

MEASURING EMOTIONAL RESPONSE TO TELEVISION ADVERTISING

BY

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ABSTRACT

The objective of this thesis is to initiate development of a valid and reliable measurement process to assess a viewer's emotional response to television advertising. The development of this measure is based on current psychological theories about the emotional process, and takes advantage of current methods available to measure emotional response. The goals for the measurement process are to provide information on emotional response to television advertising from two diverse sources, automatic real-time response, and cognitive after-the-fact responses.

The selection of instruments to meet these goals first involved a review of the psychological literature on emotional theory to provide direction on defining what is an emotional response, and how the emotional subcomponents relate. This provides direction for evaluating the instruments available for measuring emotional response, and selecting two that will satisfy the above goal. The use of these measurement instruments in a pretest is then outlined, and the thesis concludes with directions for future research.

The construct of emotion is complex and multidimensional, including interactions among neural hormonal systems, conscious and unconscious cognition, physiological adjustments, affective response, and expressive behavior. These dimensions suggest four categories that

emotional response measurement instruments can be grouped into; cognitive, affective, psychological and behavioral.

Measurement instruments in each of the four above categories have problems in their applicability as stand alone measures of emotional response to television advertisements. Of all the measurement instruments reviewed, the Beaumont Emotion Battery and the Facial Action Coding System appear to be compatible with the construct of emotion and each other. These measures can provide similar data, and capture virtually the same categories of emotional response.

The usefulness of combining these two measures should be explored through a pretest. In designing the pretest, the success in capturing specific emotional responses attributable to the advertisement will depend on the setting used, the selection of advertisements and the program these advertisements are embedded in. The setting should copy a normal viewing environment to encourage normal behavior in subjects. The advertisements used should maximize the variability in emotional response, while being new to the subjects to avoid frequency biases. The program should be carefully selected to avoid content effects. When subjects proceed through the pretest procedure of watching a television program while having their facial expressions videotaped, and then responding to the Beaumont Emotion Battery after the program ends, careful attention to the environment, advertisements, and program will reduce the potential for error and bias in the pretest.

To structure and delineate areas for new research, emotional response to television advertising can be approached from the viewpoint of what could impact or influence the response. This leads to the definition of the following areas of influence: the advertisement; the group of advertisements the advertisement is placed in; the program; the viewing environment; and the viewer.

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I. PREFACE

1.1 Introduction

Consumer behavior research in television advertising effects and effectiveness has historically focused primarily on the cognitive processing of information within the advertisement (Shimp & Gresham, 1983; Bettman, 1979; Wright, 1973; Ray & Ward, 1976). This type of research has been driven by the "hierarchy of effects" model of advertising effectiveness introduced by Colley (1961) and Lavidge & Steiner (1961), and elaborated by Engel et.al. (1968), Howard & Sheth (1969) and Nicosia (1966). Bettman (1979) has refined this model to suggest that consumer purchase behavior is a result of the consumer seeking and evaluating alternative sources of produce information in order to select a product that will meet the consumer's goals. The cognitive approach to consumer behavior advanced by Bettman (1979) has resulted in a strong information processing approach to research on consumer response to persuasive appeals, and an emphasis in research on analyzing the information content of a message, factors affecting the perception of information, and the encoding and storage of information from the message. This approach to consumer behavior assumes that information processes are the driving force behind consumer decision making.

Support for the belief in a rational man in consumer behavior has been provided by the "attitudes are based on attributes" school of brand superiority proposed by Fishbein and others. Cognitions are viewed as preceding affect in the development of attitudes toward a

product, indicating that rationality is primary. Ajzen & Fishbein (1980) emphasize the rationality of man by making the assumption that human beings are usually quite rational and that they make systematic use of the information available to them. One result of this interest in information processing theory and belief in man's rationality is a lack of research on the use of emotion as a persuasion appeal in television advertising (Stout & Leckenby, 1984a). This lack of research stands in contrast to the many advertisements based on emotional appeal being used in television.

There is some indication however that this situation is changing. In the research literature there has been a recent surge of interest in the role of emotion in persuasive appeals. Interest in emotion and advertising is not new (Axelrod, 1963), but it has been overshadowed until recently by the dominance of information processing theory. The recent interest in emotional advertising can be attributed to three factors (Stout & Leckenby, 1984a): 1) marketplace influences; 2) advances in theory; and 3) a growing maturity in advertising research.

Several marketplace influences have precipitated interest in emotional advertising. Television networks and advertisers are increasingly concerned about viewers "zipping" (using fast forward to cut down advertising time) and "zapping" (editing advertisements out of programs entirely) advertisements, which is allowed by the new technology available. Emotional advertising is seen as a partial solution to this problem under the assumption that emotion attracts and holds attention. The situation where a market is dominated by many highly competitive, low involvement products with similar attributes is

another reason for interest in emotion (Batra, 1984). In an effort to gain message and product involvement, advertisers have turned to emotional persuasive appeals. Some recent campaigns using emotional appeals are Maxwell House ("Get that good to the last drop feelin'"), Sergio Valente ("Jeans for the way you live and love") and Dim ("For the sheer pleasure of it") (Holbrook & O'Shaughnessy, 1984). These advertisements can be classified as an emotional appeal by their use of image and soundtrack designed to trigger an emotional memory in the viewer (which is then associated with the product) or an emotional need (which the product will then be able to satisfy).

Advances in theory concerning emotion and its use in advertising have been provided from both psychology and consumer behavior. Recent interest by psychologists (Zajonc, 1980; Lazarus, 1982; Watts, 1983) in whether cognition has focused attention on the role of emotion in information processing and decision making. Consumer behaviorists have followed, and are now questioning the role of affective/emotional factors in consumer choice, and the rational consumer decision making process in general (Stout & Leckenby, 1984, 1984b; Kreshel, 1984; Batra & Ray, 1983; Ray and Batra, 1983; Gorn, 1982; Shimp, 1981; Srull, 1983). A general change in focus from what the advertisement does to the viewer to what the viewer does to the advertisement (Gibson, 1983), has also stimulated interest in emotional advertising by turning attention to the internal forces, of which emotion is one, acting on the viewer.

The expanding body of knowledge in marketing research is a strong factor behind the renewal interest in emotion and advertising.

Information processing in consumer research is now a mature topic. Researchers on advertising effectiveness need new areas to explore as the potential new contribution to the information processing theory advertising diminishes. In the search for new research directions, academics have rediscovered the role of emotion in advertising. A new research area, especially when it seems a relevant and complex as emotional advertising, should stimulate at least an initial surge of interest.

Unfortunately, some researchers have initiated and completed research in the area without laying a thorough conceptual groundwork. This has led to inadequate theory in recent literature on the topic. In general, theories do not recognize the complexity of the emotional process and emotional response, and do not make use of the wealth of material available from the fields of psychology and communications. Stout & Leckenby (1984a, 1984b) and Kreshel (1984) give examples of simplistic or incomplete theories of emotion, wherein:

1. emotion is a unidimensional construct
2. emotion and cognition are orthogonal concepts
3. cognitions precede affect
4. emotional content of the advertisement is used as an independent variable

Researchers interested in emotion and T.V. advertising need to take a step backward, and develop a comprehensive theoretical framework for the concept of emotion, the emotional process, as well as valid and reliable measurements of emotional response based on this framework.

Stout & Leckenby (1984a) propose that researchers try to answer six questions: 1) How should emotion in advertising be defined? 2) what is emotional response in advertising research? 3) how can we identify

emotional response? 4) what range of emotions occur in response to advertising? 5) what factors elicit an emotional response to advertising? and 6) what is the role of emotion in a consumers response to advertising?

Some of these questions are relevant to guiding the development of theory but others could be answered by reviewing the literature of other fields, mainly psychology, and drawing conclusions, or by explanatory research into areas such as the range of emotions occurring in response to advertising, what is emotional response to advertising, and how can it be identified.

One essential facet of the process of theory development and testing is measurement. No theory is fully developed and tested in one step, but rather developed, tested, revised and then tested again. The same process often occurs for the measurement device used. With an area as conceptually complex as emotional response to television advertising, this is particularly true. As a first step to both developing and testing theory and engaging in exploratory research, the development of measures of emotional response is much needed.

How emotional response to advertising is measured is crucial to present and future research. Different forms of measurement create difficulties in the validity and reliability of results, while inhibiting the synthesis of findings from diverse research efforts.

1.2 Thesis Objective

The objective of this thesis is to initiate development of a valid and reliable measurement process to assess a viewer's emotional

response to television advertisements. Development will be based on current psychological theories about the emotional process, and will take advantage of current methods available to measure emotion, or correlates of emotion. An experiment will be outlined to describe how the pretesting of the proposed measurement process should be conducted.

Accomplishment of this objective will involve investigation into the definition of emotion and its various subcomponents, the relationships among affect, mood, and emotion, the emotional process and its implications for measurements taken at various stages of the process, and an evaluation of what can be measured to indicate emotional response.

1.3 Value of Thesis Objective

Current measurements of emotional response to television advertisements capture either the generic term "affect" or a simplistic "happy/sad" type of categorization of emotional response. A measurement device that can distinguish among a range of emotions with validity and reliability at several levels of cognitive - emotional interaction will allow investigation into which features of advertisements provoke specific emotional responses.

Necessary steps involved in reaching this objective will include:

1. an examination of a cross section of emotional theories, arriving at a working construct of emotion that captures the relevant aspects of emotion, while clearly distinguishing it from the concepts of mood and affect.
2. a review and critique of the more commonly used measurement

instruments for emotional response. These instruments will be reviewed within the context of measuring emotional response to advertising.

3. a clear process to measure emotional response to television advertisements will then be outlined. It is hoped that this process will be comprehensive and flexible enough to encourage consistent use in the area of measuring emotional response to television advertisements.
4. suggestions for further research using the measurement method will be outlined.

By following these steps to reach the thesis objective, it is hoped that the considerable confusion over the definition of emotion, its process, and relationships/differences with mood and affect, and what should and should not be measured to capture emotional response will take on new focus and clarity.

1.4 Thesis Outline

This thesis contains six chapters including the introductory chapter. Chapter Two contains a literature review on emotional theory, and draws conclusions on the definitions of affect, mood, and emotion, and the relationships among them, the various subcomponents of the emotional process and their implications for measurement, and the linkage of these subcomponents in the emotional process. Chapter Three contains a literature review on the measurement of emotion, examining the levels and types of measurements commonly used as correlates of emotion, with evaluations based on research findings. Chapter Four

integrates the trends in thought and conclusions drawn in Chapters Two and Three into a multi-measure approach to emotion. Reasons for this approach, what will compose it, and what it will provide in terms of measurement are discussed. Chapter Five outlines a laboratory experiment for the initial pretesting of the multi-measure approach. Chapter Six will elaborate on Chapter Four by relating the multi-measure approach to new research directions and coding procedures, as well as outlining its potential application and procedural recommendations for its use.

II. LITERATURE REVIEW THEORY

2.1 Introduction

This chapter examines some of the literature on the theory of emotion and the emotional process. For the purposes of this thesis, the literature reviewed can be placed into two broad categories.

One category is the consumer behavior literature on the role of emotion in areas such as memory (Srull, 1983; Srull, 1984; Gardner, 1984), attitude formation and change (Axelrod, 1963; Shimp, 1981; Gelb & Pickett, 1983), consumer response (Silk & Vavra, 1974), persuasion (Ray & Batra, 1983), and product or medium involvement (Batra, 1982; Batra & Ray, 1983). Much of the theory of emotion and its process in these areas is either underdeveloped (Stout & Leckenby, 1984b) or borrows heavily from psychology, the second literature category. In psychology, emotion has been an intensive research topic far longer than in consumer behavior. Consequently, there are almost as many theories of emotion as there are authors on the topic, and in general these theories view emotion as a complex, multidimensional state. While a general review of the psychological theories of emotion is beyond the scope of this thesis, the reader is directed to Strongman (1978), Candland et al (1977), Plutchik and Kellerman (1980), and Denzin (1984), for thorough reviews.

The primary purpose of this chapter is to clarify the conceptualization of emotion from an operational viewpoint of measuring emotional response. To accomplish this a construct of emotion will be developed that reflects its complex, multiaspect nature. This

construct will then be related to first mood, and then affect, to gain insight into their differences and linkages. The various subcomponents of the emotional construct; affective experience, cognitive processes, physiological adjustments, and behavior will be elaborated in turn to determine how they relate in the emotional process and what they suggest in terms of measuring emotional response.

2.2 The Construct of Emotion

With the predominance of many major theories of emotion and their numerous spinoff theories, it is only natural that there are many definitions of the emotional construct. Kleingenna & Kleingenna (1981) compiled 92 different definitions of the emotional construct. Izard (1969), in reviewing the literature on emotion, concluded that the area of emotional experience and behavior is one of the most confused and ill-defined in psychology. Historically, most theorists usually centered their construct of emotion on either affective response, cognition, physiological adjustment, or behavior. Only recently have all of these aspects been recognized as belonging in the emotional construct (Izard, 1971; Leventhal, 1974; Lazarus, 1975).

Researchers in advertising have adopted this multi aspect view of the emotional construct. This viewpoint is well founded considering the many areas of impact emotion may have on consumer behavior. A multi aspect viewpoint captures this potential, without the restrictions imposed by constructs that emphasize psychophysiological adjustments (Lang, 1979; Pribram, 1970), cognitive processes (Lazarus et al, 1970; Schacter & Singer, 1962), the affective experience

(Brenner, 1974; Kemper, 1978) or behavior (Darwin, 1872/1965). In an attempt to capture the many aspects of the emotional construct, Stout & Leckenby (1984b) propose:

Emotion is a multifaceted phenomenon interactively determined by the dynamic and integrative subjective experience of affective experiences, cognitive appraisals, physiological adjustments, and action impulses. The interaction of these four characteristics, which may be internally or externally triggered, is constantly in flux and at any given time, in part, determines the behavior of the individual (p. 141).

This attempt to capture the emotional construct is similar to what Lazarus et al (1980) view the emotional construct as:

Emotions are complex, organized states consisting of cognitive appraisals, action impulses, and patterned semantic responses or reactions. Each emotion quality is distinguished by a different pattern of components, which is what urges the analogy to a syndrome. Moreover, the three components of emotion are subjectively experienced as a whole, that is as a single phenomena as opposed to separate and distinct responses. When one component is missing from the perception the experience is not a proper emotion although it may contain some of the appropriate elements (p. 198).

Both of these constructs see emotion composed of a complex interaction between the aspects of affective experience, cognition, physiological response, and behavior. While indications of the impact

of emotion on consumer behavior are suggested, particularly by Stout & Leckenby (1984b), these constructs are difficult to operationalize, and are more descriptive of the mechanisms of the emotional construct than providing a clear indication of how emotional response can be measured, and distinguishing emotion from other psychological constructs, such as mood.

Kleingenna & Kleingenna (1981) suggest a formal construct of emotion that attempts to be broad enough to include all of the traditional aspects of emotion, while differentiating it from other psychological constructs. While the construct focuses to some extent on mechanisms, it again emphasizes the many possible aspects of emotion:

Emotion is a complex set of interactions among subjective and objective factors, mediated by neural hormonal systems, which can (a) give rise to affective experiences such as feelings of arousal, pleasure/displeasure; (b) generate cognitive processes such as emotionally relevant perceptual effects, appraisals, labeling processes; (c) activate widespread physiological adjustments to the arousing conditions; and (d) lead to behavior that is often, but not always, expressive, goal-directed, and adaptive (p. 355).

This construct captures the concept of interaction between affect, cognition, physiology and behavior, while emphasizing the external/internal nature of the emotional process. The many aspects of emotion included in this construct can be used as a framework to investigate the measurement of emotional response. The construct does

not, however, provide insight into the differentiation of emotion from other psychological concepts, particularly mood. Emotion and mood are often used interchangeably in the literature, hindering the precise application of an emotional construct. Specifically, a construct of emotion should include concepts of **intensity, time specificity or stimulus, and behavioral effects**. Emotions are usually intense, more attention getting, and tied to a specifiable behavior (Clark & Isen, 1982). Emotion is a reaction to a specific target (Holbrook & O'Shaughnessy, 1984) and can interrupt ongoing thought and behavior (Clark, 1982). Ongoing thought and behavior can be interrupted as a result of an individual's awareness of their emotions and effects, which may redirect attention to the source of the emotion (Simon, 1967).

Inclusion of these concepts in an emotional construct would aid in both differentiating emotion from other psychological constructs, and a more precise application of the concept of emotion in measurement. A working construct of emotion, based on Kleingenna & Kleingenna (1981) that includes these concepts is proposed:

Emotion is a complex set of interactions among subjective and objective factors, mediated by neural hormonal systems, which can (a) give rise to affective experiences such as feelings of arousal, pleasure/displeasure; (b) generate cognitive processes such as emotionally relevant perceptual effects, appraisals, labeling processes; (c) activate widespread physiological adjustments to the arousing conditions; and (d) lead to behavior that is often, but not always, expressive,

goal-directed, and adaptive. The set of interactions composing emotion is a reaction to a specific target, and may be congruently influenced by sentiments or prior emotions, moods, or feelings. The experience may be unconscious but is capable of being consciously recognized and interrupting ongoing thought and behavior. The set of interactions between cognitive, affective, physiological, and behavioral factors need not be fixed in pattern (After Kleingenna & Kleingenna, 1981).

There are several implications for measuring emotional response to television advertisements that result from this construct. First, if emotion is a reaction to a specific target, emotional response to features of the advertisement can be measured, in addition to the advertisement as a whole, as is commonly done. Second, an emotional reaction at time t may be influenced by an emotional reaction at time $t-x$, through a carry over effect. Similarly, sentiments which involve chronic tendencies to experience certain moods or emotional states (Dienstbeir, 1979) can influence the type of emotional response to a stimulus. Awareness of this potential carry-over or influence effect may increase measurement reliability. Third, the concepts of affective experiences, cognitions, physiological adjustments, and behavior, may be separately used to measure emotional response in order to gain better understanding of how they combine in the emotional experience. Fourthly, the concept of intensity may be significant in understanding how emotions are generated and change. It is possible that intensity, or arousal, is a general first level of emotional response that is then

labeled from interpretation of situational variables. The implication is that arousal may be included as a background measure of emotional response. Fifthly, if the proposal that interactions between affect, cognition, physiology, and behavior can have no fixed pattern is true, then there may be hundreds of labels that can be attached to the emotional process, each of which is a distinct emotion. These emotions may then be grouped into general dimensions as shown by Nowlis & Nowlis (1956) and Plutchik (1980).

At this point, it will be beneficial to contrast emotion and mood. These two constructs are often used interchangeably, when they are quite distinct. By differentiating the two, the confusion resulting from the use of conflicting terms may be dispelled.

2.3 Comparing Mood and Emotion

Mood and emotion are both short lived but mood may be conceptualized as a general predisposition to respond in the same way to the world at large (Holbrook & O'Shaughnessy, 1984; Peterson & Sauber, 1983). While an individual may be aware of almost all their emotions, which can result in attention being redirected to their source, mood rarely disrupts thought and behavior, (Clark & Isen, 1982). Ruckmick (1936) definitely considers mood as different from emotion:

A mood has only a general affective tone and some of the bodily symptoms common with emotion. Otherwise, it stands in contrast to the typical emotion as defined. It is not sudden but usually drawn out, lasting sometimes for hours,

occasionally for days ... It has no particular cognitive element. We are often at a loss to say toward whom or what it is directed. By the same token it does not seize the whole of consciousness. It stands quietly in the corner, as it were, while the conscious parade goes on ... There is also generally no connotative impulse to it. It does not lead itself to any definite action (p. 72-73).

From this statement, mood appears to have far fewer potential labels than emotion. While emotion may have hundreds of labels and many dimensions, mood may have only several labels and a few dimensions: intensity and valence (Gardner, 1984) or dominance, arousal and pleasure (Mehrabian & Russell, 1974). Mood is not tied to a specific stimulus, as is emotion, but is instead free floating, influencing reactions to many different types of stimuli. This influence can extend to a wide variety of judgments and behavior (Clark, 1982). One explanation for this may be that when people are in a specific mood, the material accessed in memory is more congruent to that mood because it is more accessible (Isen et al, 1978). Isen's explanation reinforces the point that mood state can influence cognition, and ultimately behavior.

Some researchers see mood as a state of pre-excitation to emotion, and as a decay after emotion (Peterson & Sauber, 1983). Mood may influence the type of emotions experienced in a congruent manner, but the emotion does not have to be identical to the mood and can be totally dissimilar. While mood can increase the probability of a congruent emotional interpretation, ultimately this depends on the

specific stimuli, situational factors, and their intensity. If an emotional experience is intense and relevant to an individual, it may decay as Peterson & Sauber (1983) suggest, to a mood state. This involves a transformation from being attached to a specific stimulus to a general predisposition toward the world at large.

In summary, moods are general and unattached to specific stimuli, while emotions are reactions to a specific stimulus. Emotions are short term experiences, as are moods, while moods may last for days or weeks and emotions rarely do. Both can influence cognition, behavior, and physiological adjustment, although emotion is seen as doing so more intensely. Emotions may have hundreds of labels and many dimensions, while moods may be far more restricted in labels attached to them and the dimensions they exist on. Mood is not a necessary condition for an emotional experience, although it can influence congruently the emotion experienced. Similarly an emotion may influence mood state, if the emotional experience is relevant and intense. While a relevant, intense emotion may increase the probability of a congruent mood, this does not have to occur. Mood and emotion are separate constructs that may influence each other. The mechanism for influence is seen to be affect, the classification of an experience or feeling state on the dimensions of intensity and valence. A mood that can be classified as point X in affective space can increase the probability that initial affective reactions to stimuli will also occur at, or around, point X. After cognitive elaboration, these affective reactions may be labeled as emotions or emotional experience.

2.4 Affect

Affect, mood, and emotion are often used interchangeably, suggesting that all three are identical constructs. We now know that mood and emotion are not, but have affective dimensions in common. Affect has been thought of as a class name for mood and emotion. Evans (1978), defines affect as:

A word with special meaning in psychology where it refers to feeling, moods, and emotions. An object or person may be said to have "affect" for someone when it provides or provokes a strong emotion in him.

While Wolman (1973) views affect as:

1. A class name given to feelings, emotions or dispositions as a mode of mental functioning.
2. The name given to specific emotions or feelings.
3. A state generated when motivated action becomes infeasible.

Affect goes beyond a class name for mood and emotion, to being linked to mood and emotional interpretation. Affect may be thought of as bipolar, with intensity and valence as the dimensions (Russell, 1979). The placement of mood or emotional experience within the affective space may be the first level of identification of a specific mood or emotion (Zajonc, 1980; Van Raaj, 1984).

While the concept of affect may be part of mood or emotion it is too general in nature to capture specific moods or emotions. Affect serves instead as a method where a general typology of mood or emotion can be made. The dimensions of intensity and valence do not capture the multiaspect concept of emotion, making operationalization of affect

as a measure of emotional response limited. Holbrook & O'Shaughnessy (1984) adopt the noncontroversial position that affect represents a range of diverse phenomena, of which emotion is one of many affective constructs. This position classifies both emotion and mood as affective, although they are not necessarily identical constructs.

To determine a measurement strategy for emotional response to television advertisements, the working construct proposed must be broken down into its major subcomponents; affective responses, cognition, physiological adjustment, and behavior. The construct of emotion has been distinguished from that of mood, the potential relationships between the two outlined, and their both being affective constructs recognized. Examinations of subcomponents of the emotional construct will provide insight to their potential interrelationship, and what this suggests in terms of measuring emotional response.

2.5 Subcomponent Theory

The emotional construct proposed has four main subcomponents; affective responses, cognition, physiological adjustments, and behavior. Each of these subcomponents will be reviewed briefly in turn with respect to their relation to other subcomponents. It is hoped that a clear conceptualization of the emotional construct will offer opportunities for the identification of measures of emotional response.

A. Affective Responses

This section will focus on the placement of affect in the emotional process, the effects of affective response, the relationship between affect and attitude, and how affect can influence involvement

with both the product and medium. From this discussion it will be suggested that measurement of emotional response to the advertisement is a worthwhile objective, and that affective response can influence cognitions significantly.

The placement of affective response in the emotional process has been a subject of debate between psychologists (Zajonc, 1980; Lazarus, 1982). Affective placement in the emotional process has two possible models: (1) cognition occurs before an affective reaction, and (2) the affective reactions occur before cognition. Some contemporary psychologists see affect as post cognitive, elicited only after considerable cognitive processing. The affective reaction is seen as being based on a prior cognitive process where a variety of context discriminations are made and features identified, examined for their value, and weighed for contribution (Zajonc, 1980). The opposing viewpoint, that affect occurs before and without cognition, can be captured by Zajonc's (1980) comment:

It is further possible that we can like something or be afraid of it before we know precisely what it is and perhaps without knowing what it is (p. 154).

Which comes first, affect or cognition, is recognized to be very difficult to substantiate operationally (Zajonc, 1980). In the emotional process which comes first, cognition or affect, may depend on a host of stimulus, situational, experiential, and behavioral factors. The circular model of the emotional process proposed by Kreshel (1984) recognizes this by being non-sequential. This does not mean however, that primacy is not important operationally as Kreshel (1984) suggests.

While a circular, interactional model of the emotional process, as proposed by Kreshel (1984), identifies more closely with the non-sequential, interactional functioning of the human brain than sequential models, the first reaction to a stimulus may be primarily cognitive, or primarily affective. Future research in this area should direct itself to identifying what circumstances may ensure the initial reactions to be primarily cognitive or primarily affective. Operationally, knowing how affect can influence the emotional process is important. Affect can be influential in directing cognition and influencing social behavior and task performance or problem solving strategy (Isen, 1984). Looking at television advertising, two areas of interest are how affect can influence preferences and attitudes.

In the context of television advertising, an initial affective response is similar to what has been called advertising response; the immediate, initial reaction a viewer experiences when exposed to an advertisement that is usually a like - dislike decision. There are several attitudes which may be involved in viewing a television advertisement; the viewers attitude toward the program (ATT_p), attitude toward the advertisement (ATT_A), and attitude toward the advertised product or brand (ATT_B). Context effects occur when ATT_p influences ATT_A which may influence ATT_B . Recent interest in advertising response is based on a link between liking the advertisement and forming a positive attitude toward what is advertised (Bartos, 1981; Shimp, 1981; Shimp & Gresham, 1983). This link may be conditioning, as in Gorn's (1982) music study, or through Bower's (1981) network model of memory.

Batra (1982) suggests that in low involvement situations the

attitude to the advertised brand is significantly influenced by general, non-attribute based liking for the advertisement. Since general liking for the advertisement can be influenced by liking for the subcomponents of an advertisement, of which emotion can be part, advertisements that evoke favorable emotional responses can be relevant in low involvement situations. In low involvement situations, attitude development may be linked to association of positive or negative cues (Petty & Cacioppo, 1981), one of which may be emotional response. This is supported with Gorn's (1982) finding that in a non-decision context (low involvement) subjects chose objects associated with positive affect (music).

The medium of television is considered to be a low involvement medium that requires little invested mental effort (Saloman, 1981). Products advertised on T.V. may also evoke little involvement on the part of the viewer. Television advertising is typically used to maintain the brand loyalty and image of low involvement products. The advertisements for high involvement products, such as automobiles, aim to increase awareness, with the consumer seeking more detailed information elsewhere. The combination of a low involvement medium and low involvement products increases the probability that the advertisement will also evoke a low level of involvement from the viewer. In such situations television advertisements that evoke emotional responses may have an influence on the viewer's attitude to the advertisement with potential effects on the development of attitudes to the brand.

An emotional response to a television advertisement may be caused

by the advertisement as a whole, a formal feature of the advertisement, a combination of several formal features, or by a mix of all of these. Affective response, on the dimensions of intensity and valence, to the entire advertisement may be used to indicate the advertisements effect on attitude toward the product advertised, under the hypothesis that affective reactions to the advertisement congruently influence attitude towards the product advertised. Affective response to formal features of the advertisement can also be measured. These can be used to indicate whether the affective response to these features influences emotional response to the same features congruently. If there is a congruent emotional response, then the first reaction to an advertisement may have been primarily affective and received a high weighting in the emotional process. If a congruent emotional reaction does not occur, then the first reaction to an advertisement may have been primarily cognitive, receiving a high weighting in the emotional process. Clearly, a measure of affective response to television advertisements is desirable given the role affect has in the emotional process and its possible effects on ensuring emotions, attitudes, and preferences.

B. Cognitions

This section focuses on several interactions between cognition and emotion. The goal is to illuminate, first, the complexity of the cognitive - emotion interaction, and second, that the interaction between cognition and emotion provides several levels at which emotional response may be measured. To accomplish this the relationship between emotion and cognition will first be recognized,

and then what can result from this interaction will be examined. The different levels of the emotion - cognition relationship will then be outlined. The role of emotion in cognitive processing is then turned to, focusing on why emotion may increase message comprehension and evaluation. Meaning for measurement of emotional response is then discussed.

The cognitive theories of emotion in psychology recognize the close relationship between cognition and emotion (Strongman, 1978). Zajonc (1980) maintains that the relationship between emotion and cognition can occur at all cognitive levels:

In nearly all cases, however, feeling is not free of thought nor is thought free of feelings. Considerable cognitive activity most often accompanies affect, and Schacter and Singer (1962) consider it a necessary factor of the emotional experience. Thoughts enter feelings at various stages of the affective sequence and the converse is true for cognitions (p. 154).

While Zajonc recognizes the interaction between emotion and cognition, he misses the point that he references by Schacter and Singer (1962); that cognition is an integral part of the emotional process. This has been recognized recently by researchers in consumer behavior and advertising (Holbrook & O'Shaughnessy, 1984; Stout & Leckenby, 1984A, 1984B; Kreshel, 1984). Two schools of thought can be identified on the interaction between emotion and cognition. The first sees emotion and cognition as distinct processes that interact at certain points, such as registration and retrieval. The second sees cognition as a

continuous part of the emotional process. Here cognitions are part of the "internal" emotional process, which can influence cognitions outside of the process.

Zajonc (1980) maintains that there is a non symmetrical relationship between affect and cognition - that affect is always present with thought, but thought is not always present with affect. It must be recognized however, that conscious thought is not needed for the first affective reaction. The amygdala section of the brain is responsible for pre-conscious recognition, orientating and habituation, and it controls the release of endorphin neurohormones which give subjective feelings of liking or disliking. It is clear that a basis for disagreement with Zajonc's (1980) assertions exists, in that the first affective reaction does not imply that there is no cognition. Cognition may occur at two levels; the unconscious and the conscious.

Denzin (1984) uses the concept of different levels of cognition to describe levels of emotional consciousness. Two levels of the emotional consciousness are identified, an inner phenomenological, and an outer interactional, which he labels as unreflective and reflective emotional consciousness. Unreflective consists of a continuous flow of feelings as well as thoughts, but no single term, other than experience, serves to separate the fluid interaction between the thought people have for their feelings, and the feelings they have for their thoughts. Unreflective is viewed as being self contained: an individual is not always aware of feelings, thoughts, movements, actions, and statements. With reflective emotional consciousness, the individual stands outside of their consciousness. Attention is turned

towards thought and feelings, with evaluation taking place from a third party's viewpoint. An attempt is made to guide and direct emotion, and to shape interpretations given to emotion. Denzin (1984) recognizes five distinct forms of emotional consciousness: (1) reconstructed emotion, which flows from backward looking reflection; (2) altered emotion, which is produced by forward looking reflection in the present; (3) directly lived emotion, which is uninterpreted and flows from unreflective emotional consciousness; (4) redefined emotion, where the individual redefines previously felt emotions through reflection from the stand point of the future, the present, and the past; and (5) spurious or pretended emotion, which represents an attempt to reproduce socially an emotional feeling that occurred in the past.

Current theories of the emotional process (Holbrook & O'Shaughnessy, 1984; Stout & Leckenby, 1984A, 1984B; Kreshel, 1984; Van Raaij, 1984) do not recognize that, first, cognition can be conscious or unconscious, and that second, this has implications for measurements of emotional response to television advertising. Using the concept of reflective and unreflective emotional consciousness, measurements of emotional response can be segmented into two groups; those that stem from reflective emotional consciousness and those that do not. Operationally it may prove difficult to distinguish when cognitions are conscious in the emotional process and when they are not. As a result measures of emotional response from both groupings should be used.

Consumer behaviorists have long been interested in the cognitive process of the consumer. Information processing theory has been one way of viewing this process. Information processing theory assumes

decisions are made after the acquisition, integration, and evaluation of information (Bettman, 1979). Emotion can stimulate audience attention and learning, and can improve message comprehension (Tyebjee, 1978). Emotion can shape the reception environment which has been described as being [Tyebjee, 1978]:

... represented in terms of the level and type of arousal it engenders in the receiver and the opportunity it provides to process message stimuli (p. 174).

Tyebjee (1978) used humour to influence message attention and comprehension, and to shape the reception environment of the subject. Humour can evoke an emotional response of happiness, joy, or positive excitation. It is not implausible to extend this influence to other emotions besides those evoked by humour.

The influence of emotion on cognition has been more specifically outlined by Ray & Batra (1983). Four reasons are outlined for why advertising that evokes emotional responses may enhance message comprehension and evaluation: (1) greater attention may be paid to emotional advertising; (2) emotional advertising may increase the amount of cognitive processing; (3) there may be an increase in positive judgments; and (4) emotional advertising may be remembered better.

Ittelsons' (1973) assertion that the first level of response to the environment is affective may be based on the belief that affective information is perceived first. Ray & Batra (1983) quote work by Broadbent which indicates that words with emotional content are perceived faster than those without. Affective material may be

attended to first because most individuals have well developed schematas of affective reaction, and information which evokes an affective reaction is easier to process.

Emotion may increase cognitive processing in two ways: by increasing activation, and through the relationship between reflective emotional consciousness and goal directed behavior. Emotional advertising may induce an individual to think about it, self reference, and experience an emotion (Clark & Isen, 1982). Thinking about the advertisement means that advertising information is activated in memory. This activation can spread, and may prime other congruent material in memory, making it more accessible (Bower, 1981). The net effect is that more information is available for access. Processing can increase when similar material in memory is accessed, more material is retrieved, and these are then linked together through the relationship to the emotional experience (Clark, 1982).

Processing may also increase through Denzin's (1984) reflective emotional consciousness - mainly by altered emotion. Altered emotion is produced by forward looking reflection from the present. An advertisement may depict a desired emotional state. For desire to take place the individual engages backward looking reflection, and compares the shown emotion to their present emotional state. A decision is made as to whether a change in emotion is needed, with change to be realized by product purchase, a goal directed behavior. The process increases processing through self evaluation; questions such as: what emotion is this?; How do I currently feel?; and, Should I change my feelings?; are asked and answered at both conscious and unconscious levels.

The concept of positive emotions increasing positive evaluations is related to the theory of spreading activation proposed by Clark & Isen (1982). An individual's judgment is influenced by how the individual is feeling at the time of judgment. These feelings prime and make available congruent inference rules and concepts (Bower & Cohen, 1982), which are likely to affect evaluations (Isen et al, 1978). Isen et al (1978) found that mood influences the evaluation of familiar stimuli by affecting the retrieval of information associated with the object, and that evaluation is in a mood congruent direction. A similar effect was found with activities (Carson & Adams, 1980) and quality of life judgments (Schwarz & Clore, 1983). Positive emotions were found to enhance evaluations of new stimuli, while negative emotions depressed assessments (Isen & Shalke, 1982). All of these results fit the accessibility explanation: new stimuli, such as emotion seen in an advertisement, or emotional experiences, may activate stored positive and negative associations in memory.

Memory is part of the increased processing and evaluations explained above. Primary effects of emotions on memory are in two areas: encoding and recall. Emotion at encoding effects product evaluations at encoding (Srull, 1984). Srull (1984) found two possible effects, assimilation and contrast. Assimilation occurs when a positive emotion at encoding causes a product to be rated more positively than if the emotion was neutral or negative. Contrast effects can occur when a negative emotion at judgment causes more positive product ratings than neutral or positive moods, when encoding was positive.

The effects of emotion on recall are best conceptualized by the network model of memory advanced by Bower (1981) and Bower and Cohen (1982). In the network model constructs are represented as nodes, and relationships between constructs by links. Emotion is stored with or linked to constructs or experiences in memory (Bower, 1981), with intensity or type of emotion a cue for construct retrieval (Bower & Cohen, 1982). Some general findings, taken from Gardner's (1984) thorough review of the topic are: (1) recall increases when emotion at retrieval matches emotion at encoding; (2) the intensity of emotion at exposure should enhance recall by providing more retrieval cues; (3) depressing emotion may hinder encoding, reducing the amount recalled; (4) emotion at exposure may help retrieval of emotion congruent items; (5) emotion at retrieval affects information accessibility, ability to retrieve specific items, and cognitive organization; and (6) retrieval emotion may affect retrieval strategy.

Isen & Shalcker (1978) work on retrieval strategy ties recall with decision making and emotional state maintenance: a good emotion gives a high probability of retrieving positive material from memory, which can affect the decision making process and behavior considered. This leads to Isen & Shalkers (1978) cognitive loop hypothesis: positive material accessed increases cognitions of positive things, which may contribute to maintenance of the mood or emotional state, with positively toned behavior contributing to the process.

The cognitive subcomponent of the emotional process must be separated into two parts: cognition internal to the emotional process, and how emotion and its process can affect external cognitive

functioning. Some doubt as to the placement of cognition internal to the emotional process still exists. The trend has been away from a sequential view of the emotional process in which the primacy of cognition or affect is argued, to a interactional, circular conceptualization of the process. That cognition may be conscious or unconscious provides support to the interactional viewpoint: unconscious cognitions may be occurring simultaneously with affective reactions from the start of the emotional process. This has been used by Denzin (1984) to describe two basic levels of emotional consciousness; the inner phenomenological, and the outer interactional. Using this basic distinction, measures of emotional response can be grouped according to whether they rely on the inner phenomenological process, or on the outer interactional. Use of measures from both these groupings can improve measurement reliability and validity. Emotion, and the emotional process, can effect external cognitive functioning in several areas: attention and learning (Tyebjee, 1978); message comprehension and evaluation (Ray & Batra, 1983); and memory (Bower & Cohen, 1982; Gardner, 1984; Isen & Shalker, 1978). All of these areas can be affected in a direction congruent with the valence of the emotion experienced, making measurement of emotional response to television advertising of significant interest.

C. Physiological Adjustments

Physiological adjustments are generally held to be part of the emotional process (Kleingenna & Kleingenna, 1981) and may occur as a result of cognitive appraisal of the message object or event (Holbrook & O'Shaughnessy, 1984). These physiological adjustments can be

widespread and can often occur simultaneously, although not in any fixed pattern. Emotion can affect the following physiological areas: neurochemistry, electrical activity in the brain, the cardio-system, respiratory and digestive systems, pupillary diameter, eye blinks and eye movements, the muscular system, and the sweat glands.

In Holbrook & O'Shaughnessy's (1984) model of the emotional process, physiological adjustments can result in "feelings", where "feelings" are defined as those physiological responses that result from evaluation and are experienced introspectively (Lyons, 1980). These physiological adjustments have been "pre-labeled": the cognitive appraisal that generated them has biased the type of feeling that is experienced. For example, an initial cognitive appraisal may be labeled "good" if the message, object, or event matches with cognitive beliefs. This cognitive appraisal induces physiological changes, which are labeled as "positive" feelings. These positive feelings may then be evaluated, starting the process over again at the point of cognitive appraisal.

While many different types of physiological adjustments can occur in the emotional process, debate exists as to whether these reaction patterns correspond to an arousal or activation continuum, or to specific emotions. In terms of measurement, many of the physiological changes that occur in the emotional process can be easily measured, although their use in labeling specific emotions may be questioned. It may be more useful to focus on feelings, as these are physiological adjustments that undergo cognitive labeling based on inferences concerning their cause (Kleingenna & Kleingenna, 1981). The cognitive

labels attached to feelings may be more easily interpreted regarding corresponding emotions than raw physiological adjustments.

The physiological adjustments that occur in the emotional process have been proposed as an indicator for an affective reaction (Van Raaij, 1984) under the assumption that the intensity dimension of affective response proposed by Russel (1979) corresponds to physiological arousal. Hasset (1978) has shown that physiological reactions are not strongly intercorrelated and occur in no fixed sequence both within individuals and between individuals.

Some doubt has been cast of the use of physiological measures to capture specific emotional or an initial affective reactions. Physiological changes may manifest themselves in expressive or communicative behavior that can be used to interpret emotional response however. These behaviors are generally non-verbal, but can also influence verbal behavior (stuttering, speech rate, pitch, timber, frequency). Holbrook and O'Shaughnessy (1984) maintain that expressive behavior is a result of desires directed by the motivation of cognitive evaluation and physiological changes.

In terms of measurement, many of the physiological changes that occur in the emotional process can be easily measured, although their use in labeling specific emotions or serving to indicate an affective response may be questioned. It may be more useful to focus on feelings, and communicative expressive behavior as indicators of emotional response. Feelings correspond to emotions in the emotional process according to Holbrook and O'Shaughnessy (1984) and form a loop from evaluation to physiological changes to feelings and back to

evaluation (Figure 1). Expressive behaviors also correspond to emotion in this model, as they may occur before cognitive labeling of physiological changes. When conscious/unconscious personal values, cognitive beliefs, feelings, physiological changes, designs, and expressive behaviors are introduced, the reflective/unreflective approach to emotional consciousness proposed by Denzin (1984) becomes useful. Using this approach in looking at Holbrook and O'Shaughnessy (1984) model of the emotional process, the measurement of emotion can be taken from reflective feelings and desires, and from reflective and unreflective expressive behavior, but not from reflective or unreflective physiological changes, as these are clearly an intermediate step in the emotional process.

D. Behavior

Emotional advertisements are used by advertisers in the belief that they may be more effective in capturing and holding a viewer's attention than other advertising types. With the capturing and holding of attention, it is hoped that emotion will enhance memory in terms of encoding and recall, prompt the viewer to self reference the product more, create positive attitudes and preferences towards the product, and to foster brand loyalty. All of these, hopefully, will lead to increased purchase behavior. This section will briefly examine the role of behavior in the emotional process, first looking at the influence of emotion and affect on behavior, and then discussing the placement of behavior in the emotional process and its implications regarding the measurement of emotional response.

Most studies to this date have used the induction of affect, on

the dimensions of intensity and valence, as the experimental variable in studies on behavior. While affect and emotion are different constructs, they do have in common the dimensions of intensity, valence, and duration. An idea of how emotion might potentially effect behavior can be gained by examining the results of studies using affect. Many of the studies label the induced state as affective, without bothering to distinguish between affect, mood, or emotion. Due to the nature of most of these experiments, many of the induced states can be called emotional as they are in reaction to a specific event, person, or situation.

The construct of affect, which may serve as a class of phenomena indicating emotion, mood, and affective reaction, is receiving support as a moderating variable in behavior. Isen (1984) states:

It is well known that powerful emotion can interrupt and influence behavior, but growing evidence indicates that even low-level general feeling states are potentially quite influential in directing though and influencing both social behavior and task performance or problem solving strategy. Because these states are relatively subtle, and because (being mild or influenced by small things) they may occur frequently, the effect they have on social interaction and cognition processes may be quite persuasive and important to study (pg. 534).

Positive affect has been shown to lead to behavior that gives a positive outcome. Isen (1970) has shown that in a giving task, subjects who had been placed in a positive affective state behaved more

generously than those subjects placed in a neutral or negative affective state. Isen & Leven (1972) have shown that positive affect increased helping behavior, which may be viewed as positive behavior. Clark, Isen & Goldin (1979) have also shown that positive affect increased the subjects freedom to act as they wished. Isen, et al (1982) postulates that these effects may occur because positive affect or emotion can serve as a retrieval clue, making positive material more accessible and more likely to be retrieved. This can increase the influence positive affect or emotion can have on decisions and evaluations under consideration, and should influence perceptions of complex, ambiguous material that needs interpretation. Isen & Shalcker (1978) have called this the cognitive loop hypothesis: a positive affective state means that there is a greater probability of retrieving positive material from memory, and that the improved access to positive material affects the decision making process with regard to behavior. The positive material that is accessed may keep the person thinking about positive things, and this may contribute to maintenance of the affective or emotional state. Positively toned behavior may contribute to the process. Isen & Shalcker (1978) observed that the tendency for people in a positive affective state to see things more positively is not unbounded - the person does not ignore negative information entirely.

For purchase behavior to occur, a decision to purchase must be arrived at. This decision involves an evaluation of the individual's internal state to discover an unsatisfied need, and an evaluation of the object proposed to satisfy this need. The proposed object may be

internally generated, that is, it is recovered from memory, or externally generated, which television advertising can accomplish.

Emotional advertisements may generate unsatisfied needs or drives in the viewer. Bauer and Cox (1963) identify rational communication as one which is drive or need reducing - it increases the belief that the advocated course of action will provide a desired outcome. An emotional message is seen as drive arousing; it raises the viewer's level of motivation, and therefore poses a problem for the view in that a solution must be sought.

Affect may bias evaluations of new stimuli in affective congruent directions, and bias evaluations of familiar stimuli in affective congruent directions when assessment does not occur with an individual's previously stored evaluations, (Gardner, 1984). Isen and Shalcker (1982) showed that individuals placed in an affective state (positive or negative) rated a series of slides more or less positively congruent to their affective state than the control group. The slides were totally new stimuli. Isen, Shalcker, Clark and Karp (1978) suggest that evaluation of familiar objects is influenced by affect through the accessibility hypothesis: Positive affect in the individual increases the probability that positive information about the object will be retrieved from memory.

Although no study has tied internal needs assessment and assessment of an object to satisfy those needs into actual product choice under various emotional states, Isen, Means, Patrick and Nowricki (1982) have approximated this with an experiment involving hypothetical brand selection. In this study the subjects were asked to

select one of six fictitious cars after being placed in a specific affective state. Subjects in a positive affective state reached their decision more quickly and with more efficient strategies than the control group by reducing the complexity of the task.

The model of the emotional process proposed by Holbrook and O'Shaughnessy (1984) places expressive behavior as one of the potential end results of the process. This model views expressive behavior as a result of both desires elicited by evaluation and physiological changes during the emotional process. Expressive behavior, as outlined by Holbrook and O'Shaughnessy, (1984) has a motivational aspect that may result in reducing the arousal need or desire. Put in the context of television advertising, expressive behavior ultimately should be product purchase if the advertisement is effective.

The expressive behavior of Holbrook & O'Shaughnessy's (1984) model may result from what Denzin (1984) calls reflective emotional consciousness. According to Denzin (1984) reflective emotional consciousness occurs when an individual evaluates their emotions, and according to motivations and desires, acts upon them. Expressive behavior may also result from what Denzin (1984) calls unreflective emotional consciousness. Here behavior is not guided by a motivational aspect, but is directly lived with the individual not being conscious of movements and actions. Examples of this type of expressive behavior are body position and movement, speech patterns (tone, pitch, timber, frequency, speed), and facial expressions. These expressive behaviors may result from within a first emotional reaction, or an elaborated emotional reaction - there is no way of telling by observing the

expressive behavior. As a whole, however, these behaviors generally combine to form another level of communication aside from what the individual does or says. For the most part this level of communication is not under the individual's conscious control, and, if specific emotions can be interpreted from it, may prove useful in identifying emotional response to television advertisements.

2.6 Conclusion

The purpose of this literature review has been to clarify the conceptualization of emotion from the operationable viewpoint of measuring emotional response. Central to this has been the development of a useful working construct of emotion, distinguishing emotional response from mood and affective response and recognizing how these three constructs may interrelate, and discussing the subcomponents of the emotional construct in relation to the other subcomponents, the emotional process, and measurement of emotional response. This literature review has yielded several important observations.

Clearly, the construct of emotion is complex and multidimensional, including interactions among neural hormonal systems, conscious and unconscious cognition, physiological adjustments, affective response, and expressive behavior. While an attempt has been made to shed light on the emotional process, much doubt remains in the literature as to how this process should be modeled. After reviewing the literature it becomes apparent that hierarchical models, a good example being the one proposed by Holbrook and O'Shaughnessy (1984), do not capture the constant and fluid interactions among cognition, affective response,

behavior, and physiological adjustments that seem to occur. Hierarchical models attempt to capture this interaction by building in feedback loops, as Holbrook and O'Shaughnessy (1984) have done. While still very simplistic, the model of the emotional process that best captures its interactional nature has been proposed by Kreshel (1984-Figure 2). In this model hierarchy is avoided, and as a result represents the functioning of the human brain more closely than other models.

In terms of measurement of emotional response, research should focus on the measurement of emotion as an end result, meaning that attention should not be paid to whether the emotion stems from prior affective response, consciousness or unconscious cognition, memory, physiological adjustments or behavior. If measurement to this degree is attempted, the researcher will never achieve valid and reliable results - the situation is constantly changing in response to the individual's internal and external environment. These situational and individual differences must be recognized when measuring emotion, and so a "black box" approach is advocated: the researcher should not be concerned about what specific process generated the emotion, for chances are it will never be replicated.

As a result of these individual and situational differences an advertisement may have difficulty in generating the same specific emotional response in all viewers. This implies that rather than having a specific emotional response as a goal, the advertisement should attempt to generate emotions that can be classified on the same dimensions, such as warmth, or positive. To accomplish this

advertisements will have to play on experiences, societal, cultural and familiar values or desires that have a high probability of being consistent among the target groups.

Central to measuring any emotional response to television advertising will be the measurement instrument. Many are available for use, ranging from cognitive recall measures to measuring physiological response. These measures must be evaluated within the context of measuring emotional response to television advertising and in terms of validity and reliability, range of response captured, and ease of use. The next chapter will undertake this task.

III. MEASUREMENT REVIEW

3.1 Introduction

The measurement of emotional response to television advertising is not directly concerned with measurements of retention and comprehension, as are cognitive response measures. Measuring emotional response is concerned with how people feel after seeing on television advertisement, instead of what they know. Some television advertisements are developed with the intention of eliciting an emotional response (Vaughn, 1980), but all advertisements, whether they are judged by experts as informational or emotional in design and intent, have the potential to elicit an emotional response in the viewer. This chapter reviews some of the current measures of emotion being used in consumer behavior and psychological research. These measures can be grouped into four main categories: physiological measures; subjective rating scale measures; thought verbalizations; and other measures. For each of these categories, measurement methods will be described, use and findings in research discussed where relevant, and they will be evaluated in terms of their use for measuring emotional response to television advertising. The purpose of the review and evaluation is to gain insight into appropriate measures that can capture specific emotional responses to television advertising, from a practical viewpoint. Two issues in measurement, the dimensions of emotion, and brain hemisphere lateralization, will be discussed in terms of their impact on how emotional response to television advertising should be measured.

This chapter will first review the physiological measures (or correlates) of emotion, including: pupillary response, respiratory and digestive systems, heart rate (EEG), electrodermal responses, myographic measures, and brain wave measurement. Subjective rating scales will be reviewed next, and will focus primarily on the multiple affect adjective check list (MAACL), the differential emotions scale (DES), and Holbrook and Batra's (1986) standardized emotional profile. Modifications of these scales will also be discussed. The use of thought verbalizations to measure emotional response will then be covered, and other methods, such as the measurement of facial expressions, will finish this selective review of the measurement literature. The impact of brain hemisphere lateralization and dimensions of emotion on the measurement of emotional response to television advertising will then be discussed, and the chapter will conclude by summarizing relevant findings and indicating the direction to take for measurement development.

3.2 Physiological Measures

The use of physiological methods to assess emotional response have theoretical underpinnings in both the James-Lange and Cannon-Bard theories of emotion, which both recognize the interaction of mind and body, but differ over whether mind or body comes first. The use of physiological measures to capture a specific emotional response assumes that distinct emotions have their own set of physiological adjustments associated with them. The lure of physiological measures stems in part from their "hardness" - they are precise and easily quantifiable, given

the proper equipment, and because they avoid problems associated with the ability to articulate feelings and voluntary response biases. Many of the physiological changes associated with emotional response are not ordinarily under voluntary control in untrained subjects, therefore increasing their attractiveness to researchers because data collected will not be distorted by subjective biases. Many different physiological measurements have been used to gauge emotional response. The more common measures of pupillary response, respiratory and digestive system response, heart rate, electrodermal responses, and brain waves will each be reviewed and evaluated as to their appropriateness to measure emotional response to television advertising.

A. Pupillary response

Pupillary response, and more generally, eye response, measures observable responses of the eye to psychological events, such as emotion. Measures of pupillary diameter, eye blinks, and eye movements are taken as correlates of specific emotions. Much of the research in this area has focused on pupillary response as an indication of emotional response to a stimulus. Pupil size is controlled by the antagonistic action of the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). The SNS controls the dilation of the pupil, while the PNS controls pupillary constriction. Interaction between the PNS and SNS determines pupil size at any given point in time. Since the SNS has the basic function of mobilizing the body, the use of pupillary response as a correlate of emotion becomes attractive when emotions are assumed to cause a motivational state in the

individual.

Much disagreement exists over what pupillary response correlates with in terms of emotion. Hess and Polt (1960) observed that pupil size varied directly with the hedonic value of the observed stimulus. They found that stimuli that was presumably more pleasurable to males and that which was presumably more pleasurable to females caused greater pupil dilation in their respective groups. Hess and Polt (1960) concluded on the basis of these findings that pupil size was an objective measure of the magnitude and valence of emotional reactions. This conclusion has been both supported and contradicted by other research. Hess (1965) found that subject's pupils could dilate regardless of the emotional valence of the stimulus. Barlow (1969) has provided results showing that preferences and pupillary response coincide, while Francis and Kelly (1969) found that the attitudes of different subject groups could not be discriminated between using pupillary response. These results suggest that pupil size fluctuations may depend on other factors besides the stimulus used. This has been recognized by Hess (1965) and Chapman, Chapman and Brelje (1969) in their studies reporting that environmental situations may affect pupillary response. While pupillary response is sensitive to psychological influences, disagreement exists over whether this response can detect affective valence, although data does support its use as a measure of affective intensity. Janisse (1974) suggests that pupil size is linearly related to the intensity of affect and curvilinearly related to its valence, although even this may be disputed. Janisse (1973) argues that future research should be

concerned with pupillary response as a measure of affective intensity rather than of valence.

More recently, Hess (1975) describes four studies where verbal reports of advertising effectiveness are directly compared to pupillary responses to see which was a better predictor of later sales figures. In three of the four studies, the pupillary measure is a better predictor, while the fourth resulted in a tie. In only one of the four studies was the predictor statistically significant. In that one study, both verbal reports and pupillary responses were effective at the .05 level. While these results are interesting, a problem exists when pupillary response is applied to television advertising. The pupil reacts to brightness, a factor that can vary considerably over the course of a television commercial, and pupil dilation can also vary with mental effort (increasing with more effort). Both these factors can have a confounding influence on the use of pupillary response as a correlate of emotional response to television advertisements.

The use of pupillary response as a correlate of emotional response to television advertisements does not hold great promise. No research findings support the hypothesis that pupil size varies differentially in response to specific emotions, and evidence is contradictory as to whether this response can distinguish between emotional valence. As a measure of emotional intensity, pupillary response may have some use, although problems exist with confounding factors such as television screen brightness and the level of mental effort involved in viewing the advertisement. In addition, the apparatus required to measure pupillary response is obtrusive and may inhibit the natural viewing of

a television advertisement.

B. Respiratory and Digestive Systems

These are relatively crude measures for two reasons: it is not easy to detect changes in these systems on the surface; and that minor differences in response are difficult to detect and interpret. Digestive system response is measured by gauging gastrointestinal blood flow, a measure that requires invasive surgery. That the gastrointestinal tract is tied to emotion makes intuitive sense however, as many public speakers experience a wave of nausea along with the feeling of fear and anticipation when standing up to speak to a large audience. This measure is not feasible for measuring emotional response to television advertising; it typically occurs with intense fear, fright, or anticipation - emotions that are not likely to be experienced by viewing a T.V. advertisement. The use of surgery also makes the method infeasible with normal subjects.

The use of the respiratory system as a measure of emotional response has centered on inhale/exhale ratios. Here the ratio of inhale to exhale volumes are correlated to emotional stimuli. Feleky (1914) reported that six emotions could be distinguished using this technique: pleasure, pain, anger, wonderment, fear, and disgust. Later studies would not replicate these results, severely limiting its use as a measure of emotional response.

C. Cardio System

Three measures can be used to record the reaction of the cardio system to emotional stimuli; the electrocardiogram (EKG), blood pressure, and skin temperature.

Heart rate is usually responsive only to more extreme emotional stimuli. Response is measured by the electrocardiogram (EKG), which records the electrical discharge associated with the muscular contraction of the heart. The EKG is usually recorded from 12 different pairs of leads, half on the chest and half on the limbs. Most of the data relating EKG to affective response is contradictory (Stern, Farr, Ray; 1975). In addition, the data has the potential to be biased by experiment effects, in that the apparatus required may inhibit a national response. As a stimulus, television advertisements may not evoke extreme feelings of emotion, further inhibiting the EKG as a measure of emotional response.

Blood pressure movements may also be used to measure cardio system reactions to emotional stimuli. External measures cannot, in general, detect rapid changes in blood pressure, while internal measures, which involve the insertion of a pressure sensitive transducer into an artery, can be painful and dangerous, although it gives more frequent and accurate measurements of blood pressure changes. The inability to easily detect rapid blood pressure changes severely limits this method as a measurement of emotional response.

Of the remaining cardio system measurements available, skin temperature can be used to indicate some types of emotional response. In this method pressure sensitive pads are placed on those areas of the body with a high surface capillary count, such as the face, neck, hands, and chest. Hasset (1978) reports that embarrassment, depression, and anxiety were associated with drops in finger temperature. Skin temperature readings could not distinguish between

these emotions, however.

Cardio system measures do not hold much promise as a measure of emotional response to television advertisements. They cannot distinguish between emotions, involve complex and obtrusive apparatus, and typically only react to more extreme stimuli which may not be generally found in television advertisements.

D. Electrodermal Responses

Several measures are available for use in this area: conductance of the skin; resistance of the skin; and skin potential - the electrical activity intrinsic to the skin. The bulk of the research has made use of conductance of the skin, or galvanic skin response (GSR). GSR operates at a biologically primitive level. An increase in sweat gland activity increases the electrical conductivity of the skin. GSR changes are dramatic and easy to measure - they involve placing several electrodes at a specific sight on the body, usually the palm or fingers.

Early experimenters saw GSR as a measure of emotion. Caffyn (1964) suggests that researchers use GSR to measure emotional reactivity to advertising. In an experiment Caffyn (1964) used GSR as a measure of response to newspaper, poster, and television advertisements. Results indicated that GSR could be used to predict emotional response intensity, but not valence. Caffyn (1964) suggests that GSR be combined with verbal reports of emotional valence for an effective measure of emotional response on the dimensions of intensity and valence. Kohan (1968) monitored the GSR of subjects watching television advertising. Measures of GSR and verbal measures of

consumer reactions to the advertisements did not correlate well. Kohan (1968) did find that as interest in the commercials increased, so did GSR activity.

The use of the GSR as a measure of emotional response to television advertising is limited because the GSR could react to a word, or picture, or a loud or sudden sound. During the course of a television advertisement the formal features undergo fairly rapid change, making it difficult to assess what the GSR reacted to. Like other physiological measures, GSR cannot distinguish between specific emotions or even emotional valence. The use of GSR is restricted to that of a correlational measure of emotional arousal.

E. Brain Waves

As a psychophysiological measure, the recording and analysis of brain waves is quite complex. These measures are recordings of the brain's electrical activity, and are gathered through the use of the electroencephalogram (EEG). The EEG measures electrical activity of the cortex through twenty electrodes attached to the skull, and can record changes in alpha, beta, and theta band frequencies, as well as event related potentials (ERP).

Of the three main brain waves, alpha, beta, and theta, the alpha rhythm has received the most attention by advertising researchers because it is thought to be related to the attentional process. When an individual focuses their attention on a stimulus, the alpha rhythm is suppressed. Alpha waves signify a state of mental relaxation that is reduced during the attentional process. While beta waves may signify mental activity, the use of beta and theta waves in advertising

research is unclear, as their own meaning is unclear (Nevid; 1984). The alpha rhythm, as measured by EEG, has been found to show a fast, low-amplitude rhythm when subjects are experiencing an emotion, although it cannot distinguish between different emotions (Cofer; 1972). Krugman (1971) has speculated that brain wave patterns may be influenced by the effect of advertising media on a subject's cognitive processing level and involvement. Krugman (1971) found that print advertising is associated with faster brain wave rhythms, indicating more processing and involvement, and television advertising is associated with slower brain wave rhythms, indicating less processing and involvement.

While EEG measures have been linked to attention to the advertisement and involvement (Krugman, 1971), commercial recall (Appel, Weinstein, Weinstein, 1979), and brain activity (Weinstein, Appel, Weinstein, 1980), increased brain wave activity, represented by gross measures of alpha or beta rhythms, cannot indicate emotional arousal. These measures cannot distinguish whether the viewer is emotionally aroused or focusing on the interpretation of complex and rapidly changing formal features of television advertising (Nevid, 1984). Recent research has separated brain wave measurement and analysis by brain hemisphere in the belief that this will allow the direction and intensity of emotional response to be measured by EEG.

In his thorough review of hemisphere lateralization, Hanson (1981) lists possible dichotomies between brain hemispheres that have contributed to the belief that the left hemisphere is functionally rational and the right hemisphere functionally emotional. Among these

are (from Bogen, 1977) that the left hemisphere is rational, active, realistic, directed, and sequential while the right hemisphere is metaphoric, receptive, impulsive, free, intuitive, and multiple in processing. Following this belief of hemisphere lateralization and specialization, an advertisement that is emotional in interpretation would evoke more right brain activation. Nevid (1984) in his review of EEG techniques in advertising suggests that the functional dichotomy between brain hemispheres is more complex than this simple view. Nevid (1984) cites research by Gur, Gur, and Harris (1975), Safer and Leventhol (1977), Gabin (1974). and Izard (1971) that supports the view that the right hemisphere is emotional and the left hemisphere rational in function. Nevid (1984) also reports findings by Dimond, Farrington, and Johnson (1976) suggesting that emotional valence cannot be determined through hemisphere activation, and that negative as well as positive emotional arousal may be represented by brain wave activity (Shearer & Tucker, 1981). In his review Nevid (1984) mentions that both hemispheres are actively involved in a normally functioning brain, and that:

... the ordinary viewer of television commercials receives stimuli that are presented bilaterally and that engage the processing efforts of both hemispheres and the sharing of information across the nerve pathways connecting the hemispheres. (p. 13)

In addition, Nevid (1984) mentions that the placement of the electrodes can give very different results, as demonstrated by Beaumont, Mayes, and Royal (1978), where greater coherence between hemisphere activation

was found at parietal sites than at temporal lobe sites. Nevid (1984) suggests that brain hemisphere activation can also differ depending on the stimulus factors of advertisements, and that future research must use advertising stimuli that are balanced on stimulus factors or formal features.

While EEG measures of emotional response are intuitively attractive, given that they should not be subject to voluntary response bias or verbal distortions, and that hemisphere lateralization and specialization theory suggests that the right hemisphere is "emotional", these measures do not indicate the valence of emotional response or that different emotions are associated with different brain wave patterns. EEG measures can indicate brain and brain hemisphere activity, which can be correlated to the emotional stimuli being presented.

F. Conclusions

Physiological measures of emotion are attractive in that they avoid the errors and biases of verbal and paper and pencil measures, such as social desirability effects, response predispositions, forgetting, and low involvement in the task. Research findings indicate however that physiological measures cannot distinguish between emotions, and have problems determining emotional valence and intensity. Undermining the use of physiological measures as correlates of emotion is a lack of understanding in how physiological response varies with changes in complex psychological states, such as emotion, and that these physiological responses can react to many different internal and external factors, making any relationship to emotional

state correlational, while providing no insight into the underlying motives that produced the response.

3.3 Subjective Rating Scales

Subjective rating scales measure emotional experience, as subjectively reported by the individual and inferred by him from the stimulus. Subjective rating scales have an advantage over other measures, in that they are typically easy to administer and code, and that they can gain insight into the intensity, valence, and direction of emotional response, while being able to distinguish the presence of different emotions.

Many different rating scales are available to measure emotional response, although few have applied to television advertising. This review will cover the two main scales widely used in psychological studies, the multiple affect adjective check list (MAACL) developed by Zuckerman & Lubin (1964) and Izards (1977) differential emotions scale (DES). Scales developed by Schlinger (1979), Wells, Leavitt, and McConville (1971), Holbrook and Batra (1986), Zeitlin and Westwood (1986), and Aaker, Stayman, and Vezina (1987) will then be reviewed.

A. The Multiple Affect Adjective Check List (MAACL)

The Multiple Affect Adjective Check List (MAACL) is one of the most

widely used instruments in research involving the assessment of emotional states. First published in 1965, the MAACL has been used in hundreds of studies to assess the effects of many experimental treatments. The MAACL has been used frequently to verify the induction

of various affects in studies involving affect induction procedures. In these studies the MAACL is used typically to verify that after the affect induction procedure subjects in the induction condition do in fact differ from subjects in other conditions with respect to self reported mood.

The MAACL is a 132 item measure of emotional states relating to three main affective states: anxiety, depression and hostility. The anxiety scale of the MAACL is composed of 21 adjectives, the depression scale is made up of 40 adjectives, while the hostility scale is composed of 28 adjectives. All scales contain both positive and negative adjectives, and the score for each scale is obtained by summing the number of negative adjectives checked and positive adjectives not checked. In the development of his measure, adjectives for each of the three scales were kept if they differentiated between anxious psychiatric patients and non-anxious normal subjects, between depressed and non-depressed men and women, and between normal and hypnotically induced hostility states.

While the MAACL appears, at first glance, to be an attractive measure for emotional response to television advertisements, upon closer investigation, there are many problems associated with its use, among them a theoretical base that does not match with the proposed use, an inability to provide ratio data for separate emotions, and problems with validity.

The MAACL was developed to provide measures of negative affects, with development stemming from, in part, subjects that suffered clinically from anxiety or depression, and subjects that were

hypnotically induced into a state of hostility. Most obvious in the inappropriateness of the MAACL to measure emotional response to television advertisement is that the measure was developed to measure affect, or mood (Zuckerman seems to equate the two). As we know, mood and emotion are related, but distinctly different, constructs. If applied to the measurement of emotions, the MAACL would lack construct validity.

The MAACL, as mentioned, provides a total score for three affective states, anxiety, depression, and hostility. Each of these three states is measured by the presence or absence of certain feelings associated with them, represented by adjectives. Many of these adjectives can be used to label emotions, such as: fearful, mad, cheerful, gay, loving, and pleasant. In responding to the MAACL, the subject indicates the presence or absence of the feelings described by the adjectives. While the total score for a scale, such as anxiety, is represented by ratio data, the separate adjectives that make up that scale are ordinal. For measuring intensity of emotional response, this is not suitable.

Zuckerman et al. (1964) found that scores on the anxiety, depression, and hostility scales were all affected in a sample of university students by an unexpected threat of examinations, suggesting intercorrelational of the scales. This intercorrelation has been explicitly stated by other researchers (Pankratz, Glaudin & Goodmonson, 1972; and Herron, 1969). As a result of this intercorrelation, the discriminant validity of the MAACL may be low.

These shortcomings severely restrict the applicability of the

MAACL to measuring emotional response to television advertising. The basic idea is attractive however: a measurement device that can provide ratio data on fundamental emotions, by using aggregate scores on the finer emotions that fall within these basic emotional categories. The Differential Emotions Scale developed by Izard comes close to providing this measurement.

B. Differential Emotions Scale (DES)

The DES is a multivariate scale designed to measure the subjective experience components of 10 fundamental emotions (interest, joy, surprise, sadness, anger, disgust, contempt, fear, shame/shyness, and guilt). In developing the DES, Izard (1972, 1980) assumes that mood states have characteristic patterns of emotions associated with them. Differential emotions theory recognizes the interaction between emotions and cognition while emphasizing the motivational functions of emotions. A pattern of emotions is defined as an interactive set of emotions, in which a key emotion is experienced more intensely and frequently than the other emotions in the set. Activation of one of these emotions, especially the key emotion, increases the likelihood that other emotions in the interactive set will be activated (Izard & Buechler, 1980; Izard, 1979). The work of Schwartz and Weinberger (1980) supports Izard's theory that mood states are associated with patterns of emotions, while the network model of memory (Bower, 1981) adds credence to the claim that a key emotion will increase the likelihood that others in the set will be activated. Polivy (1981) has found that manipulations designed to elicit one specific emotion actually elicits a cluster of different emotions that are related.

While Polivy (1981) states that real world emotions seem to appear in clusters, the results may be due to several reasons, among them co-occurrence of emotions, measurement bias (self reports were used), or the subjects inability to accurately self report emotional states.

The DES is a 30 item scale, with each emotional subscale represented by 3 items. The DES has been found to have high discriminant reliability and test-retest evidence of reliability (Boyle, 1984).

For measuring emotional response to television advertisements, the DES appears to be an appropriate scale. It is well grounded in theory that recognizes the interaction of emotion with cognition and other affective states, while providing ratio data. Feelings for each emotion are rated on a 7 point scale varying from "not at all" to "very strongly". The DES, however, obtains measurements for only 10 fundamental emotions, where the term fundamental represents their being able to be universally discernible from facial expressions. Emotional responses to television advertising may include these 10 emotions, or they may not, raising questions of this measurement's validity in this stimulus situation. The television viewing experience may give rise to different emotional responses in terms of associated cognitive labels, valence, and intensity than other experiential situations, suggesting the development of subjective rating scales specific to viewing television commercials.

C. Viewer Response Profile (VRP)

The VRP was developed by Schlinger (1979) to quantify viewer's subjective reaction to television commercials by describing the

viewer's experience to the brand and advertisement execution. The VRP is proposed to gauge affective reactions to advertisements by focusing on the emotional component of commercial effects.

A subject responding to the VRP rates the television advertisement on a standard set of scales developed from verbatim consumer responses to commercials through factor analysis. The measure is composed of 32 agree/disagree items assessing seven dimensions of response: entertainment, confusion, relevance, favorability, empathy, familiarity, and alienation. The data obtained from the VRP is scalar in nature, quick to gather and tabulate, and uniform across respondents. It does not require subjective coding or articulateness by the respondent.

Reliability of the VRP as measured by test-retest correlations is fairly good, with the exception of the confusion, empathy, and familiarity dimensions (Schlinger, 1979). The VRP is maintained to have validity as a measure of viewer reactions because it is similar in dimensions to other independently developed instruments, such as the reaction profile developed by Wells, Leavitt, and McConville (1979), that it is able to predict a different measure (clutter awareness), and that it had face validity because of its valuable application in the advertising business.

The VRP has many of the features desirable in a measure of emotional response to television advertising; it is easy to score and administer, does not require subjective coding or an articulate subject, and is uniform across subjects. The measure does not capture intensity of response however. That the VRP is a valid and reliable

instrument for the measurement of general viewer response to T.V. advertisements appears to be substantiated, although it may not capture specific emotional response because of its item wording. Examination of the 32 items (Table 1) indicates that they are oriented to the viewer's cognitive interpretation of what the advertisement did to them, and that emotional response is not specifically measured. To obtain this type of measure the items on the VRP may have to be analyzed with respect to higher order factors.

D. Reaction Profile (RP)

The reaction profile, developed by Wells, Leavitt and McConville (1971) is similar to the Viewer Response Profile of Schlinger (1979). The RP was derived from a list of approximately 1000 words or phrases that viewers might use in giving their opinions of T.V. commercials. Through the use of factor analysis, six stable factors were uncovered: humor, vigor, sensuousness; uniqueness, personal relevance; and irritation. The measure uses five items to represent each of these factors (e.g. uniqueness is represented by novel, imaginative, ingenious, unique and original). The subject is asked to tell about how each of these 30 items describes the advertisements they have seen by putting a number from 1 to 5 by the word. On the 5 point scale used, 1 represents "not well at all" and 5 represents "extremely well".

The reaction profile has the advantage of being short, easy to administer and tabulate, being standardized across subjects, and providing interval data. The reaction profile, as it stands, appears limited in use for measuring emotion to television commercials first because it was not designed for this specific purpose, and because it

asks the subjects for an objective evaluation of the advertisement instead of how the advertisement made them feel.

E. Standardized Emotional Profile (SEP)

More recently, Holbrook and Batra (1986) have attempted to design an instrument to specifically measure emotional responses to nonverbal features of advertising. Holbrook and Batra (1986) mention that no study has yet to take a really comprehensive view of emotions as the basis for developing a measure that can be used in advertising.

The Standardized Emotional Profile (SEP) developed by Holbrook and Batra (1986) uses multi-dimensional indices to capture emotional response. Like Wells, Leavitt and McConville (1971) and Schlinger (1979), Holbrook and Batra used a derivative approach to define their indices. First, a matrix of emotional types and their author's was developed. Cells in the matrix listed the measure used, and words, or phrases to describe the emotion in question. A list was then used to select the 3 or 4 items that best captured terminology across authors. This list was reduced to 29 a priori multi item emotional indices.

Holbrook and Batra (1986) then used this measure to capture emotional response to 72 recent advertisements. Holbrook and Batra (1986) found interjudge reliability was adequate and internal consistency was strongly reliable. Principal components analysis revealed three dimensions of pleasure, arousal, and domination. While Holbrook and Batra (1986) have achieved good results with their SEP measure, it does not, by their own admission, fully cover the range of emotions that may be elicited by an advertisement. To compensate for this, Holbrook and Batra (1986) judgementally included extra scales to

cover the range of emotions that they felt would be elicited. In addition, the measurement was taken by paper and pencil after the advertisement was viewed and as such has the same limitations of all after the fact written measures, namely a potential for individual response bias, experimenter bias, fatigue, and memory effects. The SEP represents a significant step forward however, as it is specifically designed to measure emotional response to television advertisements.

F. Beaumont Emotion Battery (BEB)

The BEB was developed by Zeitlin and Westwood for specific use with television advertisements. With this measure, subjects rate the television advertisement they were exposed to across a battery of items. The objective of the battery is to gauge the subjective feelings evoked by the stimulus communication. To achieve this, the battery elicits cognitive appraisals of the advertisement in a language based on subjective feelings.

The BEB is composed of 40 items in total, and is designed to identify the presence of eight primary emotions, as developed in the emotional theory of Plutchik (1980). The eight primary emotions identified by the battery are; acceptance, fear, surprise, sadness, disgust, anger, anticipation, and joy. Plutchik's theory holds that all emotional states are mixtures of these primary emotions. The eight primary emotions are related to each other. Some are similar to others, and some are direct opposites. Plutchik (1980) illustrates this by placing the eight primary emotions in a circular structure (Figure 4).

Zeitlin & Westwood (1986) note that in reality the eight primary

emotions are rarely seen in their pure form. Instead, the emotions experienced by an individual are a mixture of the eight primary emotions. The result is called a secondary emotion. Zeitlin & Westwood (1986) provide a partial list of secondary emotions, with the mix of primary emotions that comprise them (Figure 5). The BEB is composed of 40 items in total, and is designed to identify the presence of Plutchik's (1980) eight primary emotions. Of the 40 scale items, some are "dummies". The active items were compiled from three sources (Zeitlin & Westwood, 1986):

- 1) Items used in Plutchik's original
- 2) Rewrites of Plutchik items, to refer to the rated stimulus rather than the rater.
- 3) Original items that capture the essence of the primary emotion, but are more tightly geared to advertising executions than scales reported in the psychology literature.

In the BEB, each primary emotion score is calculated as a weighted combination of the items included in the battery to measure that emotion, and rescaled to a standard score range. When answering the battery, the subject indicates whether the item describes the commercial on a five point scale: not at all; slightly; moderately; strongly; or very strongly. After rescaling, each primary emotion is represented with a score from 0 to 100. Zero represents the complete absence of the emotion, one hundred represents total emotional saturation for the emotion. The resulting scores for the eight primary emotions can be depicted using Plutchik's (1980) circumplex structure (Figure 3). Secondary emotions can be identified by noting the

presence of the primary emotions and their intensity, with interpretation provided by the dictionary of secondary emotions. Zeitlin & Westwood (1986) in their application of the BEB, situate subjects in a living room setting to approximate a normal viewing environment. The test commercial is embedded twice in a TV program, with five other "clutter" commercials. The BEB is administered after the second exposure to the test commercial.

The testing of the BEB for validity and reliability was conducted during its development by Holbrook and Westwood (1985). After developing the 40 item battery (Table 3), 54 commercials were selected to investigate the structure of emotional responses to television advertising using the 40 item scale. Of the 54 commercials, a selected set of 18 consisted of advertisements that were intuitively judged to attain high levels in one or more of Plutchik's primary emotions. The remaining 36 advertisements were randomly chosen. The selected and random sets of advertisements are listed in Table 4, with their relevant sample viewing sizes.

The commercials in both sets were combined, and then grouped into sets of 12, with each selected commercial appearing in two groups, and each random commercial in one group. The groups were arranged so that two commercials for the same product category were not included in the same group. Holbrook & Westwood (1985) then embedded each group of commercials within a short film in both forward and reverse directions to control order effects. The program package was shown to subjects in a simulated living room environment. The program packages were shown to a total of 613 subjects, evenly divided between males, females,

adults (18 years and older) and teens (13-17 years).

Holbrook and Westwood (1985) used Plutchik's (1980) theory to define eight a priori three-item indices from the 40 item battery to define the eight primary emotions (Table 5). The reliability of these indices was assessed by Cronbach's alpha, with high (low) levels of alpha interpreted as indicating good (poor) internal validity of Plutchik's typology. Holbrook & Westwood (1985) also measured correlations among indices to investigate whether Plutchik's (1980) bipolarities among the eight primary emotions also characterize the structure of advertising related emotions.

The results of the Holbrook & Westwood (1985) study indicate that the 40 item battery supports the internal validity of Plutchik's (1980) emotional typology as indicated by the reliabilities of the eight emotional indices (Table 5). The hypothesis of bipolarity in the Plutchik typology received only partial support. The intercorrelations for acceptance - disgust ($r = -.43$, $p < .01$) and joy - sadness ($r = -.42$, $p < .01$) were statistically negative, however anticipation-surprise ($r = -.12$, n.s.) was not statistically significant, and fear - anger ($r = .32$, $p < .02$) was statistically positive in the wrong direction.

While replications of the findings of Holbrook and Westwood (1985) have yet to be published, the results indicate that the BEB is a reliable measure of emotional response to television advertising, and that it has high internal validity.

G. Aaker, Stayman, and Vezina

More recently, Aaker, Stayman, and Vezina (1987) have attempted to

develop a range of feelings and emotions that are precipitated by advertising. In this study, feelings were considered to be similar to emotions but less intense. First, a list of feelings from past studies was generated, giving a total of 655 prospective feelings. Subjects were asked to rate these feelings into three categories of fit: 1) a feeling you might have while watching a T.V. advertisement, 2) a feeling they might have about an advertisement, and 3) something which is an inherent property of the advertisement. Subjects were allowed to check multiple categories.

The initial list of 655 feelings was reduced to 160 by using feelings for which over 50% of subjects checked category 1. This set was augmented with feelings for which one third to one half of subjects checked category 1 and category 1 was checked at least as often as categories 2 or 3. A total list of 180 feelings was generated. These were then rated by subjects as to whether they were positive or negative. This generated two lists of 107 feelings with 34 common to each. Subjects then grouped similar feelings and cluster analysis was performed to identify distinct sets. The resulting 31 clusters are shown in Table 2.

Aaker, Stayman, and Vezina conclude their study by suggesting that previous studies, such as that of Ray and Batra (1986) have developed categories at too broad a level, and that to be of use in advertising research, feelings must be more distinctly identified.

H. Conclusions

Subjective rating scales have several features that make them attractive measures of emotional response to television advertisements:

they are typically easy to administer and score, standardized across subjects, can provide nominal, interval or ratio data, and, if designed properly, can lend some understanding to the underlying cognitive processes involved.

There are several basic issues that must be raised on the use of subjective rating scales to measure emotional response. The first is that these scales are best used to measure emotional response to the advertisement as a whole, as measuring responses to each feature, or different segments, of an advertisement could quickly become very cumbersome and impractical. Second, there is the question of whether a subjective rating scale, which is a verbal response measure, is appropriate for capturing a response that may typically be unconscious and non-verbal. The third issue is that subjective rating scales impose a restricted range of emotional responses on the subject, which may affect measurement validity. Ideally, there should be no restrictions in this area, with the subjects generating their own categories of emotional response, instead of choosing from a restricted set.

Clearly, there are trade-offs associated with the use of subjective rating scales in measuring emotional response. If such a measure is used, it must have several key features to be effective. First, it must be well grounded in emotional theory, recognizing the interaction between cognition and affect, as well as interaction among affective constructs. Second it must be able to capture variations in intensity and valence of emotional response, and third, it must be able, at some level, to capture the emotions that the television

advertisement evokes.

Of the seven subjective rating scales reviewed, only the Standardized Emotional Profile, the Emotion Wheel developed by Zeitlin and Westwood (1986), and the cluster analysis by Baker, Stayman and Vezina (1987) are both well grounded in theory and developed specifically for measuring emotional response to television advertising.

3.4 Facial Expressions

The study of facial expressions as a measure of emotional response has again become of interest to psychophysicologists. Darwin (1872) argued that facial expression held one of the keys to the puzzle of finding objective indicants of emotional response. While facial expressions are muscular actions, and, as such, could be grouped with other physiological measures of emotion, facial expressions differ in two key respects - they can differentiate between specific emotions while indicating their valence. This section will explore the potential of facial expressions as measures of emotional response, first discussing some of the theory behind this measure, then describing the various methods available to measure emotional response from facial expressions, as well as their reliability and validity. This section will conclude with an evaluation of the use of facial expressions to measure emotional response to television advertising.

The use of facial expressions to measure emotion is grounded in the expressiveness of the human face. These expressions can be very complex given the sending capacity of the face and the information it

can convey. The human face can have hundreds of expressions, which can occur extremely rapidly. In literate cultures researchers have found distinctive facial expressions for anger, disgust, happiness, sadness (or distress) fear, and surprise (Ekman, 1972; Ekman, 1973; Izard, 1971; and Saha, 1973). While these apply cross-culturally, many more expressions may be able to be measured distinctively within a culture.

These are two main measurement instruments for facial expression: the Facial Affect Scoring Technique (FAST) designed by Ekman, Friesen, and Tomkins (1971) and the Facial Action Coding System (FACS) designed by Ekman (1982). The FAST was designed mainly to measure facial behavior relevant to emotion, while FACS was designed to measure all facial actions.

The FAST measures emotional expression by using scores of each observable movement in three facial areas: (1) brows/forehead; (2) eyes/eye lids; (3) lower face, cheeks, nose, mouth and chin. Instead of a verbal description of each scoring category, FAST uses photographic examples to define movements in each of the three facial areas to distinguish among six basic emotions: surprise, fear, anger, happiness, and disgust. The FAST system is applied by having independent coders view each of the three areas of the face separately, with the rest of the face blocked from view. Each movement within a facial area is distinguished, its exact duration determined through the use of slow motion, and then the type of movement is classified by comparing it the atlas of FAST criterion photographs. A FAST atlas number is assigned to the movement from the picture most closely matching it. Once the coders scoring is complete, formulas are used to

derive the emotions of each facial behavior. Analysis can be performed by measuring either the frequency of emotional occurrence, or the duration of an emotion in an area. Both duration and frequency scores can be analyzed separately for each of the three facial areas, or combined to yield an emotion score for the entire face, with the corresponding emotion being either a single facial emotion, or a blend of emotions.

With a measurement instrument for emotion in facial expressions, two types of validity are relevant: personal and social. Personal validity involves whether facial behavior can provide accurate information about an individual's emotional experience, while social validity is concerned about whether measures of facial behavior can predict how people will judge the emotion shown in a face. For the purposes of this thesis, personal validity is the more relevant - to be useful, the FAST method should be valid in measuring the emotion an individual actually experiences.

In an attempt to gauge the personal validity of FAST, Eckman, Freisen and Tomkins (1971) applied the method to subjects who watched first a neutral film of autumn leaves and then a stress inducing film on sinus surgery. Both films were 5 minutes long. A videotape recording of facial behavior was made, unknown to the subjects, for the entire 6 minute viewing session. After viewing subjects provided self reports on emotions they experienced. The results showed a large difference in the facial behavior caused by the two segments. Total face scores, scores for each facial area, and frequency/duration scores all indicate there was more behavior indicating surprise, sadness,

anger, and disgust during the stress film and more behavior indicating happiness during the neutral film. This study shows that facial behavior can accurately discriminate between 2 eliciting circumstances. Although self reports were gathered, their use as an accuracy criterion was limited because they were gathered some time after the experiment. The only accuracy criterion available are the two film conditions, neutral and stress. In this same study FAST scores accurately forecasted the specific emotions judged by those who simply observed the face.

While it cannot be said from these findings that FAST succeeded in accurately differentiating between emotions, it can be said that FAST differentiated types of facial behavior. The evidence does suggest some hope however for FAST having validity. No studies could be found that would verify the reliability of FAST - it appears that none have been conducted to determine whether FAST will yield the same results from similar treatments. The nature of the coding techniques suggests however that FAST is fairly reliable.

The primary goal of the Facial Action Coding System (FACS), designed by Eckman (1982), is to distinguish all visible facial movements. To accomplish this, FACS was derived from analysis of the anatomical basis of facial movement. The system can distinguish all possible visually distinguishable facial movements, unlike FAST, which measures only a particular sample of behavior. While FACS is more comprehensive than FAST in the facial movements that can be distinguished, it was not specifically designed to measure emotion.

The method is difficult to use, and has a more general purpose utility than FAST.

As a measure of emotional expression the measurement and interpretation of facial expressions holds great hope. Of all the physiological measures reviewed, facial expressions are the only measure in this group that can be clearly interpreted for specific emotions. This measure would be most effective if the emotion, and its expression on the face, were, according to Denzin (1984) "unreflective" - the individual is not always aware of their feelings, thoughts, movements, or actions. Here facial expression would give a fairly clear indication of current emotional experience. This measure would be limited however if the individual consciously manipulated facial expressions so that their true emotional experiences would not be reflected. Differences in the expression of emotion individually, between sexes, and from hemispherical dominance could also confound results.

3.5 Thought Verbalizations

As data, thought verbalizations have been used in the past to measure consumer reactions to advertising (Wright, 1980). Wright lists four areas of cognitive activity where thought sampling may be used in respect to persuasion research: message response; attitude determination; preference determination; and action planning. Of these, message response, where message assertions are processed, rehearsed, stored or forgotten, and in which immediate message evoked thoughts are generated, is of most relevance for the measurement of

emotional response to advertising.

Verbalizations are processed into data through the use of a coding scheme developed to represent the theory being tested. Coding may follow two strategies: to classify thoughts according to the processes they indicate, or by tracing the sequence of thoughts in a verbalization. The first strategy, classifying thoughts, is frequently refined by researchers to the classification of components of thoughts, with the smallest component possible being single words. Other units of analysis are commonly themes, or sets of themes, or the whole verbalization. Quantification of thought verbalizations can involve counting the number of words in each category, or the recurrence of a theme, ranking thoughts and themes, or subjectively rating the entire thought verbalization.

In consumer research few studies have used thought verbalizations as a method judging emotional response to advertising. Stout and Leckenby (1984B) in their exploratory application of this method, used personal connectors, inferences, product/brand valence, commercial valence, and emotional response as response measures for emotional experience. The coding scheme was applied to responses to two different commercials of the same product. The commercials were judged by experts to be very different in emotional content. Subjects viewed a commercial, and were then asked to explain what happened to them in terms of thoughts and feelings experienced, and then to describe in their own words what went on and was said in the commercial. Responses were recorded verbatim. Respondents also answered an open ended question about the main idea of the commercial, and completed

Schlenger's (1979) Viewer Response Profile. The coding of thought verbalization clearly distinguished the two commercials with respect to the emotional dimensions of energizing, hedonic tone, and state anticipation (Stout & Leckenby, 1984B). The nature of this categorization precluded identification of specific emotional response.

Wright (1980) in his thorough review of research using thought verbalizations, expresses some doubt about this measure's ability to capture first, all cognitions associated with the communicated message, and second, that verbalized cognitions are true reflections of the actual thought. Wright also mentions that thought verbalizations may be affected by individual differences in verbosity, subjective differences in coding, and motivation to verbalize thoughts, although proper experimental procedures can reduce these effects. That thought verbalizations measure an individual's emotional experience through reflective cognition limits its use as a single measure of emotional response. With reflective cognition this measure can capture social desirability biases, sex difference biases, and experimenter effects-errors that are difficult to control for, due to the implicit assumption when using this measure that thought verbalizations accurately reflect conscious cognitions. Unconscious cognitions are not captured with this measure.

More recently, Batra and Ray (1986) used thought verbalizations to measure consumers attitudes towards advertisements and brands. Subjects viewed commercials, and then wrote down their thoughts and feelings about the commercial. They were asked to read back their protocols silently. Batra and Ray (1986) developed 9 categories to

classify the protocols. The categories of SEVA (surgency, elation, vigor/activation) deactivation, and social affection were used to capture emotional response.

Batra and Ray (1986) mention several problems with the approach used. First, only positive emotional response categories were used to code the thought verbalizations, severely biasing the results. To capture a truer range of expressed emotion negatively valenced responses must also be included. Second, there is the problem of collecting non-verbal response data through verbal protocols, which may result in invalid data. Batra and Ray (1986) contend that while the data collected may not completely reflect affective responses, this does not invalidate responses as noted by Wright (1980). In addition, Batra and Ray contend that verbalization is retrospective, not concurrent, and abstraction or intellectualization is not required.

The problems associated with using verbal response measures to capture emotional response have been widely noted (Batra and Ray, 1986; Holbrook and O'Shaughnessy, 1984; Wright, 1980; Ray and Batra, 1983; Plutchick and Kellerman, 1980). Common faults of this measure are biases arising from social desirability effects, response predispositions, forgetting, low involvement in the task, and reactivity to the measurement. In terms of measuring emotional response, Plutchick and Kellerman (1980) identify eight problems with verbal emotional reports:

1. Verbal reports may be deliberate attempts to deceive another.
2. Verbal reports may be distortions or partial truths for conscious and unconscious reasons.

3. Repression may create false negatives. No emotion reported does not measure non exists.
4. Reports of emotions depend on an individual's conditioning history, as well as their facility with words.
5. Reports of inner emotional states are usually retrospective and depend on memory. Remembered events are subject to distortion.
6. Requests for a report of one's immediate emotional state can create the problem that the process of observing can change the thing observed.
7. The inherent ambiguity in language creates the problem of the true measuring of emotional terms.
8. Emotions are rarely experienced in a true state. Any situation may create mixed emotions, which are difficult to observe in any simple or unequivocal way. (pg. 5).

With these types of problems associated with verbal response measures of emotion, it is clear that verbal reports, if they are used at all, should be used in conjunction with other measures in order to improve response validity.

3.6 Conclusions

The purpose of this chapter has been to review the various measurement instruments and methods available to measure emotional response to advertising. These measurement methods were reviewed by type, including: physiological measures; subjective-rating scales; facial expressions; and thought verbalizations. This review was restricted to instruments and methods within these categories that have

previously been used to measure emotional response. Where possible, applications of these methods and instruments have been cited, and their reliability and validity reviewed.

The four measurement areas reviewed, physiological responses, subjective rating scales, facial expressions, and thought verbalizations, each have problems in their applicability as stand alone measures of emotional response to television advertisements. The objective of the measurement instrument or method to capture emotional response to television advertising is straight forward: it must indicate valence, intensity, direction and specific emotional experience while being valid and reliable. Due to the complexity of the emotional process, with its interaction of unconscious and conscious cognition, affective response, and physiological reactions, all of the measurement methods reviewed will have associated errors and bases that could affect results and interpretation when used individually.

IV. THE MULTIMEASURE APPROACH

4.1 Introduction

From the reviewers of emotional theory in chapter two, and of the measurement instruments in chapter three, several important points having implications for the measurement of emotional response can be noted:

1. The construct of emotion is complex, with emotion resulting from interaction between affective experience, conscious and unconscious cognitions, physiological responses, and behavior.
2. Emotional response in an individual has the potential to be modified through cognitive intervention both before and during the response; and recollections of emotional experience can also be modified by cognitive intervention.
3. Each of the measurement instruments reviewed has errors and biases associated with it, and, if used alone as a measure of emotional response, would have problems with achieving accuracy in measurements.

The purpose of this chapter is to provide a rationale for a measurement method that recognizes these points, and to recommend the instruments to be used in this method to obtain valid and reliable measures of emotional response.

4.2 The Multimeasure Approach

Any measurement method or instrument should be grounded in the construct that it represents. In chapter two, the following construct

of emotion was developed and suggested for general use in developing measurement instruments for emotional response:

Emotion is a complex set of interactions among subjective and objective factors, mediated by neural hormonal systems, which can (a) give rise to affective experiences such as feelings of arousal, and pleasure/displeasure; (b) generate cognitive processes such as emotionally relevant perceptual effects, appraisals, and labeling processes; (c) activate widespread physiological adjustments to the arousing conditions; and (d) lead to behavior that is often, but not always, expressive, goal directed, and adaptive. The set of interactions composing emotion is a reaction to a specific target, and can be congruently influenced by sentiments or prior emotions, moods, or feelings. The experience may be unconscious but is capable of being consciously recognized and interrupting ongoing thought and behavior. The set of interactions between cognitive, affective, physiological and behavioral factors need not be fixed in pattern (After Kleingenna & Kleingenna, 1981).

This construct of emotion suggests requirements for a measure of emotional response that has good construct validity. These requirements are:

- A) The measurement method should reflect the interaction between cognition, affective response, physiological changes, and behavior in determining emotional response.

- B) As emotional response is a reaction to a specific target, the measurement method should be able to determine emotional response to the targets that exist in television advertising, i.e., color, sound, number and frequency of cuts, and so on. At present, measurement of emotional response is directed toward the advertisement as a complete unit. As an advertisement can be broken down into smaller units, such as its formal features, it may be likely that an individuals emotional response can be broken down to smaller, separate, emotional responses to units of the advertisement, each with its own weight of influence in forming the emotional response to the total advertisement. A measurement method that would capture emotional responses to all possible targets in an advertisement in an efficient manner is unlikely to be developed due to the complexity involved. The measurement of response to specific targets will likely result from changes in advertising design.
- C) The measurement method should be able to distinguish between emotions, and should capture the level of intensity experienced.
- D) The measurement method must control for the influence of prior emotions, moods, or feelings.
- E) The measurement method should make use of data resulting from both conscious and unconscious emotional responses.

While the suggested construct of emotion is far from validated, comparison of the requirements listed above for good construct validity in a measurement with the various measurement instruments described in chapter three suggest that one measurement instrument alone is

insufficient in representing the emotional construct. In order to obtain validity and accuracy in measuring emotional response, data from multiple sources is essential to research in this field.

The suggested construct of emotion can be used to categorize measures of emotional response by the four interactive elements of the construct; cognition, affect, behavior, and physiology. Each of the measures described in chapter three can be placed into one of these categories (Table 7). While the MAACL has been placed in the affective category, it relies on cognitions from the subject for its completion. As such, it should also be a cognitive measure. Affect, as a two dimensional construct of intensity and valence, is measurement using cognitive and, for intensity, physiological measures.

To date researchers have been relying upon single measurement instruments from one of the four categories in Table 7 to measure emotional response. While this severely decreases construct validity, the ability to make generalizations about higher-order constructs, it also impacts strongly on the internal validity, the ability to state a causal relationship from one variable to another, of results.

The recommended construct of emotion gives direction for improving the construct and internal validity of emotional response: a multimeasure approach must be used.

4.3 Multimeasure Composition

Two main factors govern what should compose the multimeasure method; construct validity and internal validity. The attainment of these will first be covered, then general guidelines for multimeasure

composition will be recommended and discussed.

The attainment of construct validity must be balanced against the measurement instruments available for use, their ease of application, and what they provide in terms of measurement. In Table 7, two groups of measurement instruments can be discarded immediately - affective and physiological. Affect has been defined as an individual's response in the two dimensional space of valence and intensity. The instruments available in the cognitive and behavioral quadrants can provide data on the valence and intensity of a subject's response. The review of physiological measures in chapter three indicated that they individually, and as a group, have severe limitations in providing data that identifies, and discriminates between, different emotions. At best, physiological measures can indicate intensity of response.

The remaining two categories of measurement instruments, cognitive and behavioral, can provide good construct validity if the instruments to be used are chosen carefully. At an initial level, they should provide information on the intensity and valence of the emotional response - the information provided by affective and physiological measures. Actually choosing which measurement instruments to use however involves considering how they influence internal validity. To increase internal validity, the measurement instruments used should balance off in terms of associated errors and biases, and should be able to provide concurrent validity for the emotional response.

The balancing of errors and biases involves successive refinement through three levels; the type of cognitive engagement the subject has in the task, the errors and biases the subject generates internally

without influence from the experimental situation, and the errors and biases generated by the experimental situation.

Cognitive engagement in the task is best described by what Denzin (1984) calls reflective and unreflective emotional response. Reflective emotional response involves conscious cognitive engagement in the response, and what is called unreflective emotional response is simply an unconscious response. With reflective response, the subject can modify and bias reported emotions. Ekman & Friesen (1975) note that modification and bias occurs through the following actions; by deintensifying, neutralizing, intensifying, or masking emotional response, by changing the type of emotion reported or displayed, and by biasing the set of potential emotional responses. Unreflective emotional response, described by Denzin (1984) as freely flowing from experience without intervention, avoids the modifications and biases that can occur with reflective response. Of the four quadrants in Table 7, the cognitive and affective measurement instruments clearly require conscious engagement in answering. The behavioral and physiological measures do not require this type of engagement in answering, although the subject may be aware of the use of these instruments, potentially influencing response. The design of the experiment can control for this by allowing an acclimatization period.

Internally generated errors and biases, resulting from individual predispositions, sabotaging results, peer pressure, and individual expressiveness for example, must be controlled through proper random selection of subjects for the experiment. These types of errors and biases have a greater probability of occurring with a measurement

instrument that requires conscious cognitive engagement than one that does not. Using a cognitive and behavioral instrument would provide the concurrent validity needed to estimate these errors.

Errors generated by the experimental situation, either from the experimenter or the experimental design, can again be balanced partially by using reflective and unreflective instruments.

Cognitive and behavioral measures, in summary, have several advantages over affective and physiological. First they provide the type of measurement data required, while adequately representing the key interactions of the emotional construct. Second, they allow measurement of emotional response with and without cognitive intervention on the part of the subject. This feature is central to balancing the errors and biases that result when these measures are used individually.

The factors of a complex theoretical base, the ability of a subject to alter and change emotional response in reaction to internal/external and conscious/unconscious influences, and the inherent biases and errors associated with each instrument and its application, argue for multiple sources of information to improve the validity and reliability of emotional response measurement. Potential measurement instrument candidates have been narrowed to two categories, cognitive and behavioral. The following specific guidelines will be used in choosing the appropriate instruments from these categories:

- 1) That the measurement instruments have been designed specifically to measure emotion response, and, if possible, have been designed to measure emotional response to television. Some measures, such

as FACS, are not designed to specifically measure emotional response, increasing interpretation error of the data. There is some support also (Saloman, 1981) that the type of mental processing involved in watching television is different from other situations, making instruments developed specifically for television more applicable.

- 2) The measurement instruments capture comparable ranges, intensity, and type of emotional response.
- 3) The instruments fit with the emotional construct and attempt to reflect it when used together.
- 4) The instruments should be able to be used concurrently in an experimental setting.

4.4 Multimeasure Instruments

Two instruments for use in a multimeasure approach to emotional response are recommended: the Beaumont Emotional Battery (BEB) described by Zeitlin and Westwood (1986), and the Facial Action Scoring Technique (FAST) developed by Ekman, Friesen, and Tomkins (1971). These two instruments will be compared using the guidelines listed above to demonstrate their compatibility to each other and applicability to the multimeasurement method.

The BEB is a subjective rating scale, and as such, relies upon conscious cognition from the subject. The FAST is an observational measure, and does not require the subject to be cognitively engaged with it. In relation to the construct of emotion, the BEB provides information on cognitions and affective response, while the FAST gives

information on behavior, affect, and to a small extent, physiological response. As both have been developed to specifically measure emotional response, construct validity is improved.

In terms of capturing comparable ranges, intensity, and type of emotional response, the two instruments appear compatible. The BEB estimates eight primary emotions; anticipation, acceptance, surprise, joy, fear, anger, sadness, and disgust. Responses to these primary emotions can be combined to estimate more detailed secondary emotional responses. FAST estimates emotional response in six categories; happiness, sadness, surprise, fear, anger, and disgust. In actual use, FAST has also reliably distinguished interest as an emotional category. The six basic FAST emotions correspond perfectly with their BEB counterparts. If the FAST category of interest is equated with anticipation and acceptance, which does not seem unreasonable, then the emotional categories of the two measurements correspond very closely. FAST, as shown by Ekman, Friesen and Tomkins (1971) can also distinguish between several simultaneous emotions, as can the BEB.

The FAST, by its nature of being an observational method, can be used to indicate emotional response at specific points in the advertisement, which in turn may be used to estimate emotional response to specific advertisement features at those points. Using duration of response, FAST can provide information similar to that given by the BEB, which is shown in Figure 3. For FAST similar data can be achieved through aggregation of the duration of each emotional response. The BEB cannot estimate emotional response at specific points in the advertisement, only to the advertisement as a whole. The measures are

comparable in providing aggregate response to the advertisement, but the BEB can only provide estimates to specific features of the advertisement if the independent variable is manipulated.

The BEB and the FAST can be used concurrently in an experimental situation, improving the methods ease of use. With FAST a video record of the subjects fact can be made as they view the television in the experimental situation. This can be made concurrently in the same setting used for the BEB. Details on the application of the instruments will be provided in Chapter 5, the pretest experiment description.

The errors associated with the BEB and FAST can be separated into two broad categories; those that result from the measurement instrument itself, and those resulting from its application in the experimental design. With the BEB, the measurement is taken after viewing the advertisement, and the subject must consciously reflect on their emotional reaction. Error between what is reported and experienced can result from the subjects own beliefs of acceptable emotional response; and the inability of the BEB to capture the experienced emotional reaction, causing the respondent to modify their response to fit the BEB. The experimental situation can result in experimenter biases, content influences on the results, and errors induced by other situational factors. The FAST balances the errors associated with the BEB by being an observational measure that does not require cognitive participation from the subject. Comparison of results from FAST and the BEB will allow concurrent validity to be estimated. With high concurrent validity there is a higher probability of internal validity.

To avoid errors induced by the experimental situation with the use of FAST, it is essential that subjects do not know that their facial behavior is being recorded. If subjects are aware that their behavior is being recorded, it is likely that their behavior will change radically.

4.5 Conclusion

The BEB and FAST appear to be compatible with the construct of emotion. When used together they reflect the interaction of cognition, affect, behavior, and physiological response. If these measures do have good construct validity, the convergent validity of these measures should also be high, in turn providing an indication of internal validity. The two measures can provide similar data, and capture virtually the same categories of emotional response. Errors and biases balance each other to a reasonable amount as a result of the BEB relying on conscious cognitive reflection to respond to the measurement, and FAST being an observational instrument that does not require subject involvement. Errors and biases that result from the experimental situation can be controlled through the experiment design, which will be outlined in Chapter 5.

V. A PRETEST FOR THE MULTIMEASURE METHOD

5.1 Introduction

In chapter four a new measurement method for capturing emotional response to television advertising was proposed. The measurement method is composed of two established measures of emotional response, the Beaumont Emotion Battery (BEB) and the Facial Action Scoring Technique (FAST). It is hoped that by combining a cognitive measurement instrument, the BEB, with one that does not require cognitive intervention, the FAST, a more valid and reliable measure of emotional response to the T.V. advertising will be obtained.

The purpose of this chapter is to outline a pretest for the multimeasure approach. The pretest will focus on assessing the value of the multimeasure approach in terms of the validity and reliability it provides in measuring emotional response. The chapter will outline the value and objectives of the pretest, and then will describe the pretest in detail, including the design, subjects, procedure, viewing and rating tasks; and data analysis. While the pretest will not be actually conducted, it will be explained in enough detail to be used as a step-by-step guide for conducting the experiment.

5.2 Value and Objectives of Pretest

While the research topic of emotion in television advertising has attracted considerable interest from researchers recently (Aaker, Stayman, and Vezina, 1987; Batra and Ray, 1986; Gardner, 1984; Gelb and Pickett, 1983; Goldberg and Gorn, 1987; Havlena and Holbrook, 1986;

Holbrook and Batra, 1986; Holbrook and Westwood, 1985; Holbrook and O'Shaughnessy, 1984; Kreshel, 1984; Ray and Batra, 1983; Stout and Jeckenby, 1985; Van Raaij, 1984; Zeitlin and Westwood, 1986) the development of measurement methods has not kept pace with the level of interest this topic has received. Without exception, researchers are attempting to capture emotional response with measurement instruments that do not reflect with validity the complex construct of emotion.

The measurement method proposed recognizes the complexity of the emotional construct, and attempts to provide a construct validity to the measurement of emotional response that has not yet been attained. The proposed value of the measurement method is its ability to provide convergent information on emotional response to television advertising, and to provide information on the errors and biases that can potentially influence results. The value and objective of this pretest is to demonstrate the validity and reliability of the proposed measurement method.

5.3 Pretest Description

A. Pretest Design

The nature of the measurement instruments and the objectives of the pretest necessitate the use of a laboratory experimental design. The use of a laboratory setting is required to control the relevant variables that could impact on results, such as setting, outside distractions, and contextual variables. The measurement instruments, the Beaumont Emotional Battery (BEB) and the Facial Affect Scoring Technique (FAST), require extensive use of video recording and playback

equipment, along with other technical requirements, that are best provided and met by a laboratory.

A Witkin subjects design will be used, using two subject groups, each with their own stimulus set. The independent variable in the experiment will be television advertisements, with the dependent variable being emotion response to the advertisements. Emotional response will be measured with the BEB, and will be recorded on videotape for coding using FAST.

The general method used will be to have individual subjects watch a television program that has four advertisements embedded in it. The subjects facial expressions will be videotaped as they are watching the program. After the program is over, the subject will view each advertisement again, recording their emotional responses on the BEB after each advertisement.

B. Setting Description

The laboratory setting should approximate a national television viewing environment as closely as possible to encourage natural viewing behavior in subjects, and to provide a higher degree of external validity to the results. External validity is defined here as to the approximate validity with which conclusions are drawn about the generalizability of a causal relationship to and across populations of persons, settings and times. The causal relationship implicit in the pretest of the measurement method is the emotional reaction to television advertising, where emotional response can result from the advertisement as a whole, and/or to features or components of the advertisement.

The experiment should take place in a quiet location where intrusion of outside noise and movement will be minimized. The actual laboratory setting should be composed of two rooms of approximately the same size, ten by fifteen feet. The first room will be called the "greeting" room, the second the "living" room. The rooms should be connected by a single door. The living room must have a one-way mirror situation in the middle of the wall on the long axis of the room, with the connecting door situated opposite it. The basic layout of the greeting and living rooms is shown in figure 6.

The greeting room should contain comfortable furniture arranged informally to reduce subject stress and the feeling of an experimental setting. Ideally, the room would contain two sofa's, at right angles to each other, with a coffee table arranged in the interior of the L. The room should contain several lamps, a magazine rack, and plants to further approximate a natural setting.

The living room should approximate a normal residential living room as closely as possible to encourage natural viewing behavior while watching television. The room will contain a high resolution color television with a 26 inch screen, a coffee table, small side table with lamp, a small sofa, and a comfortable non-reclining living room chair. The room will not have pictures on the walls, magazines, or newspapers as these could potentially distract the subject from the viewing task. The one way mirror in the living room should be small (not more than 2 by 3 feet) and should be disguised with an ornate frame to look like a mirror that would be situated in a living room. The center of this

mirror should be approximately 5 feet from the floor. The suggested interior layout of the greeting and living rooms is shown in figure 7.

C. Subject Selection and Assignment to Groups

The pretest will require 100 subjects, divided into two groups of 50. Subjects will be adult (18 yrs+) male and female university students, recruited from 5 geographically dispersed areas of the campus. At each of the 5 areas, a randomly selected quota sample of 20 subjects, 10 male and 10 female, will be made. Subjects will be asked to participate in a television study for 1 hour. If the subject accepts, a date and time will be arranged.

Male subjects will be assigned numbers from 1 to 50, female subjects members from 51 to 100. Using a random number table, male subjects will be assigned to one of two experimental groups, group A or group B. Using the same method female subjects will also be assigned to one of the two experimental groups. At the end of this procedure, experimental groups A and B will each contain 25 male and 25 female subjects that have been randomly assigned.

The two experimental groups will contain equal numbers of males and females to control for sex difference biases in aggregate group results, and to allow data from each group to be aggregated and compared by sex.

D. Advertisement Selection

The pretest requires maximum variability in potential emotional response to an advertisement to gauge its measurement sensitivity. The BEB and FAST have been chosen as compatible measurement instruments for

both their relation to theory, and for fit in the emotion categories that they measure: interest, surprise, happiness, fear, anger, sadness, and disgust. As the primary emotions of interest in the pretest, the advertisements must have a high probability of eliciting emotional response in these categories.

These two requirements from the basic criteria for advertisement selection: 1) that each of the emotion categories is represented by one advertisement, and 2) each advertisement is judged to elicit a strong reaction in the emotional category it represents. Using these criteria, variability will be introduced into the pretest as each advertisement will load highly in one emotional category only, and not in the remaining six. The seven advertisements should be initially picked by one individual, with three other independent judges rating the advertisements after initial selection to insure that the selection criteria has been met.

For consistency, and to avoid biases and comparisons, the advertisements should also meet the following criteria: 1) that they are of the same length, 30 seconds, 2) the advertisements should not duplicate products, or product classes, 3) the advertisements should represent products or services that are not sex specific in their purchase, application, or use, 4) the advertisements should be new, or novel to the subjects used.

This last criterion, that the advertisements be new to the subjects used, is important if potential frequency biases are to be avoided for both the BEB and FAST measures. An advertisement that has been viewed before has the potential to evoke boredom and inattention

in the viewer, or to evoke a preconceived learned response. The effects of advertisement frequency can be investigated in other studies, and should be avoided in the pretest.

The seven advertisements will be grouped into 2 sets of 4 advertisements, with one advertisement appearing in both groups. The advertisements in each set should not evoke emotions that are similar to others in the set to maximize variability in each advertisement group. The 2 sets of advertisements will be labeled A and B, with the A set viewed by the A subject group, and the B set viewed by the B subject group. Suggested groupings for the advertisements are shown in Table 8.

E. Film Clip

The two sets of advertisements will be embedded into the same film clip, to form two total video tracks, Track A and Track B, with track A composed of the film clip and advertisement set A, and track B composed of the film clip and advertisement set B. Track A will be viewed by subject group A, track B by subject group B.

The film clip should be selected by judgmental consensus to the criteria that it does not evoke more than a neutral response in any of the seven emotional categories. The clip should be selected from current material, and should be approximately 30 minutes long after all commercials have been edited out.

To compose track A, the advertisements from set A will be inserted at equal spaces within the clip, at natural break points. Track B will be composed in similar fashion, with the advertisements inserted at the

same points. Table 9 shows the insertion points of the advertisements in the 2 tracks, with the order and timing involved.

To increase external validity, it is necessary for the subject to cognitively process the video track at approximately the same level as they would when viewing at home. For this reason a period of at least 5 minutes should elapse before the subject views the first advertisement in the track. A period of 5 minutes between advertisements has been maintained to cancel any order effects of advertisements in the track. A period of 5 minutes should allow the subject to become reinvolved in the regular "program" to lessen their involvement with the previous advertisement. The contextual effects of the program the advertisements are embedded in are not controlled for in the pretest, although biases should be fairly consistent as each subject views the same advertisement at the same point in the video track as all other subjects within the group.

In this pretest, the video tracks contain only 4 advertisements, each viewed separately from the others. A more realistic design would include all seven commercials, shown at the start, mid-point, and end of the film clip in groups of 4 or 5 advertisements. Using this arrangement, order effects should be controlled for by showing the groups of advertisements in both forward and reverse order. This design was not used in the pretest for several reasons. As subjects rate each advertisement using the BEB after viewing the video track, this task becomes long and tedious with more advertisements. Advertisements are also seen twice during the video track, increasing the probability of frequency effects. In addition, even though the

advertisements are also included in reverse order, the measurement of facial expressions may be confounded by order effects. These factors, combined with the objective of the pretest being to demonstrate convergent validity with the BEB and FAST, suggest a pretest that initially avoids potential confounding factors such as subject fatigue, order effects, and frequency effects.

F. Procedure

During the subject recruitment stage, potential candidates are asked if they would be willing to take part in a television study that involves watching a T.V. program for approximately one-half hour, and then answering some questions. Candidates are to be told who is doing the study, where it will take place, and the total time involved (about 1 hour). With those who agree, a date and time will be set, and subjects (S_s) informed that they should dress comfortably, as they would while normally watching television. The study should be oversubscribed by 20% to compensate for those who drop out. Appointments are arranged so that individual S_s do not overlap at the laboratory setting.

S_s will be met at the laboratory by a single experimenter dressed casually. S_s and experimenter will sit in the greeting room while the experimenter explains that the S_s will sit in the next room and view a television program, after which they will answer questions about it. The S_s will be told that the program is approximately one half hour long. S_s will then be led into the "living" room and seated in the chair facing the television screen. S_s will be asked to remain seated for the duration of the program. S_s will be informed that the program

will start in 3 or 4 minutes. This initial delay will allow S_s to become familiar with their surrounding and to satisfy any curiosity that might later detract from the viewing task. S_s will be informed that the door will be closed to reduce outside noise, but will be unlocked.

The video playback and recording apparatus will be operated by an assistant situated in the video recording room. During the 4 minute delay between the door closing and the start of the video track, the assistant will note the subject number beside the corresponding video track, and will adjust the focus of the video recorder on the S_s face. A zoom lens will be used to magnify the S_s face on the recording. After 4 minutes, the television and video recorder will be started simultaneously, and the assistant will make note of the exact start time. As an alternative, a video recorder that imprints elapsed time by minute and second on the recording can be used. While the S_s watch the video track, the assistant will ensure that the S_s faces remain framed and in focus.

After the S_s view the video track, the experimenter will enter the living room and ask the S to answer some questions about the advertisements shown. It will be explained that the advertisements will be shown again, and that for each advertisement a form (the BEB) will be completed. S_s will be told that the procedure will be to view one advertisement, complete the form corresponding to it, drop the form in an enclosed box, and then view the next advertisement, repeating the procedure until all advertisements have been rated. The advertisements will be shown in the same order as they were presented in the video

track. The S_s will be told that dropping the completed form in the box and pressing a button on the top of the box will start the next advertisement after a short delay. Each BEB will be randomly ordered to avoid a set response pattern. S_s will be instructed to use the forms to record feelings that they experienced while watching the advertisement. S_s will be instructed to record the strength, strongly, very strongly) by marking the appropriate box. S_s will be informed that responses must correspond to one of the five levels, and that there are no levels in between these 5. Directions will be restated at the top of each form.

After the subject completes the four forms, they will meet briefly with the experimenter where the true nature of the experiment will be explained. Permission will be obtained for use of the video recording, if this is required, and subjects offered a copy of the study when it is completed. After being thanked for their time and cooperation, S_s will be released.

G. Raw Data Format and Data Reduction

The pretest will provide two sets of raw data for each subject. The first set will be a videotape of their facial expressions as they viewed the video track. This videotape will contain a total of 2 minutes of facial reactions that correspond to the advertisements shown on the video track. The BEB raw data will be in the form of raw scores on a 40 item scale for each advertisement.

The videotape of facial expressions for each subject will be edited and recorded into four 30 second segments corresponding to the commercials used. For each of the experimental groups, group A and

group B, there will be a video segment approximately 2 minutes long corresponding to each subject in the group. Each 30 second segment recording the facial expressions when an advertisement was being viewed will then be scored using FAST. Separate scores for the two groups will be used to avoid fatigue. Each scorer will score a total of 100 minutes of videotape as a result of this arrangement. The two scorers will then score random selections of the others videotapes to determine reliability and accuracy in scoring. Scoring will provide data for the frequency and duration of an emotional reaction in each of the seven emotional categories, for each subject, for each advertisement. Table 10 gives an example of data presentation. Using formulas provided with FAST, an overall emotional response will be derived.

For each subject and advertisement, scores on the BEB items will be combined to provide a score for each emotional category. Each category is composed of 3 indices (Table 11). Indices scores for each category will be added and then averaged to provide a score for the corresponding category. Table 12 gives an example of the aggregate data presentation for the BEB.

H. Data Analysis

The data analysis for the pretest can proceed at five different levels; by individual with the same advertisement, by individual with different advertisements, group data with the same advertisement, group data with different advertisements, and between groups with the same advertisement. Indications of concurrent validity between the BEB and FAST will be obtained by comparing responses from the BEB and FAST at both individual and group level for the same advertisement.

Indications of internal validity will be obtained by comparing FAST and BEB responses on an individual and groups level to responses to different advertisements. Comparing data between groups for the same advertisement will give an indication of test-retest reliability for both FAST and the BEB.

Analysis by individuals with the same advertisement involves comparing the predominant emotion indicated by the BEB with the predominant emotion indicated by FAST for each subject in the group. The level of concurrent validity is indicated by how the percentage of matches compares to the ceiling measure of 100% of responses match for the two measures, and how it compares to the floor measure of the expected value of matches if the data was random. In this case the expected value is approximately 14.3% ($1/7 \times 50 \times 2 = 14.3\%$).

Indications of concurrent validity for FAST and BEB can also be obtained by comparing aggregate group scores on the two measures for the same advertisement. Aggregate BEB emotion category scores can be compared to the frequency counts for the overall emotion category response provided by FAST. If the highest BEB emotion category score correspondence to the most frequent FAST overall emotion, this would indicate concurrent validity.

The level of internal validity can be estimated by comparing individual responses to FAST and BEB for one advertisement to responses to the same measure for a different advertisement. The dominant emotion for advertisement x as indicated by FAST can be compared to the dominant emotion for advertisement y as indicated by FAST, for subjects 1 through n. The percentage of matches for FAST can then be compared

to the floor measure of no matches between advertisements, and the ceiling measure of 14.3% of respondents matching between advertisements if the data was random. The closer the percentage of matches is to zero, the stronger the indication of internal validity for FAST. The same analysis can be performed for the BEB. If this analysis indicates that internal validity is low, this could imply that one, or both measures have low internal validity, or that the selected advertisements are not truly different in the predominant emotional response that they evoke.

Internal validity can also be indicated by comparing group aggregate FAST and BEB data for different advertisements. With the BEB, response differences between advertisements can be tested by comparing aggregate emotion category scores to advertisements to aggregate scores for advertisement y using the t-test for differences between means. A significant difference would indicate internal validity. At a more general level, the patterns of aggregate responses from the BEB for each advertisement can be compared using the chi-squared test to indicate goodness of fit between patterns of responses to different advertisements. A significant difference between patterns of responses would indicate internal validity. For the group FAST data, each advertisement will have a pattern of aggregate frequency of emotion categories displayed. These frequency patterns can be compared for goodness of fit by again using the chi-square test. The chi-square results for the BEB comparisons and the FAST comparisons can be used to indicate whether one measurement instrument has a higher internal validity than the other.

Analysis of rank orderings of emotion category response between measurement instruments and advertisements have been avoided as the advertisements were selected to evoke a predominant emotional response in one category only, and not a rank order of emotional responses. As a result, the emotion category of interest is the predominant one recorded by the BEB and FAST. How the responses order the emotions, and the sensitivity and biases in the instruments in recording orderings, are not central to the pretest but could justify later investigation.

The advertisement chosen to evoke the emotion fear is common to both groups of subjects. Data for this advertisement can be used to provide a preliminary indication of BEB and FAST reliability. The BEB data can be compared by using the t-test to investigate differences of mean scores for each emotion category between groups. In this case, reliability would be indicated by no significant differences. The pattern of aggregate group FAST emotion category frequencies can be compared using chi-squared to indicate the similarity of frequency distributions across groups. Again, reliability would be indicated by no significant differences between groups.

5.4 Conclusion

The pretest was designed to provide preliminary information on the convergent validity of FAST and the BEB, their internal validity, and their reliability. The design and data provided by the pretest allow some statistics to be used to determine significance, notably the t-test for differences between means, and the chi-squared goodness of fit

test. It is important to note that while n for chi-squared tests on FAST results equals the total number of emotions displayed, the small sample size of 50 can limit this number, affecting the power of this test. A larger sample size would be more appropriate, but is beyond the scope of this pretest.

Results from the pretest can be confounded by errors in several areas: selection of subjects and assignments to groups; sex differences; selection of the advertisements; expertise of the FAST scorers; and experimenter bias/experiment effects. As noted in the pretest, selection of subjects and their assignment to groups should be random while controlling for sex. Lack of randomization can lead to a biased sample, or biased groups. If the data analysis indicates conflicting or confusing results, the analysis should be redone after separating data by sex. If this is required, the small sample size and pretest design will severely limit the significance of the calculated statistics, as both groups contain only 25 males and 25 females.

The advertisements can affect results if they are not strongly different in the emotions they represent. Hopefully this will be avoided by choosing advertisements through a consensus of expert judges. The nature of the selected advertisements implies that there should be maximum variability in the predominant emotional reaction from a viewer. As a result, pretest findings may lack external validity, as not all television commercials will be as powerful and vivid as those used in the pretest. The sensitivity of FAST and the BEB under situations of less variability between advertisements should be investigated in later studies.

The accuracy and reliability of the FAST scorers is important in any study that uses this measurement instrument. The scorers must be properly trained, and should have experience prior to scoring the pretest videotapes. As noted in the pretest, two scorers are used, one for each subject group. Scorer accuracy can be determined by rescoring random selections of facial expressions using the other scorer. Results can then be compared to estimate scorer accuracy.

The use of an experimental study can also influence results through experimenter bias and experiment effects. Care must be taken to treat each subject in an identical fashion during the experiment, and to avoid treating them in a manner that could bias their reactions. Subject reaction to the experimental situation can cause outlying data. If this occurs consistently, results can be severely biased. To reduce the effect of the experiment method on the subject, efforts should be made to make the subject feel comfortable, and to provide a natural viewing environment.

This pretest should provide a preliminary indication of the usefulness of the multimeasure method, and of the BEB and FAST in particular. The usefulness of the method and of the suggested measurement instruments will be further explored in the next chapter, and a suggested program of research outlined.

VI. CONCLUSIONS AND A LOOK TO THE FUTURE

6.1 Summary and Conclusions

In this thesis we have presented a multimeasure approach for capturing emotional response to television advertisements. The proposed approach uses two measurement instruments; the Beaumont Emotion Battery, a paper and pencil measure developed by Holbrook and Westwood (1986), and the Facial Affect Scoring Technique, a behavioral measure of emotion developed by Ekman (1971). The multimeasure approach and the use of the proposed instruments was developed from conclusions reached in both chapters 2 and 3, the literature reviews of emotion theory and measurement.

The literature review of emotion theory was divided into two broad categories; consumer behavior literature, and literature from psychology. Research into emotion in consumer behavior has received much recent research interest, but has not grounded that interest in the proper background of emotional theory. This lack of theoretical background has led researchers to use different constructs of emotion and different definitions for moods, affect, feelings, and emotion, resulting in research findings that are inconsistent and difficult to compare. To clarify, the apparent confusion of terms and constructs, the chapter synthesizes material from both consumer behavior and psychology into the development of a construct of emotion, and definitions for mood, feelings, and affect.

The suggested construct of emotion recognizes the interaction of affect, behavior, cognition, and physiological response in the

emotional process, and that this process is mediated to some extent by neural hormonal systems. The construct also states that emotion is a reaction to a specific target that can be influenced by prior emotions, moods, or feelings, and that the process may be unconscious but may be consciously recognized. It is also suggested that the set of interactions between cognitive, affective, physiological, and behavioral factors need not be fixed in pattern.

Much doubt still remains in how the emotional process should be modeled. The literature review indicated two general types of models are being used, hierarchical and interactional. The functioning of the human brain is interactional in nature, and for this reason an interactional model of the emotional process is recognized as more truly following the actual process. The discussion of the cognitive, behavioral, affective, and physiological components of the emotional process suggests that individual and environmental factors may influence how these components interact, and that these factors can change the process from one moment to the next. For this reason it is recommended that research should not focus on whether emotion is generated from affect, cognition, behavior, or physiological adjustments in the emotional process, but rather on capturing emotional response as an end result.

It is recommended that the suggested construct of emotion be used to categorize the types of measurement instruments available. The four interacting components of affect, cognition, behavior, and physiological adjustments are used to categorize, while recognizing that at a more basic level instruments either involve cognitive

involvement in the task, or no cognitive involvement. While this distinction stems from the emotional construct itself, it has also been specifically recognized by Denzin (1984). Denzin separates emotional response in the individual as either being reflective, meaning with conscious cognitive intervention, or unreflective with no conscious cognitive intervention. This distinction has implications for measuring emotional response in that reflective response may not be the true emotional response.

The measurement instruments available to capture emotional response each have associated errors and biases. It is strongly recommended that physiological measures not be used as they are unreliable in capturing specific emotions, and, because of their obtrusive nature, their validity may be challenged. At best physiological measure can capture intensity of response, but not valence or a specific emotion.

Each measurement instrument reviewed represented only one aspect of the four components of cognition, affect, behavior, and physiological adjustments central to the construct of emotion. As researchers have focused on using one instrument to capture emotional response, the construct validity of their findings is in doubt. For construct validity, more than one measurement instrument must be used in research, and the instruments used should represent, at least, the four central components of the emotional construct. It is suggested that one instrument will not capture the complexity of interaction inherent in emotional response, and that multiple sources of information must be used to insure measurements of the full response,

validity, and reliability.

Two measurement instruments are recommended for use in the multimeasure approach: a cognitive instrument, the Beaumont Emotion Battery; and a behavioral instrument based on facial expressions, the Facial Affect Scoring Technique. These instruments are shown to be compatible at several levels, the first being that the Beaumont Emotion Battery (BEB) captures reflective cognitive emotional response, and the Facial Affect Scoring Technique captures free flowing unreflective emotional response. This represents the conscious/unconscious aspect of the emotional construct, and it is suggested that balancing instruments at this level will also balance off associated errors and biases while providing some convergent validity from diverse sources. The proposed instruments also capture the same range and type of emotions with data that allows comparison. The proposed pretest outlines an experiment to provide a preliminary indication of the validity and reliability of the multimeasure approach.

One influence on experimental results, amount of involved mental effort (AIME) first outlined by Saloman (1981), deserves further comment by nature of its potential impact on measuring emotional response to television advertising. The concept of AIME recognizes the differences required in cognitive processing levels associated with different tasks. The amount of AIME increases when information does not fit easily into existing schemata, or when the information requires internal elaboration before it is assimilated. With television, the nature of the medium requires little internal elaboration, with information fitting easily with prelearned schematas. As a result,

television viewing requires little AIME. This has several implications for the proposed multimeasure approach. In terms of sensitivity, FAST may be biased towards advertisements that provoke strong emotions, indicating a high level of AIME. Mediocre advertisements typically will involve low levels of AIME, resulting in no facial expressions. When the multimeasure approach is used to select highly emotional advertisements, this bias can be useful. As an example, suppose that the BEB indicates a strong happy emotion to the advertisement, but FAST indicates no reaction. If FAST represents the true emotional response, as it should by nature of being unreflective, some doubt may be cast on the BEB scores, and the usefulness of the advertisement reevaluated. However, if this bias does exist, the multimeasure approach may have little use in distinguishing small fluctuations in emotional response. The sensitivity of the multimeasure approach should be investigated in future research.

6.2 New Directions in Coding Facial Expressions

The potential lack of sensitivity for FAST cited above might be compensated for by computer coding of facial information. Computer coding could increase the accuracy, sensitivity, and reliability of interpreting emotion from facial expressions, as human error is not present, and smaller differences in facial movement could be detected.

Computer coding would borrow heavily from the field of robotic vision. One segment of this field deals with developing vision systems for mobile robots. One of the more accurate methods involves stereoscopic digitization of an image, and comparison to a subsequent

digitized image. Movement is computed through triangulation of the movement between the individual dots in the digitized images. Applied to facial expressions, this technique would involve digitizing a picture of a subjects face, and using the movement of individual dots to gauge facial expressions. The density of dots can be varied according to the amount of information required from facial areas. As an example, increasing the density around the mouth will increase the amount of movement information obtained from this area. Patterns of movement can be programed to represent specific emotions.

6.3 Directions for Future Research

This thesis has focused on the development of a measurement method to capture emotional response to television advertisements, and has outlined a pretest to provide initial estimates of the reliability and validity of the method. As with any new measurement method, there is a stage where the instruments are evaluated, redesigned, and evaluated again until validity and reliability are clearly established. This should be the first direction for future research. Historically, single measurement instruments have been used to measure emotional response. The use of two very different instruments in concert will undoubtedly have many problems to be worked out.

Initial directions for measurement development should focus on establishing the sensitivity, validity, and reliability of the multimeasure approach. In the pretest, the approach should be sensitive to different advertisements, as the advertisements were chosen for maximum variability in the emotions they evoke. The

sensitivity of the measurement method to advertisements with less variability must be established.

Research on the validity of the multimeasure approach can be directed to three areas; external validity, internal validity, and cross validation of measurement instruments. The pretest outlined the testing of subjects singly, which may affect external validity as television viewing frequently occurs in groups composed of family members. Research can be directed to whether emotional response varies between group and individual viewing. In investigating external validity, the ability of the measurement instruments to capture the full and true range of emotional response should be examined. In light of both measurement instruments relying on the reinterpretation of primary emotion combinations to define more specific secondary emotions, efforts should concentrate on the validation of the theoretical basis of this technique. Research may also be directed towards the use of facial expressions to validate paper and pencil measures, and vice-versa. This would involve investigation into the relative strengths and weaknesses of each measure, and comparing the type and validity of information that each provides.

The preparation of this thesis has suggested areas of interest for future research in emotion and advertising. To structure and delineate areas for new research, emotional response to the advertisement was approached from the viewpoint of what could impact or influence the response. This led to the definition of the following levels: the advertisement itself; the group of advertisements the advertisement is placed in; the program; and the viewing environment. Each of these

suggests areas for future research in how they influence emotional response to television advertising.

Emotional response to the advertisement itself can be influenced by the advertisement as a complete unit, or the advertisements separate units. Research can be directed towards whether emotional results from integration of the entire advertisements, or whether separate units of the advertisement, such as sound, color, sub themes, or actors facial expressions predominately influence expressed emotion. Where in the advertisement emotional response occurs can also be investigated for importance - is an emotional response at the start or end of the advertisement best?

The group of advertisements the advertisement is shown in can also be important by way of potential influence on emotional response. Research might investigate order effects, and context effects of other advertisements. Order and context effects can also be used to guide research into the interaction between program and advertisement. For example, is there a difference in emotional response when the advertisement is shown at the beginning of the show, or in the middle, or end, when program content is controlled for? Research can also investigate the influence of content on emotional response. Television broadcast companies typically price advertising slots by reach, the number of viewers who watch. Program content may influence the effectiveness of advertisements aimed on that program, suggesting that advertisement time slots may be priced by reach and effectiveness.

Research into the effect of viewing environment may be directed toward the environment of the viewing session; the internal

environment, meaning the influence of sex, age, education, viewing habits, group individual viewing and so on; and the external environment, the effect of cultural and sociological and technological factors.

Clearly, much work remains before emotion and its role in advertising is defined and understood. The area is rich in terms of its potential to generate new research, and is of value in both understanding consumer behaviour and for its potential application in an applied sense. The difficulty in measuring emotional response with validity and reliability is obvious after reviewing the literature on emotional theory and measurement. It is hoped that this is not used as an excuse by researchers to neglect this relatively undiscovered area of consumer behavior.

Table 1

VRP Profile

Entertainment

The commercial was lots of fun to watch and listen to.
 I thought it was clever and quite entertaining.
 The enthusiasm of the commercial is catching—it picks you up.
 The ad wasn't just selling the product—it was entertaining me. I appreciated that.
 The characters (or persons) in the commercial capture your attention.
 It's the kind of commercial that keeps running through your mind after you've seen it.
 I just laughed at it—I thought it was very funny and good.

Confusion

It was distracting—trying to watch the screen and listen to the words at the same time.
 It required a lot of effort to follow the commercial.
 It was too complex. I wasn't sure what was going on.
 I was so busy watching the screen, I didn't listen to the talk.

Relevant News

The commercial gave me a new idea.
 The commercial reminded me that I'm dissatisfied with what I'm using now and I'm looking for something better.
 I learned something from the commercial that I didn't know before.
 The commercial told about a new product I think I'd like to try.
 During the commercial I thought how that product might be useful to me.

Brand Reinforcement

That's a good brand, and I wouldn't hesitate recommending it to others.
 I know that the advertised brand is a dependable, reliable one.

Empathy

The commercial was very realistic—that is, true to life.
 I felt that the commercial was acting out what I feel at times.
 I felt as though I were right there in the commercial experiencing the same thing.
 That's my idea—the kind of life that commercial showed.
 I liked the commercial because it was personal and intimate.

Familiarity

This kind of commercial has been done many times . . . it's the same old thing.
 I've seen this commercial so many times—I'm tired of it.
 I think that this is an unusual commercial. I'm not sure I've seen another one like it.

Alienation

What they showed didn't demonstrate the claims they were making about the product.
 The ad didn't have anything to do with me or my needs.
 The commercial did not show me anything that would make me want to use their products.
 The commercial made exaggerated claims. The product would not live up to what they said or implied.
 It was an unrealistic ad—very farfetched.
 That commercial irritated me—it was annoying.

Table 2

Feeling Cluster List

POSITIVE FEELINGS	NEGATIVE FEELINGS
1. Playful/Childish	1. Fear
2. Friendly	2. Bad/Sick
3. Humorous	3. Confused
4. Delighted	4. Indifferent
5. Interested	5. Bored
6. Strong/Confident	6. Sad
7. Warm/Tender	7. Anxious
8. Relaxed	8. Helpless/Timid
9. Energetic/Impulsive	9. Ugly/Stupid
10. Stimulated/Enthusiastic	10. Pity/Deceived
11. Contemplative	11. Mad
12. Pride	12. Disagreeable
13. Persuaded/Expectant	13. Disgusted
14. Attentive/Expectant	14. Irritated
15. Amazed	15. Irritated
16. Set/Informed	16. Moody/Frustrated

Table 3

40 Item Beaumont Emotion Battery

- | | |
|------------------|------------------|
| 1. Friendly | 21. Sad |
| 2. Aggressive | 22. Delightful |
| 3. Disgusting | 23. Exciting |
| 4. Puzzling | 24. Offensive |
| 5. Informative | 25. Insulting |
| 6. Gloomy | 26. Surprising |
| 7. Annoying | 27. Meaningful |
| 8. Happy | 28. Sincere |
| 9. Irritating | 29. Intimidating |
| 10. Helpful | 30. Instructive |
| 11. Affectionate | 31. Silly |
| 12. Funny | 32. Interesting |
| 13. Sexy | 33. Trustworthy |
| 14. Unpleasant | 34. Sensible |
| 15. Threatening | 35. Depressing |
| 16. Unusual | 36. Cold |
| 17. Intelligent | 37. Nostalgic |
| 18. Cheerful | 38. Touching |
| 19. Confusing | 39. Deceptive |
| 20. Frightening | 40. Boring |

Table 4

Selected and Random Advertisements

<u>Selected Set</u>	<u>Random Set</u>
1. Calvin Klein jeans (N = 108)	19. G. E. grill griddle (N = 58)
2. Coca-Cola (N = 108)	20. Chanel #5 (N = 50)
3. American Cancer Society (N = 108)	21. Coty Nuance (N = 50)
4. Federal Express (N = 100)	22. Atari (N = 50)
5. Bell Telephone (N = 100)	23. Kellogg's Corn Flakes (N = 58)
6. Wisk laundry detergent (N = 100)	24. Thomas' English muffins (N = 58)
7. Con Edison (N = 100)	25. TWA Airlines (N = 50)
8. French's mustard (N = 100)	26. Super Poligrip denture glue (N = 50)
9. Sanka coffee (N = 100)	27. Mazola cooking oil (N = 50)
10. Levi's jeans (N = 104)	28. Allercare skin cream (N = 50)
11. Dr. Pepper (N = 104)	29. Theragran "N" vitamins (N = 50)
12. Prudential insurance (N = 104)	30. Nyquil cold remedy (N = 50)
13. Budweiser (N = 101)	31. Hershey chocolate syrup (N = 50)
14. G.E. soft white light bulbs (N = 101)	32. Hunt's tomato sauce (N = 50)
15. Crazy Eddie's discount (N = 101)	33. Dow bathroom cleaner (N = 50)
16. U.S. Army (N = 100)	34. Borateen laundry detergent (N = 50)
17. Pepsi-Cola (N = 100)	35. Bayer aspirin (N = 50)
18. Charmin toilet tissue (N = 100)	36. La Choy Chinese food (N = 50)
	37. Diet Guard reducing plan (N = 50)
	38. Tropicana orange juice (N = 50)
	39. Duncan Hines cake mix (N = 50)
	40. Whirlpool dishwasher (N = 54)
	41. New York Telephone (N = 54)
	42. Ivory soap (N = 54)
	43. Hanes panty hose (N = 50)
	44. Swiss Miss hot cocoa mix (N = 50)
	45. Frito-Lay potato chips (N = 50)
	46. Dunkin' Donuts (N = 51)
	47. Alfa Romeo (N = 51)
	48. British Airways (N = 51)
	49. Lafayette electronics stores (N = 50)
	50. Star Kist tuna (N = 50)
	51. Dry Sack sherry (N = 50)
	52. Red Lobster Inns (N = 50)
	53. Apple home computer (N = 50)
	54. Chimere fragrance (N = 50)

Table 5

A Priori Emotional Indices

<u>Emotion</u>	<u>Function</u>	<u>A Priori Index</u>
1. acceptance	incorporation	helpful + sincere + trustworthy
2. disgust	rejection	disgusting + offensive + unpleasant
3. fear	protection	threatening + frightening + intimidating
4. anger	destruction	insulting + annoying + irritating
5. joy	reproduction	happy + cheerful + delightful
6. sadness	reintegration	gloomy + sad + depressing
7. anticipation	exploration	informative + intelligent + instructive
8. surprise	orientation	puzzling + confusing + unusual

Table 6

Emotional Index Alpha Scores

<u>Emotional Index</u>	<u>Alpha</u>
1. acceptance	.88
2. disgust	.95
3. fear	.85
4. anger	.97
5. joy	.97
6. sadness	.93
7. anticipation	.95
8. surprise	.89

Table 7

Categories of Emotional Response Measures

<p style="text-align: center;"><u>COGNITIVE</u></p> <ul style="list-style-type: none"> - differential emotions scale - viewer response profile - reaction profile - standardized emotional profile - beaumont emotion battery - feelings elicited by advertising (Aaker, Stayman, & Vezina 1987) 	<p style="text-align: center;"><u>AFFECTIVE</u></p> <ul style="list-style-type: none"> - multiple affect adjective check list
<p style="text-align: center;"><u>BEHAVIORAL</u></p> <ul style="list-style-type: none"> - facial affect scoring technique - facial action coding system 	<p style="text-align: center;"><u>PHYSIOLOGICAL</u></p> <ul style="list-style-type: none"> - pupillary response - respiratory and digestive systems - cardio system - electrodermal responses - brain waves

Table 8

Advertisement Groupings

Advertisement Set A

<u>Order in Set</u>	<u>Emotional Category Represented</u>	<u>Assigned Code</u>
1	Happiness	A1
2	Interest	A2
3	Sadness	A3
4	Fear	A4

Advertisement Set B

<u>Order in Set</u>	<u>Emotional Category Represented</u>	<u>Assigned Code</u>
1	Anger	B1
2	Surprise	B2
3	Disgust	B3
4	Fear	B4

Table 9

Structure of Video Tracks

Video Track A

<u>Elapsed Time</u>	<u>Advertisement</u>
0	
5 min	A1
10 min, 30 sec	A2
16 min	A3
21 min, 30 sec	A4

Video Track B

<u>Elapsed Time</u>	<u>Advertisement</u>
0	
5 min	B1
10 min, 30 sec	B2
16 min	B3
21 min, 30 sec	B4

Table 10

Fast Data

Group A

<u>Subject Number</u>	<u>Adv. Number</u>	<u>Emotion Category</u>	<u>Overall Emotion</u>
1	A1	Happiness	Frequency Duration (SEC)
		Interest	Frequency Duration
		Sadness	Frequency Duration
		Fear	Frequency Duration
		Anger	Frequency Duration
		Surprise	Frequency Duration
		Disgust	Frequency Duration
		Happiness	Frequency Duration
1	A2		
	.		
	.		
	A4		

For each subject. Total subjects Group A = 50. Same data for Group B for advertisements B1 to B4.

Table 11

Emotional Category Indices

<u>Emotion Category</u>	<u>A Priori Index</u>
Happiness	Happy + Cheerful + Delightful
Interest	Interesting + Intelligent + Helpful
Sadness	Gloomy + Sad + Depressing
Fear	Threatening + Frightening + Intimidating
Anger	Insulting + Annoying + Irritating
Surprise	Puzzling + Confusing + Unusual
Disgust	Disgusting + Offensive + Unpleasant

Table 12**BEB Data****Group A**

<u>Subject Number</u>	<u>Adv. Number</u>	<u>Emotion Category Score (1-5)</u>
1	A1	Happiness Interest Sadness Fear Anger Surprise Disgust Happiness
1	A2	.
		.
		.

For each subject. Total subjects Group A = 50.. Same data for Group B, for advertisements B1 to B4.

Note: 1 = not at all
 2 = slightly
 3 = moderately
 4 = strongly
 5 = very strongly

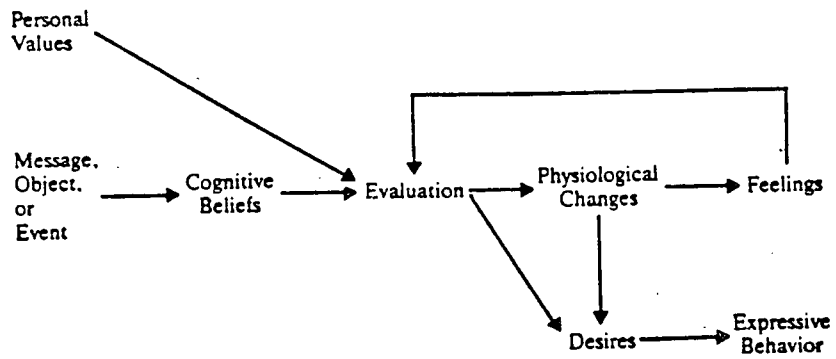
Figure 1**Model of the Emotional Process**

Figure 2

Model of the Emotional Process

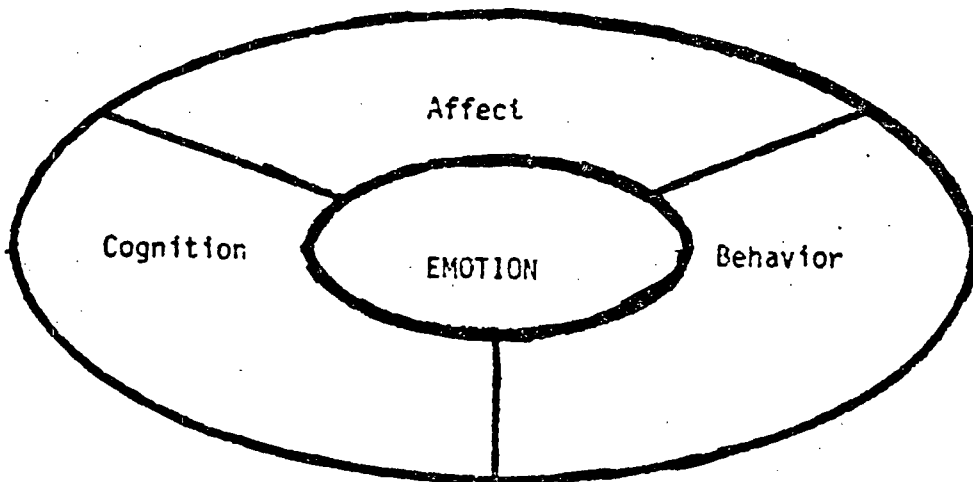


Figure 3

BEB - Emotion Wheel

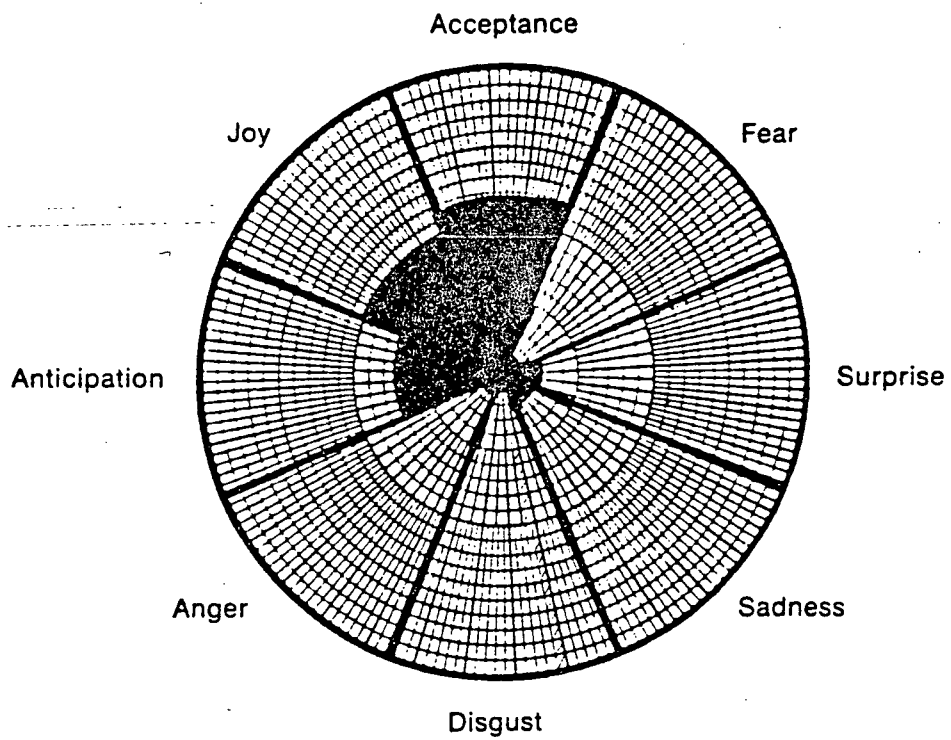


Figure 4

Plutchik's Eight Primary Emotions



Figure 5

Components of Some Secondary Emotions

	Joy	Acceptance	Fear	Surprise	Sadness	Disgust	Anger	Anticipation
Aggression								
Alarm								
Anxiety								
Awe								
Caution								
Contempt								
Courage								
Cowardliness								
Curiosity								
Cynicism								
Delight								
Despair								
Disappointment								
Dominance								
Dread								
Embarrassment								
Envy								
Fatalism								
Friendliness								
Guilt								
Hate								
Hostility								
Indignation								
Love								
Misery								
Morbidness								
Optimism								
Outrage								
Pessimism								
Pride								
Prudishness								
Remorse								
Resentment								
Resignation								
Scorn								
Sentimentality								
Shame								
Stubbornness								
Submission								
Sullenness								

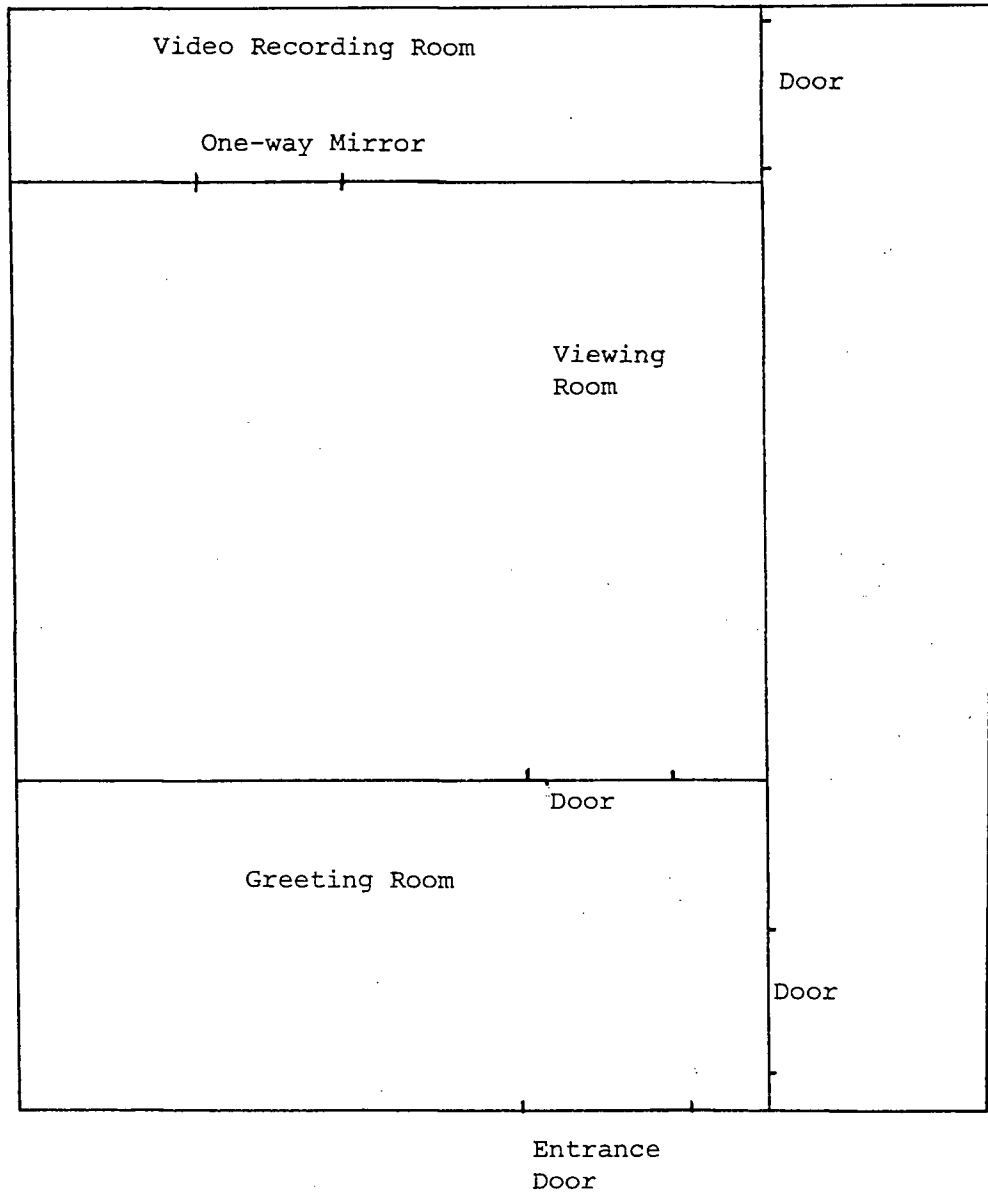
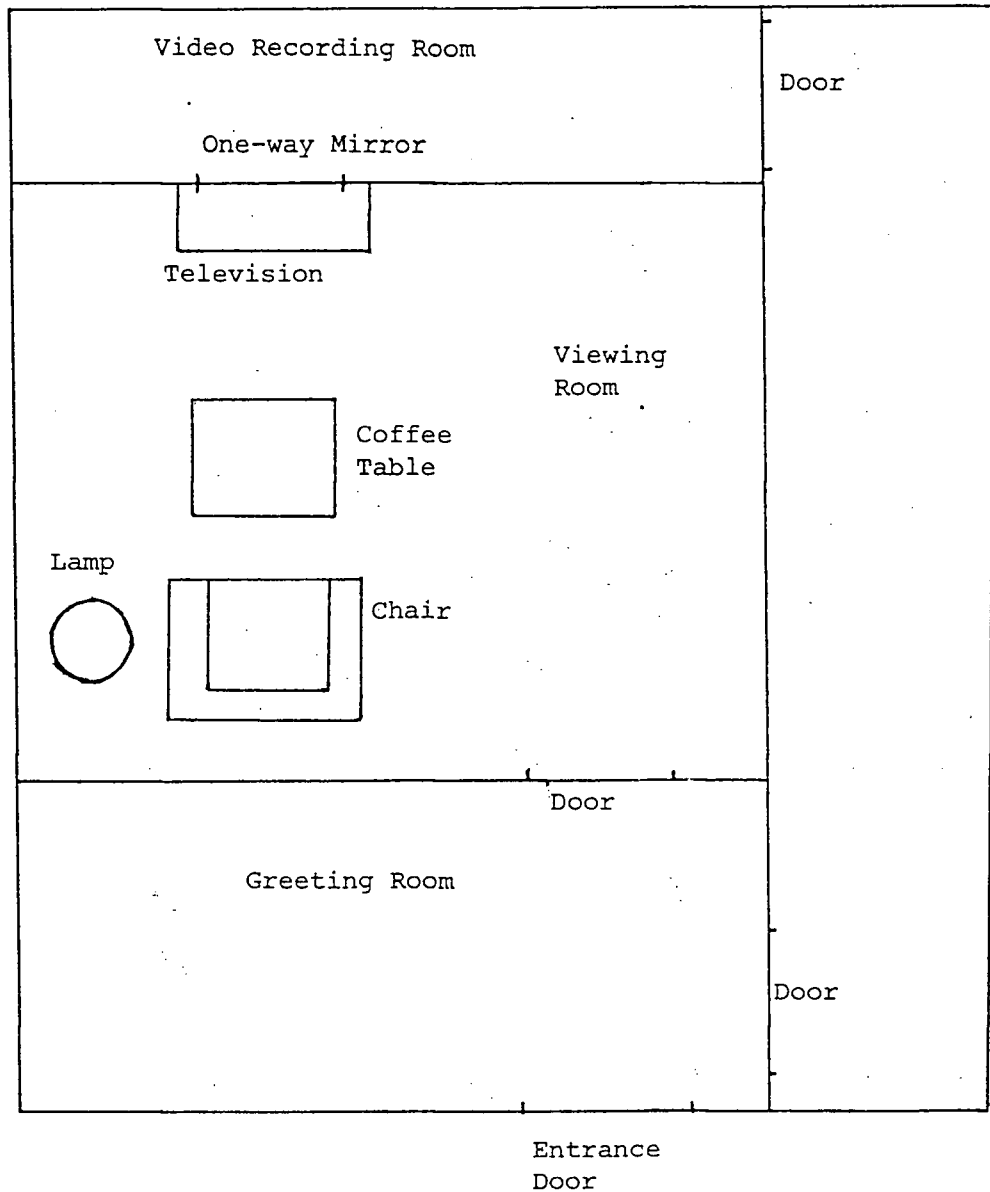
Figure 6**Suggested Room Layout**

Figure 7

Suggested Interior Room Layout



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