or execution elements and style.
e.g., This ad is not interesting at all.  
The ad is irritating/stupid  
This ad made me sick.  
There is nothing special about this ad.  
This ad made me feel sad.

Neutral statements: Statements which are neither positive or negative

e.g., I think I have seen this ad before.
Appendix 7: AIM Questionnaire

DIRECTIONS: The following questions refer to the emotional reactions to typical life-events. Please indicated how YOU react to these events by circling a number from the following scale. Please base your answers on how YOU react, not on how you think others react or how you think a person should react.

1: Never
2: Almost never
3: Occasionally
4: Usually
5: Almost always
6: Always

<table>
<thead>
<tr>
<th>Question</th>
<th>Never</th>
<th>Almost always</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When I accomplish something difficult I feel delighted or elated.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. When I feel happy it is a strong type of exuberance.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I enjoy being with other people very much.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I feel pretty bad when I tell a lie.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. When I solve a small personal problem, I feel euphoric.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. My emotions tend to be more intense than those of most people.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. My happy moods are so strong that I feel like I'm &quot;in heaven.&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I get overly enthusiastic.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. If I complete a task I thought was impossible, I am ecstatic.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. My heart races at the anticipation of some exciting event.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Sad movies deeply touch me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. When I'm happy it's a feeling of being untroubled and content</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rather than being zestful and aroused.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. When I talk in front of a group for the first time my voice gets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>shaky and my heart races.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. When something good happens, I am usually much more</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>jubilant than others.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. My friends might say I'm emotional.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. The memories I like the most are of those of times when</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I felt content and peaceful rather than zestful and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>enthusiastic.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. The sight of someone who is hurt badly affects me strongly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. When I'm feeling well it's easy for me to go from being in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a good mood to being really joyful.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. &quot;Calm and cool&quot; could easily describe me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. When I'm happy I feel like I'm bursting with joy.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
21. Seeing a picture of some violent car accident in a newspaper makes me feel sick to my stomach.  
   Never  Always
   1  2  3  4  5  6
22. When I'm happy I feel very energetic.  
   Never  Always
   1  2  3  4  5  6
23. When I receive an award I become overjoyed.  
   Never  Always
   1  2  3  4  5  6
24. When I succeed at something, my reaction is calm contentment.  
   Never  Always
   1  2  3  4  5  6
25. When I do something wrong I have strong feelings of shame and guilt.  
   Never  Always
   1  2  3  4  5  6
26. When I remain calm even on the most trying days.  
   Never  Always
   1  2  3  4  5  6
27. When things are going good I feel "on top of the world."  
   Never  Always
   1  2  3  4  5  6
28. When I get angry it's easy for me to still be rational and not overreact.  
   Never  Always
   1  2  3  4  5  6
29. When I know I have done something very well, I feel relaxed and content rather than excited and elated.  
   Never  Always
   1  2  3  4  5  6
30. When I do feel anxiety it is normally very strong.  
   Never  Always
   1  2  3  4  5  6
31. My negative moods are mild in intensity.  
   Never  Always
   1  2  3  4  5  6
32. When I am excited over something I want to share my feelings with everyone.  
   Never  Always
   1  2  3  4  5  6
33. When I feel happiness, it is a quiet type of contentment.  
   Never  Always
   1  2  3  4  5  6
34. My friends would probably say I'm a tense or "high-strung" person.  
   Never  Always
   1  2  3  4  5  6
35. When I'm happy I bubble over with energy.  
   Never  Always
   1  2  3  4  5  6
36. When I feel guilty, this emotion is quite strong.  
   Never  Always
   1  2  3  4  5  6
37. I would characterize my happy moods as closer to contentment than to joy.  
   Never  Always
   1  2  3  4  5  6
38. When someone compliments me, I get so happy I could "burst."  
   Never  Always
   1  2  3  4  5  6
39. When I am nervous I get shaky all over.  
   Never  Always
   1  2  3  4  5  6
40. When I am happy the feeling is more like contentment and inner calm than one of exhilaration and excitement.  
   Never  Always
   1  2  3  4  5  6
The reciprocal transformation was tried. The reciprocal transformation:

\[ Y' = \frac{1}{Y + 0.1} \]

were made on both VACH and ARCH

In this case:

- \( Y \) is the original dependent variable (either VACH or ARCH)
- \( Y' \) is the transformed dependent variable

For reciprocal transformation, all the three tests for homogeneity of variance - Cochran’s Max. Variance/Sum of Variances, Bartlett-Box F, and Hartley’s Max. Variance/Min. Variance - accept the equality of variance hypothesis for both VACH and ARCH.
Appendix 9
The Six Ads Used for the Test of Predictive Validity

Cathay Pacific scores ten out of ten for service.
Because only Cathay Pacific offers you the warmth and hospitality of not just one, but ten Asia lands.
Superior air and light service is just one of the ways in which we work towards achieving our prime objective:
Making sure that everyone arrives in the best possible shape.

Maybe, this year?
Appendix 9
The Six Ads Used for the Test of Predictive Validity
Two months ago, five-year-old Julia had a secure future. She was a member of a happy family. Now she is an orphan. Her parents were killed in a tragic car accident. And her future is uncertain. Her life could have been better, if her parents had thought of life insurance.

SHE COULD HAVE LIVED BETTER!

PROTECT YOUR CHILDREN AND THEIR FUTURE.
YOU CAN ENJOY MORE FROM LIFE!

Do you want to be happier? Do you want to pamper yourself? Talk to Metropolitan Life. We'll take care of your home, your valuables, and your future. So that you can get on with enjoying life.

GET MET. IT PAYS.

Metropolitan Life* AND AFFILIATED COMPANIES