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SEMANTIC SEGMENTATION OF PRINT ADVERTISEMENTS

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SEMANTIC SEGMENTATION OF PRINT ADVERTISEMENTS

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ABSTRACT

SEMANTIC SEGMENTATION OF PRINT ADVERTISEMENTS

by

Clifford J. Cox

University of New Hampshire, May 1983

The purpose of the study was to construct a comprehensive model of advertisement perception. The model's relationship to persuasion, recall and recognition measures of advertisement effectiveness was explored. The research demonstrated that print advertisements are perceived primarily across three general semantic dimensions. These dimensions were named Evaluation, Potency and Activity. The relationship between the three dimensions and similar semantic dimensions reported in the Semantic Differential literature is discussed.

In this research, 32 liquor, jewelry and perfume advertisements were studied. The relationship between the advertisements' persuasion, recall and recognition scores, and the advertisements' Evaluation, Potency and Activity scores is assessed. The advertisements' three perceptual dimensions scores explained 53% of the variation in the advertisements' persuasion, recall and recognition scores.

A coding scheme was developed which described the advertisements' physical characteristics. These codes were factored into seven physical characteristic dimensions. These seven dimensions accounted for 48% of the advertisements' Evaluation, Potency and Activity scores.

CHAPTER I

BACKGROUND AND OVERVIEW

Advertisement perception and effect are a function of the complex interaction between a viewer and an advertisement. Advertisement characteristics such as color and size, copy, product advertised and the medium used (i.e. television, print) all influence viewers' perception of, and reaction to, an advertisement. As well, the viewers' situation and personality characteristics may influence reactions to an advertisement. The series of studies described in this paper examine a number of these factors while developing a comprehensive model of advertisement perception.

This research is limited to print advertisements from the liquor, jewelry and perfume product categories. Products similar in nature, luxury in this case, were chosen for inclusion in this study in an attempt to minimize product differences. The purpose of this research was to investigate the role of perception on advertisement effectiveness. Therefore, although a diverse selection of products would have increased the studies generalizability,

diverse prcducts would have made it difficult to focus on the advertisement perception issues which were the heart of the research. Althcugh this study is of limited qeneralizability, the loqical extension of the research is to a wider range of prcducts as well as to the television medium.

In this dccument, "Person Oriented" research refers to studies which explain advertisement impact and perception as a function cf the viewers' personality characteristics. "Advertisement Oriented" refers to research explaining advertisement perception and impact in terms of an advertisement's physical characteristics. The term Perceptual Categcrizaticn will refer to studies in which a relatively small number of perceptual dimensicns are assumed to account fcr the majority of a stimuli's impact on the viewer.

Person Oriented Research

Person Oriented research invariably explains between five and ten percent of between advertisement variation over a variety cf advertisement effectiveness measures such as recall and recoqnition (Kassarjian, 1971). A variety of personality theories have been used as predictors of consumer behavior and advertisement effectiveness (Kassarjian, 1971). These range from Festinger's (1957) theory of coqnitive dissonance to highly quantified trait

theories of behavior (Tucker & Painter, 1961; Kernan, 1968; Evans, 1969).

Cognitive Dissonance

Festinger's (1957) theory of cognitive dissonance has been suggested as a basis for understanding consumer behavior and perceptions. Brehm (1962) found given the choice of two equally attractive brands, the brand chosen will be rated more favorably. Festinger's theory suggests a person's behavior and perceptions are oriented toward reducing dissonance. The Brehm results therefore provide evidence for a dissonance reduction effect in advertisement perception.

LoSciuto and Perloff (1967) suggest a consumer's dissonance reduction tendency causes him/her to require information supporting his/her decision. Therefore, an effective advertisement should contain information directly aimed at reducing consumer dissonance over choosing a particular product.

There are, however, critics of the dissonance theory and its application to consumer behavior. Oshikawa (1968, 1969), argues dissonance can only occur if a consumer perceives himself to have "free choice" in selecting a product. If, for any reason, the consumer perceives that he is forced into choosing a product, there will be no dissonance. This suggests a dissonance explanation of

consumer behavior is only useful for certain product choices. Purchases of items such as food, clothing and other staples, which are bought to fulfill a perceived need, are forced choices, and therefore are not likely to result in dissonance.

Trait Approaches

Proponents of the trait and factor theories of personality have attempted to explain consumer behavior and perceptions by assuming personality characteristics are important determinants of peoples' choices and attitudes toward a product. Tucker and Painter (1961) found significant correlations between uses of different products (i.e. gum, aspirin) and the four measures of personality attained from the Gordon Personality Profile. Kernan (1968) tested the empirical relationship between decision behavior and personality as measured by the Gordon Personality Profile and reported statistically significant correlations. Both these studies, however, accounted for small amounts of their respective variances, and although the studies showed interesting relationships, they did not add significantly to an overall explanation of consumer behavior.

Using the Edwards Personality Preference Schedule (EPPS) Evans (1969) concluded there were no personality differences between Ford and Chevy owners to the extent that would allow for prediction of brand selection. Evans was,

however, able to account for 10% of the dependent measure's total variance through the use of the EPPS measures.

In pilot work this investigator obtained similar results using the EPPS as a predictor of an advertisements' ability to hold viewers' attention. Though there were significant relationships between the EPPS measures and the advertisement attention holding ratings, the amount of variance accounted for using these relationships was minimal.

Other personality scales such as the Thurstone Temperment Schedule (Westfall, 1962; Kamen, 1964) and the California Personality Inventory (Robertson & Meyers, 1969; Bruce & Witt, 1970; Boone, 1970) have been used to predict consumer choices, but, all have resulted in similar unimpressive results.

Humanistic Approach

The self-theory of consumer behavior is an outgrowth of Roger's theory of self-actualization. It has been used as a theoretical explanation for much of the research in the consumer behavior area. Levy (1954) showed that as the economy prospered through the 1940's the practical attributes of a product, and therefore the need for rational appeal in an advertisement, became less important as a result of the consumer placing a symbolic meaning on the product. Advertisers quickly learned they were not just

promoting a product, but, were trying to create the perception that their product was a symbol of the consumer's self-concept, and his strive for recognition. Individual consumer perception of a product was shown to be a function of how well the product and its advertising agreed with the consumer's self-concept (Kretch, Crutchfield & Ballachy 1962; Bruner, 1968).

The self-theory approach to consumer behavior emphasized the strive for congruency of the self-image with the image of the product. Dolich (1969) showed preferred brands were rated more congruent to the consumers self-image than those brands that were not liked. Other researchers in this area have found similar results (Ham & Cundiff, 1969; Delozier, 1971).

Person Theory Summary

Kassarjian (1971), after reviewing the research using personality theories to explain consumer perceptions and decisions concluded that the studies in this area can be considered "equivocal." Kassarjian states, "if correlations do exist they are so weak as to be questionnable or perhaps meaningless." He also points to the need for consumer behavior researchers to develop their own instruments and not to rely on those which were created for entirely different purposes (i.e. clinical). Finally, he justifiably points to the total lack of theoretical basis

for using the majority of the tests in the first place. He concludes it is amazing that even five or ten percent of the variance in a dependent measure can be explained given the problems with the instruments used for measuring personality.

Advertisement Oriented Research

Advertisement Oriented studies are directed towards explaining an advertisement's impact as a function of one or two of an advertisement's physical characteristics. There are volumes of research describing specific attributes of an advertisement in terms of the affect a particular attribute such as color has on some measure of an advertisement's effectiveness. For example, Strong and Adams (1912-1920) showed the size and frequency of an advertising message effected reader recognition. Starch (1966) showed advertisements with a definite focal point were recognized significantly more often than advertisements without a focal point.

More recent research has expanded the above to include many other physical characteristics of an advertisement. Steadman (1969), and Alexander and Judd (1978) concluded non-sexual illustrations in a print advertisement were more effective at enhancing brand recall than sexual ones. Morrison and Sherman (1972), however, concluded the use of sex in advertising is not as simple as described above.

They factored different groups of people from their data. These groups showed different reactions to sex in advertising. Further, Morrison and Sherman concluded degree of nudity, as used by Steadman to describe sex in an advertisement, is an oversimplification of the problem. Concepts defined as Romanticism, Realism and Suggestive Copy were also found to effect the degree of sex perceived in an advertisement.

Hess (1964) has shown models with dilated pupils are preferred to models whose pupils are not dilated. Baker and Churchill (1977), Smith (1970), and, Kanungo and Pang (1973) have shown attractive models yield more favorable advertisement evaluation than less attractive models.

After reviewing the advertising effectiveness literature, Ogilvy and Raphaelson (1982) report magazine advertisements attract more attention and are read more frequently when:

* new information (news) is included.
* story appeal (i.e. slice of life) is included.
* before and after illustrations are included.
* the product is shown in the advertisement.
* long informative headlines are used.
* headlines include quotations.

Ogilvy and Raphaelson (1982) also assert the advertisement should have emotional appeal, as few purchases are made for entirely rational reasons.

Perceptual Categorization Research

There is a large body of research suggesting humans perceptually categorize complex stimuli. Several studies have highlighted the importance of the interaction between an individual's cognitive set, personality and need value system (Bruner & Goodman, 1947; Jones & Bruner, 1954; Hastorf & Cantril, 1954). Bruner (1954) has shown perception is selective, organized and basically an act of categorization. Razran (1932) found people tend to generalize semantically, indicating we look for consistencies in meaning across different stimuli. Karwoski, Odbert and Osgood (1942) showed a remarkably similar transfer of "meaning" from one sensory modality to another, indicating meaning over different senses may have shared significances. Mosier (1941) found subjects consistently scaled evaluative adjectives such as good, excellent, common and fair on a favorable-unfavorable scale. This suggests there are general dimensions across which people rate all stimuli.

In pursuing the hypothesis that there are general dimensions of meaning across which all stimuli are perceived Osgood, Suci and Tannenbaum (1957) developed the Semantic Differential. Their research was based on the assumptions of a "semantic space" of some unknown dimensionality where each semantic dimension was defind by a pair of bipolar adjectives. This space was hypothesized to be composed of the relevant dimensions across which all stimuli are perceived. Each dimension was considered orthogonal to all other dimensions in the interest of maximum efficiency.

In a series of factor analytic studies (Osgood et al., 1957) where different categories of word concepts (i.e. persons, institutions, physical objects) were rated across different sets of bipolar adjective scales, surprisingly consistent results were obtained. All of these studies pointed to a relatively simple semantic space in which three factors dominated. The three factors were named Evaluation, Potency and Activity based upon the bipolar scales which loaded highly on the particular factor. Additional factors were extracted, but, these were found to be unstable and of minimal explanatory importance relative to the first three.

Since the development of the Semantic Differential many researchers have used the methodology with varied stimuli. Solomon (1954) reported three factors which he best termed "Evaluation, Potency and Activity" in a study where trained navy men rated passive sonar signals on fifty bipolar

scales. Tucker (1955) found similar factors when artists and non-artists were asked to judge representational and abstract paintings.

In Osgood et al.'s (1957) original research, the Evaluation dimension was found to account for the greatest amount of variance among the bipolar adjective ratings. In Tucker's research with the paintings the activity dimension explained the greatest amount of variance. The apparent flexibility in the relative importances of the three dimensions is addressed by Osgood (1957). In his original research (Osgood et al., 1957) Osgood notes that there is no general Semantic Differential test. There are no standard scales on which to rate all concepts. In fact, the concepts and scales employed must depend on the nature of the research, and should be altered to fit the situation and questions being addressed. Osgood (1957) concluded the nature of the concepts to be rated, scales used for rating and varied situations will result in a "flip-flop" in explanatory importance among the three dimensions. He stated that this should be expected given the great diversity of concepts rated.

Dimensions similar to those reported by Osgood (1957) have been found in the nonverbal communications literature. Nonverbal Communication has been studied by many researchers for varying reasons. It refers to actions distinct from speech and includes facial expressions; eye contact;

proxemics; various hand, foot and body movements and numerous other implicit communication behaviors (Hall, 1959, 1963, 1966; Mehrabian 1971, 1972; Sommor 1969).

The earliest of the nonverbal researchers were concerned with minute body movements which they believed conveyed the nonverbal component of a communication. Birdwhistell (1970) proposed an analogy between specific linguistic units and specific kinesic (body) movements. Branigan and Humphries (1972) proposed a system of 136 movements, involving ten gross body sights, which they believed facilitated communication by adding to the effect of the verbal component of an interaction. The research noted above, however, concentrated on describing nonverbal behaviors. It was not concerned with creating a theoretical framework from which the research findings could be interpreted.

Other nonverbal reseachers began to acknowledge the need for more than a description of the movements and body positions involved in nonverbal communication. These researchers were primarily concerned with summarizing the descriptive research into more general categories, while asking questions of awareness, intentionality of these behaviors, and, whether the nonverbal components of an interaction are in fact communicative. Ekman's FAST (Facial Affect Scoring Technique), scores faces on six emotions to comprise an overall judgement of facial emotion (Ekman and

Friesan, 1969). Knapp (1972) has specified seven major nonverbal dimensions which include: (1) body motion, (2) physical characteristics, (3) touching, (4) voice qualities, (5) proxemics, (6) artifacts and (7) environmental factors.

The general nonverbal coding models described in the above paragraphs have come under attack by researchers such as Argyle and Dean (1965). They studied eye contact in two contexts. First, they assumed increased eye contact would directly reflect "feeback" provided to the speaker. Feedback, however, in itself, was not very enlightening in terms of the effect it may have on the outcome of the interaction. Consequently, Argyle and Dean found the feedback concept to be of little utility. In the second context, Argyle and Dean (1965) adopted a firm theoretical orientation. They assumed eye contact was related to affiliation motivation. They suggested a number of nonverbal dimensions would interact to produce an equilibrium level of "nonverbal distance." They hypothesized that as distance between people interacting increased, eye contact would decrease, and vice-versa. Similarly, if subjects were asked to interact with their eyes closed, it was hypothesized the subjects would position themselves significantly closer to each other than if their eyes were open. Both of these hypotheses were supported and led to the conclusion that nonverbal components of an interaction can be used to predict the amount of liking between two communicators.

The compensatory relationship between eye contact and interpersonal distance is perfectly logical given Argyle and Dean's (1965) theoretical base. However, had Argyle and Dean continued to simply measure "feedback" independently of the other nonverbal characteristics, they would have been disappointed with the ensuing results. A general theoretical framework for nonverbal communication was necessary if prediction, rather than description, was to be the end goal of nonverbal communication researchers.

Albert Mehrabian was concerned with nonverbal communication and its impact on an interaction. His major objective was to provide a solid theoretical approach for describing nonverbal behaviors in terms of their overall psychological effects on an interaction. Mehrabian (1972) has concluded the total impact of a communication is .07 verbal + .38 vocal + .55 facial. This suggests print advertisements, which presumably contain a relatively large nonverbal component, should impact on their viewers primarily through the pictorial or illustration. Similarly, it suggests a print advertisement's copy is likely to have little effect on an advertisement's impact on the viewer.

Mehrabian's initial research was similar to Osgood et al.'s (1957), original factor analytic studies. Mehrabian, however, investigated the nonverbal components of communication as described by numerous researchers. Mehrabian's main conclusion was nonverbal communication can

be adequately described in terms of two dimensions which he calls "attitude and status" (Mehrabian, 1972). Mehrabian concluded the attitude and status factors were equivalent to Osgood et al.'s (1957) Evaluation and Potency dimensions. After reviewing forty years of research on verbal and nonverbal interactions, Rosenburg and Bonoma (1974) concluded that the Evaluation and Potency dimensions explained the major part of the variance in these interactions.

The Status or Potency dimension is defined primarily in terms of body and positioning cues (Mehrabian, 1968). Matarazzo, Wiens and Saslow (1965), suggest higher status or strength can be conveyed by head and hand movements. Kendon (1968) has shown that before a person speaks he looks away from the person he is addressing. This was interpreted as conveying increased status to the listener. Kendon (1968) also concluded errors and hesitations in speech convey a lower status where as fluent speech is an indicator of high status. Mehrabian (1968) has shown higher status is conveyed by a relaxed posture, including asymmetrical placement of limbs, relaxed hands and neck, and, a sideways lean or reclining position.

The Evaluation dimension is basically a good-bad, like-dislike continuum refering primarily to immediacy between communicators. Immediacy is defined by numerous variables relating to the "psychological distance" between

people interacting. The immediacy concept is related primarily to proxemic variables. Hall (1963), developed the concept of proxemics, the study of man's use of space as a function of his culture. Some of Hall's proxemic variables were eye contact, body orientation, touching and distance between people interacting. Hall (1963) found immediacy (i.e. increased closeness, eye contact) is to a large degree associated with liking for another person. Mehrabian (1967), and, Weiner and Mehrabian (1968), tested the relationship between liking and proxemics. They concluded communicator-addressee distance correlated with the degree of dislike communicated to, and inferred by, the addressee. They also concluded the greater the eye contact between two people the greater the degree of liking between them.

Numerous studies have supported and extended the basic hypothesis that liking, or a high rating on the Evaluation dimension, is correlted with nonverbal cues of immediacy. Argyle and Dean (1965) showed compensatory behavior occurred over proxemic variables in that for a given degree of liking, as closeness increased, eye contact decreased. Studies by Exline and his coreseachers (Exline 1963, 1972; Exline & Eldridge, 1967; Exline, Gray & Schuette, 1965) showed increased eye contact is normally associated with more positive attitudes between communicators. Mehrabian (1968), found a forward leaning torso and an orientation of the torso toward the addressee to be positive evaluative cues.

Mehrabian (1972), reported the Activity dimension was found in nonverbal interaction, but, Activity measures showed little explanatory importance. Even though the Activity dimension exhibited a significant relationship to persuasion, it did not account for a large portion of the variance in the factor analysis. Mehrabian and Williams (1969), found intended and perceived persuasion to be primarily a function of the Activity dimension. As a person increased his nonverbal activity he was perceived as being more persuasive.

In reviewing his own and others' research, Mehrabian (1972) concluded immediacy cues were important for determining Evaluation, and, postural relaxation cues were primarily responsible for conveying Potency or Status. Further, although the Activity dimension did not explain much variance, it was important in determining intended and perceived pesuasion in an interaction. In summing up his work for practical application, Mehrabian (1972) developed a coding system to define nonverbal interactions in terms of the Evaluation, Potency and Activity dimensions. This coding scheme served as the basis for the coding system developed in Chapter Five of this research.

Research Overview

The series of studies to be described applies the perceptual categorization hypothesis to viewer perceptions of print advertisements. It was hypothesized that the numerous physical characteristics of an advertisement are subconsciously factored, or perceptually categorized, into a much smaller number of relevant perceptual dimensions.

The research focuses on the perceptual dimensions across which advertisements are perceived, and these dimensions' relationship to recall, recognition, and persuasion measures of advertisement effectiveness. Figure 1.1 shows the research model tested in the pilot research.

Chapter Two describes Pilot work. The pilot test results showed that adjective ratings of print advertisements were perceptually categorized into three significant dimensions. The comparability of the three dimensions, to those reported by Osgood et al. (1957), is discussed.

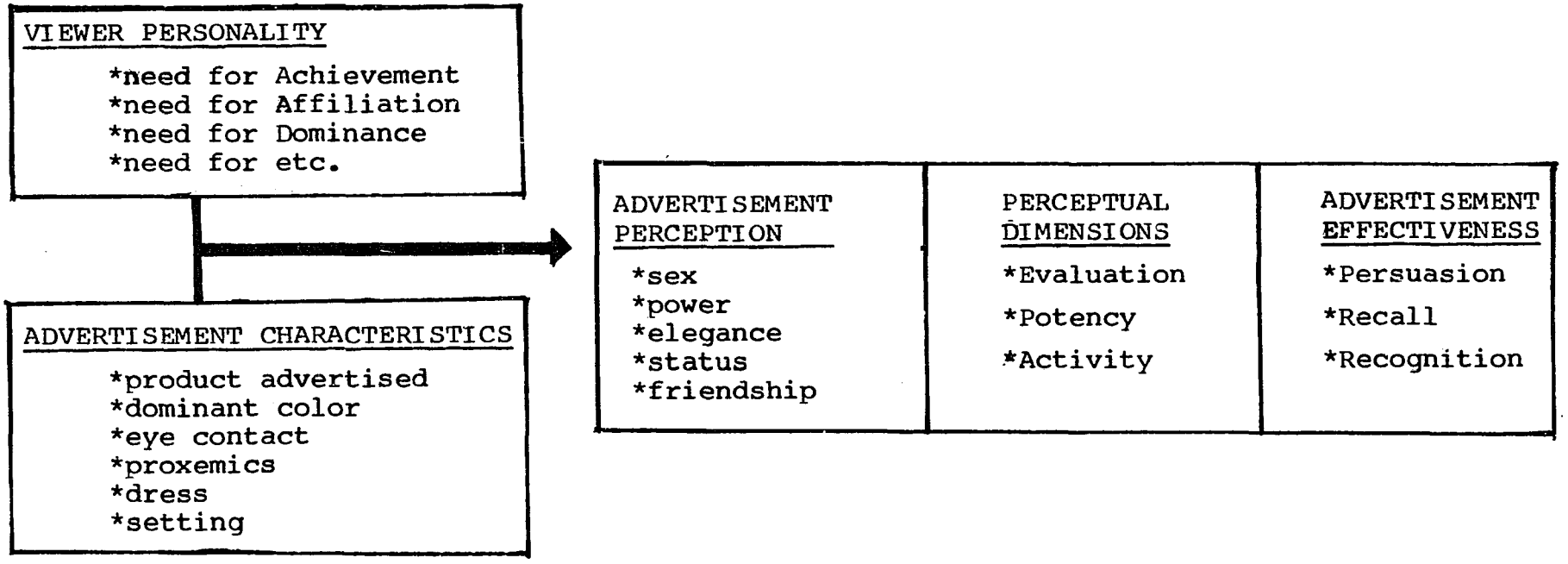
Chapter Three describes the formal testing of the perceptual categorization hypothesis. A larger and more diverse number of advertisements were rated by a large number of subjects. Results showed the pilot study's three dimensions are replicable in a carefully controlled study.

Chapter Four analyzes the relationship between an advertisment's position on the three dimensions and the advertisement's impact on the viewer. Impact is defined quantitatively with recall, recognition and persuasion measures of advertisement effectiveness. A discussion of the problems associated with measuring advertisement effectiveness, and a description of the effectiveness measures used in this research, is provided in Chapter 4.

Chapter Five explores the relationship between an advertisement's physical characteristics and its perceived position on the three relevant dimensions. A coding system was developed for quantifying the advertisements' physical characteristics. The multitude of physical characteristics was then analyzed to determine which characteristics were related to the three perceptual dimensions.

Chapter Six summarizes the research and discusses the difficulties in generalizing to other situations and advertisement mediums. A discussion of future studies, directed toward understanding how advertisements are perceived, and the physical characteristics which result in an effective advertiement, is offered.

Figure 1.1
(Research Model)



CHAPTER II

PILOT WORK

ABSTRACT

Pilot work was undertaken to determine if viewers' adjective ratings of a series of advertisements could be factored into a relatively small number of dimensions related to the advertisements' ability to hold the viewers' attention. The relationship between an advertisement's reported attention holding ability and the viewer's personality characteristics, as measured by the Edwards Personality Preference Schedule (EPPS) was assessed.

Viewer perceptions were readily factored into three dimensions comparable to those reported by Osgood et al. (1957). Viewers' personality characterisitics accounted for less than 5% of the total variance in subjects' reported attention levels for individual advertisements. The three factored dimensions accounted for 85% of the total variance among the adjective ratings, and 43% of the variance in the attention holding measure.

INTRODUCTION

Pilot research was designed to determine the promise of applying the perceptual categorization hypothesis to print advertisements. It was also designed to determine the relative importance of personality variables in advertisement perception. Considerable research has been devoted to describing an advertisement's impact in terms of the viewers' personality characteristics. Kassarjian's (1971) review of the Person Oriented research strongly indicates there is little purpose in pursuing personality variables as a predictor of advertisement perception and effectiveness. However, the purpose of this research was to develop a comprehensive model of advertisement perception. Consequently, personality measures, as defined by the Edwards Personality Preference Schedule (EPPS), are included in the pilot research.

The EPPS is a series of 225 pairs of statements. From each pair the subject must choose the statement he/she prefers. A subject's personality profile is defined by 16 orthogonal dimensions such as Achievement need, Affiliation need, Dominance need, etc. A score is computed for each subject across each of the 16 personality dimensions. The pilot research data was analyzed to determine if the subjects' personality scores were related to either subjects' perceptions of the advertisements, or, subjects' reports of the advertisements' ability to hold their

attention.

Research directed toward explaining advertisement perception as a function of the advertisements' physical characterisitics tends to examine specific physical characteristics. However, to analyze the relationship between advertisement effectiveness (i.e. recall) and all of an advertisement's physical characteristics is an overwhelming task. If the effects of an advertisement's multiple physical characteristics are subconsciously funnelled into a much smaller number of perceptual dimensions, the study of the relationship of physical characteristics to advertising effectiveness becomes manageable. Osgood's (1957) and Mehrabian's (1972) work on perceptual categorization suggest an advertisement will be categorized similarly to other complex stimuli. The pilot work described here tests this hypothesis and examines the resulting perceptual dimensions' relationship to an advertisement's ability to hold viewer attention.

METHOD

Subjects

Subjects were enrolled in Introductory Psychology at the University of New Hampshire. Completion of this experiment provided partial credit toward the required laboratory experience. A total of 128 subjects, 73 female

and 55 male, participated in the pilot research. Subjects were between 17 and 23 years of age with greater than 90 percent being between 18 and 20 years of age.

Stimuli

Thirty-two full page print advertisements were chosen from nationally distributed magazines dated between October, 1979 and November, 1980. Of the 32, 13 advertised liquor, 10 advertised jewelry and 8 advertised perfume. No brand name was represented in more than one advertisement. Advertisements were chosen subjectively to pick as diverse a group of presentations as possible. Each advertisement was photographed with Ektachrome 160 film at ASA 100 and F4.0. An 82c ultraviolet filter translated 100 watt lighting into the equivalent of 3200 K tungsten light. Advertisements were photographed at a distance of approximately 30 inches with a Canon 35mm camera (50mm lens). The film was professionally processed and slides were prepared. Data collection occured between September 30, 1981 and October 15, 1981.

Measures

The Edward's Personality Preference Schedule (EPPS) was administered as per instructions in the EPPS manual. Subjects coded their answers directly onto optical scan data sheets. A computer program was written to compute subjects'

scores on the 16 EPPS personality measures.

Subjects rated advertisements on the amount of sex, power, aggression, independence, love, staus, elegance and friendship the advertisement presented. As a measure of advertisement effectiveness subjects rated advertisements' ability to hold their attention. The scale for each rating was five categories in width and anchored with the phrases "very little" and "a great deal." A copy of the adjective rating sheet used by the subjects is found in section A.1 of Appendix A.

Procedure

Subjects gathered in a large auditorium equipped with rear projection capabilities. Subjects were given one hour to complete the EPPS. Following a 15 minute break, subjects rated 38 advertisements (includes six trial advertisements) over the eight adjective measures and the attention holding measure. The 32 slides were randomly ordered and presented to subjects in 60 second intervals via a rear projection slide presentation. No contol for order of the advertisements was implemeted.

RESULTS

Factor Analysis of Adjective Ratings

The subjects' adjective ratings were factor analyzed to determine if factors similar to those found in the pilot data would result. The data was collapsed over subjects resulting in mean scores for each advertisement on each of the nine measures. A data file was created with advertisements as cases and mean ratings over the nine measures as variables. This file was factor analyzed with the SPSS (1975) Factor procedure (PA2 Quartimax). The analysis included only the eight adjective rating measures, omitting the attention holding variable. The PA2 analysis is a principal component factoring algorithm with iteration. The Quartimax rotation results in variables loading heavily on one factor and minimally on the others. Factors with an eigenvalue of greater than 1.0 were retained for rotation. The initial factor extraction resulted in three significant factors which explained 86% of the total variation. Table 2.1 shows the relative importances of the three factors in terms of their ability to explain variance.

Table 2.1
(Initial Factor Extraction of Pilot Data)

Factor	Eigenvalue	% of Var.	Cumul. %
I	3.81	47.7	47.7
II	1.98	24.8	72.5
III	1.08	8.7	86.0

The rotated factor matrix presented in Table 2.2 shows the loadings for the adjective measure on the three factors. The first factor extracted explained 47.7% of the total variance and loaded heavily on elegance, power and status. The second and third factors explained 24.8% and 13.5% of the variance. They loaded heavily on love, sex and friendship, and, aggression and independence respectively.

Table 2.2
(Quartimax Rotated Factor Matrix)

	Factor		
Measure	I	II	III
Elegance	.96	.13	.07
Power	.85	-.13	.39
Status	.96	-.08	.07
Friendship	-.55	.68	-.14
Love	-.16	.96	-.15
Sex	.29	.77	.30
Independence	.16	-.05	.86
Aggression	.39	.06	.81

For descriptive purposes, the factors were named Potency (status, power, elegance), Evaluation (love, sex, friendship) and Activity (aggression, independence). Table 2.3 provides descriptive statistics on the three dimensions and the attention holding measure.

Table 2.3
(Factor and Attention Variable Descriptive Statistics)

	Mean	Std.Dev.
Evaluation	1.8	.86
Potency	2.1	.74
Activity	1.6	.50
Attention	2.0	.47

Note: All measures were based on a N of 32.

To assess the relationship between subjects' personalities and their perceptions of the advertisements it was necessary to compute subjects' raw combination factor scores (for the 3 dimensions) for each advertisement. An advertisement's raw combination factor score on the Potency dimension equals the sum of a subject's ratings on the power, elegance and status adjectives. Factor scores for the Evaluation and Activity dimensions are computed similarly, using the appropriate adjective measures.

Factor Score Analysis

It was of interest to determine if an advertisement's factor scores were related to subjects' reported attention levels for the advertisements. As the unit of analysis in this analysis was the advertisement, raw combination factor scores for the three dimensions, and, the attention holding measure, were collapsed over subjects. The advertisements' mean factor scores (collapsed over subjects) were regressed against the advertisements' mean attention holding scores, $F(3,28)=6.99$, $p<.001$. The three factors explained 42.8% of

the variance associated with the attention holding measure. Only the standardized beta weight for Evaluation was significantly different from zero, $T(30) = 4.42$, $p < .001$.

A series of regression analyses, one per advertisement, showed subject raw factor scores to be excellent predictors of an advertisement's ability to hold subjects' attention. The independent variables entered into the regression models were conceptualized as belonging in three groups. The groups were entered into the regression models in all possible orders to determine their relative importance. The groups of independent variables were:

1. Subjects' 16 EPPS personality scores.
2. Subjects' three raw combination factor scores.
3. A dummy variable to control for subject gender.

The dependent measure used in all the analyses was the advertisement's attention holding rating. Regardless of the Factor Scores' position of entry into the regression model, the factor scores were significant predictors of an advertisement's attention holding ability. Entered first, the factor scores show a significant relationship to attention in all 32 advertisements ($p < .05$). Entered after the gender dummy variable and the personality characteristic variables, the factor scores are significant predictors of attention in 29 of the 32 advertisements. Table 2.4 presents for each advertisement the Factor Scores' relationship (entered last) to attention.

Table 2.4
(Individual Advertisement Regressions)

Note: The following table shows the change in the regression models which occur when the three factor scores are added to models already including sex and personality measures as independent variables. Each line of the table represents a regression analysis on a single advertisement.

Adver. Num.	RSQ CHG	F CHG	SIGNIF CHG
1	.15	6.92	.000
2	.12	5.43	.002
3	.20	10.19	.000
4	.10	6.08	.001
5	.17	8.58	.000
6	.05	2.41	.071*
7	.21	11.61	.000
8	.20	10.52	.000
9	.25	15.40	.000
10	.14	8.93	.000
11	.12	5.64	.001
12	.27	14.29	.000
13	.14	8.79	.000
14	.34	22.88	.000
15	.15	8.97	.000
16	.16	8.77	.000
17	.05	2.55	.059*
18	.12	6.21	.001
19	.16	8.75	.000
20	.11	5.26	.002
21	.18	8.99	.000
22	.19	10.48	.000
23	.05	2.17	.096*
24	.18	8.55	.000
25	.21	11.94	.000
26	.12	6.20	.001
27	.20	13.10	.000
28	.18	10.00	.000
29	.26	15.41	.000
30	.10	4.72	.004
31	.15	12.94	.000
32	.13	11.49	.000

NOTE: Each analysis had 3 degrees of freedom for the numerator and 109 degrees of freedom in the denominator.

* NOT signfiicant at $p<.05$.

Personality Characteristic Anlayses

Predictors of Factor Scores: A series of canonical correlations were computed to determine the relationship between an advertisement's factor scores and the personality profile of the subjects rating the advertisements. This analysis was designed to determine if subjects' personalities influenced the adjective ratings and subsequent factor scores of the advertisements. The unit of analysis was the subject and advertisements were analyzed individually. This resulted in 32 separate canonical correlations, one per advertisement. Subject EPPS measures were entered on one side of the equation and raw combination factor scores for a particular advertisement were entered on the other side. A significant relationship was found for only one of the 32 advertisements. However, as 32 separate analyses were conducted, there is a high probability of Type A error. Therefore, the one significant finding is likely to have been spurious.

Predictors of Attention: It was also of interest to determine if subject personalities influenced their reported attention levels for the 32 advertisements. A canonical correlation with subjects' 16 EPPS personality measures on one side of the equation and subjects' 32 advertisement attention holding scores on the other side yielded no significant canonical variates, Chi-Square=450, df=448,

$p<.46$. At the individual advertisement level the regression analyses used to assess the raw combination factor scores' relationship to attention holding also addressed the ability of the personality characteristics to predict attention. If the EPPS measures are entered into the model first they show a significant relationship to attention holding in 6 of the 32 advertisements ($p<.05$). However, if the dummy variable controlling for sex of the subject is entered first, the number of significant relationships attributed to the personality measures drops to two. This remains constant when both sex and the factor scores are entered before the personality measures. Again, however, the large number of analyses greatly increased the liklihood of finding one or two significant analyses by chance.

DISCUSSION

The pilot research indicates perceptual categorization influences viewer perceptions of an advertisement. The resulting categories or dimensions were shown to be related to an advertisement's ability to hold viewer attention. In the factor analysis, the three perceptual dimensions accounted for 86% of the variation among the adjective ratings. The three factored dimensions accounted for 42.8% of advertisement variation in reported attention holding capability.

The factor loading pattern suggests comparisons to Osgood et al.'s (1957) Semantic Differential dimensions. The factor loading heavily on power, status and elegance is directly comparable to Osgood's Potency dimension. Osgood's Evaluation dimension is comparable to the pilot study factor loading highly on love, sex and friendship. The pilot researches' third factor, loading on aggression and independence, is not obviously related to Osgood's third factor of Activity.

Osgood et al. (1957) noted the factors extracted using the Semantic Differential methodology change as a function of the stimuli, concepts rated and the situation. He also states there are no true semantic dimensions. They change depending on the variables noted above. Aggression and independence are certainly the most "active" of the measures taken on the advertisements, but, it is impossible to be certain that the aggression/independence dimension is correctly compared to Osgood's Activity dimension. However, as Osgood et al.'s factor names appeared well suited to the pilot research's dimensions, the names were retained for descriptive purposes.

The Potency dimension accounted for approximately twice the variance of the Evaluation dimension in the factor analysis (47.7% vs. 24.8%). Evaluation approximately doubled Activity (24.8% vs. 13.5%). Together, the three dimensions account for 86% of the total variance. The

stability of the dimensions, however, must be questioned. The Activity dimension is a couplet defined by the aggression and independence measures. To define its dimensional position as a point rather than a plane in the semantic space a third measure must be added. The addition of another measure could result in a substantial realignment of the three dimensions, or, in totally new dimensions.

The three factors (collapsed over subjects) explained 42.8% of between advertisement variation in attention holding ability. The Evaluation dimension's relatively large standardized Beta weight shows Evaluation to be the best predictor of an advertisement's ability to hold the viewers' attention. These results must also be interpreted carefully. The advertisements chosen for inclusion in the pilot research do not adequately represent the continuum of advertising in the liquor, jewelry and perfume product categories. Advertisements were chosen for the pilot research on the basis that they appeared to present significantly different images to this researcher. The three factors, and their ability to explain attention, may therefore be an artifact of bias in the advertisements sampled. Replication of the pilot research results with a representative sample of advertisements is necessary.

The pilot research shows personality measures to have little influence on the perceptual categorization of print advertisements or on the impact the advertisement has on the

viewer. Personality measures did not predict an advertisement's factor scores or the advertisement's ability to hold a viewer's attention. However, the subjects who participated in the pilot research were not a representative sample of the population. Normative data on the EPPS shows college students score significantly differently on some of the personality constructs. As well, college students exhibit less variance than samples taken from the population as a whole. The limited range of scores and different baseline levels make generalizing to the overall population difficult. Research using a large, representative sample of the population would offer a better assessment of personality characteristics' relationship to advertisement perception and effect. This research, however, is limited to college students. Therefore, the study of personality characteristics' impact on advertisement effectiveness was discontinued.

Chapter Three tests the hypothesis that perceptual categorization, similar to that found in the pilot research, will occur among a more representative sample of advertisements.

CHAPTER III

PERCEPTUAL CATEGORIZATION

ABSTRACT

Pilot research indicated that subjects' adjective ratings of advertisements are perceptually categorized into three perceptual dimensions. These dimensions were compared to those reported by Osgood et al. (1957). However, the advertisements included in the pilot research were not a representative sample of advertisements from the liquor, jewelry and perfume product categories. The purpose of this study was to determine if similar dimensions could be factored from a more representative sample of advertisements.

Three dimensions, identical in composition to those described in the pilot research are reported. A factor analysis of the data showed the three dimensions accounted for 85% of the total adjective rating variance. A measure of "assertiveness" was added to the subjects' rating task. This measure loaded on the Activity dimension thus eliminating the couplet reported in the pilot research.

INTRODUCTION

Weaknesses in methodology were inherent in the pilot research. The advertisements chosen for study were not a random sample. As well, the sample size of 32 advertisements was not adequate for the factor analysis given that eight adjective measures were factored. However, the results of the pilot research were encouraging for the perceptual categorization hypothesis. This study examines the perceptual categorization of print advertisements using a more rigorous methodological approach.

A random sample of 72 advertisements was selected for study from the liquor, jewelry and perfume product categories. A measure of "assertiveness" was added to the subjects' rating task, and the rating scale was expanded from 5 to 10 categories in width. It was hypothesized that assertiveness would load highly on the Activity dimension. No measure of advertisement effectiveness was included in this study.

METHOD

Subjects

A total of 404 subjects, 182 male and 222 female participated in the study. Subjects were enrolled in Introductory Psychology at the University of New Hampshire. Completion of this experiment provided partial credit toward

the required laboratory experience.

Stimuli

The full page liquor, jewelry and perfume advertisements were removed from a group of nationally distributed magazines. A total of 164 advertisements were collected from magazines dated October, 1979 through December, 1980. Advertisements were grouped by product category and 24 advertisements were randomly selected for study from each product group.

The 72 advertisements were photographed with Ektachrome 160 film at ASA 100 and F4.0. An 82c ultraviolet filter translated 100 watt lighting into the equivalent of 3200 K tungsten light. Advertisements were photographed at a distance of approximately 30 inches with a Canon 35mm camera (50mm lens). The film was professionally processed and slides were prepared.

The slides were divided into their respective product categories and three groups of 24 slides (8 per product category) were randomly formed. Each group of 24 slides represented a "block" of slides. Subjects were exposed to one block of slides and no control for order of slides within blocks was used.

Measures

Subjects rated advertisements on the amount of sex, power, aggression, independence, love, status, elegance, friendship and assertiveness the advertisements presented. There was no interpretation of the one word concepts provided, nor was control for presentation order of the concepts included.

The scale for each rating was 10 points in width and anchored at the ends with the phrases "minimum" and "maximum." The scale was expanded from 5 (pilot work) to 10 categories to help eliminate the problem of restriction of range which was encountered in the pilot research.

Procedure

Subjects were presented a block of slides via a rear projection slide show. Subjects were not allowed to rate more than one block of slides. Each advertisement remained on the screen for a period of one minute (same as pilot study). Subjects entered their ratings directly onto optical scan data sheets.

RESULTS

Factor Analysis of Advertisements

The factor analysis used in the pilot study was repeated in this study to determine if factors similar to those reported in the pilot research would result. Mean scores for each advertisement across each of the nine measures were computed (collapsed over subjects). A data file was created with advertisements as cases and the nine mean adjective ratings as variables. This data file was factored using a principal components factor analysis followed by a Quartimax rotation. Factors with an eigen value of greater than 1.0 were retained for rotation. Table 3.1 show the initial factor extraction. Three significant factors explained 84.6% of the total adjective rating variation.

Table 3.1
(Initial Factor Extraction)

Factor	Eigenvalue	% of Var.	Cumul. %
I	4.14	46.0	46.0
II	2.10	23.4	69.3
III	1.38	15.3	84.6

The rotated factor matrix presented in table 3.2 showed the first factor accounted for 46.0% of the variance and loaded heavily on the aggression, independence and assertiveness measures. The second and third factors

explained 23.4% and 15.3% of the variance respectively. The second factor loaded heavily on elegance, status and power. The third loaded on love, sex and friendship. Table 3.3 provides descriptive statistics for the advertisements' scores on the three factors.

Table 3.2
(Quartimax Rotated Factor Matrix)

	Factor		
Measure	I	II	III
Independence	.70	.25	-.06
Aggression	.93	-.05	-.11
Assertiveness	.95	.16	.05
Elegance	.09	.95	.20
Power	.60	.66	-.21
Status	.29	.91	-.10
Friendship	-.39	-.32	.73
Love	-.27	.01	.94
Sex	.38	.25	.77

Table 3.3
(Means and Standard Deviations of Factors)

	Mean	Std. Dev.
Evaluation	11.9	4.96
Potency	14.3	3.77
Activity	11.8	2.89
(n=72)		

Subjects' raw combination factor scores were computed for each advertisement. For each subject, an advertisement's first factor score equals the sum of the subject's ratings on the aggression, independence and assertiveness measures. Factor scores for the other two

dimensions were computed similarly. The three factors were named Activity, Potency and Evaluation based upon the loading pattern of the measures.

DISCUSSION

Results of this study support the hypothesis that print advertisements are perceptually categorized by the viewer. Combined with the pilot research results it can be concluded the composition of the factors is stable and that the factors account for approximately 85% of the adjective rating variance. In this research the factors are again named Evaluation, Potency and Activity based on the factor loadings of the adjectives.

The factors, although identical to the pilot research factors in composition, are very different in explanatory power. In this study, the Activity dimension accounted for 46% of the variance, Potency accounted for 23.4%, and Evaluation accounted for 15.3%. The change (relative to the Pilot Study results) may be attributed to two sources. The addition of the assertiveness measure to the subjects' rating task and its subsequent heavy loading on the activity factor could have resulted in the Activity dimension's large gain in explanatory power. Adding the assertivenss measure created a new source of variation from which the Activity dimension could draw explanatory power.

The larger, more representative sample of advertisements may also have contributed to the drastic change in the three dimensions relative explanatory importance. The advertisements rated in this study should more accurately reflect the true nature of the dimensions than the biased group of advertisements studied in the pilot research.

Osgood et al (1957) has noted the dimensions are by no means static in nature. The flip-flop in explanatory importance is noteworthy but does not represent a problem in continuing the research. The replication of the pilot research's factor composition is the significant finding in this study.

From this study of perceptual categorization a data base has been constructed. Factor scores have been computed for each of the 72 advertisements studied. These scores were compared to measures of advertisement effectiveness developed in Chapter Four. In Chapter Four a subset of the 72 advertisements was studied to determine the association between an advertisement's factor scores and objective measures of its effectiveness.

CHAPTER IV

ADVERTISEMENT EFFECTIVENESS

ABSTRACT

A subset of the 72 advertisements investigated in Chapter Three were used to determine the relationship between the advertisements' Evaluation, Potency and Activity scores, and, persuasion, recall and recognition measures of advertisement effectiveness. The advertisements were mixed with a series of general interest articles to form a "magazine" format for subject viewing. Subjects reviewed the magazine and were subsequently tested to determine which advertisements were persuasive, recalled and/or recognized.

The Activity and Potency dimensions were found to be significantly related to the effectiveness measures. The Evaluation dimension was not signficantly related to any of the effectiveness measures. There were significant differences in the effectiveness measures found between products advertised. No significant effectiveness measure differences were found for the gender main effect and there was no gender by product interaction.

INTRODUCTION

Pilot research (Ch. 2) and the Perceptual Categorization study (Ch. 3) have shown three dimensions can be factored from subjects' adjective ratings of print advertisements. These dimensions were compared to Osgood's semantic differential dimensions and were named Evaluation, Potency and Activity. The replicability of the dimensions in different research settings is of interest from a psychological point of view. Chapters Two and Three present strong evidence that viewers perceptually categorize print advertisements.

From an application perspective, the interesting issue is the relationship (or lack of) between an advertisement's impact and its Evaluation, Potency and Activity scores. In advertising, the most relevent measure of advertisement effectiveness would assess change in sales as a function of exposure to an advertisement. However, this is not a concept which can be readily measured in a laboratory, or research situation. In fact, the issue of measuring advertisement effectiveness is widely debated in the current advertising field. This problem is so great that for the most part researchers have turned to other more measurable constructs which are assumed to be correlated to changes in sales (Lavidge and Steiner, 1961). Measures of recall, recognition and intent to purchase (persuasion) have become the standards for measuring an advertisment's effectiveness.

Although some researchers have criticized their use (Palda, 1966; Lucas and Britt, 1963; Lucas, 1961) they are relatively simple to employ and are generally considered valid measures of an advertisement's impact (Campbell, 1965). More sophisticated measures of an advertisement's impact such as eye tracking and pupillometric measures have also been shown to be good predictors of advertisement effectiveness. Both of these measures, however, require special equipment (Treistman & Gregg, 1979; Hess & Polt, 1960).

In this study of advertisement impact, the dependent measures were objective measures of persuasion, recall and recognition. The independent variables in this research were the advertisements' Evaluation, Potency and Activity scores, the gender of the subject and the products advertised. The 16 advertisements studied are a carefully selected subset of those investigated in Chapter Three. To choose the 16 advertisements, the seventy-two advertisements used in the Perceptual Categorization research (Ch. 3) were characterized as either High or Low on each of the three dimensions. The three dimensional High/Low categories were considered to form a 2 X 2 X 2 factorial design. Two advertisements were chosen for study from each of the eight cells.

The 16 advertisements were interspersed randomly among 18 general interest articles to form a "slide magazine." Subjects viewed the magazine alone and received as much time as they wished to peruse it. Subjects were not aware that the magazine advertisements were the focus of the study.

It was hypothesized that the three perceptual dimensions, subject gender and product advertised would explain a significant portion of the dependent measure variance. No a priori hypotheses were developed concerning the contribution of the various independent variables. However, sex and product difference codes were included primarily to remove systematic variance from the error term, thereby increasing power in the analysis of the Evaluation, Potency and Activity dimensions.

METHOD

Subjects

Subjects were enrolled in Introductory Psychology at the University of New Hampshire. Completion of this experiment provided partial credit toward the required laboratory experience. One hundred and sixty-seven subjects participated in this study. Of the 167, 64 were male and 103 were female.

Stimuli

The 16 advertisements studied were selected from the seventy-two advertisements included in the Perceptual Categorization (Ch. 3) research. A median split of the factor scores of the seventy-two advertisements was conducted on each of the three dimensions. Advertisements were characterized as High or Low on each dimension depending upon whether they fell above or below the dimensions' median values. A 2 X 2 X 2 matrix was constructed based on the advertisements' High-Low ratings. Each of the seventy-two avertisements were placed in their appropriate cell of the matrix. From each cell, the two most extreme advertisements were chosen for inclusion in the study. Extreme was defined as the sum of the absolute values of an advertisment's difference scores over the three dimensions. Difference scores were an advertisement's Factor Score minus the median value for each dimension.

18 general interest articles were removed from nationally distributed magazines. Topics were varied and included such subjects as health, travel, personal finances and car repair. The cover page of each article was photographed under conditions identical to those used to prepare the advertisement slides (Ch. 3). Articles greater than one page in length were limited to their cover pages.

The 16 advertisements and 18 general interest articles were randomly collated to form the "slide magazine." However, no more than three consecutive articles or advertisements were allowed. Approximately one-half the subjects were exposed to the first, random ordering of the magazine. The other half of the subjects viewed the articles in the same relative positions, but, the advertisements were resequenced to control for order effects.

Measures:

Persuasion: Persuasion was measured by coding changes in purchase intent from pre-viewing to post-viewing of the magazine. The pre-viewing questionnaire asked a series of general questions to disguise its true intent. In General Information I (GI-I), the pre-viewing questionnaire, the questions of interest are 7, 13 and 16. In General Information II (GI-II), the post-viewing questionnaire, the pertinent questions are C, G, and I. GI-I and GI-II are found in sections A.3 and A.4 of Appendix A.

Persuasion is defined in each of the product categories as a change in purchase intent (from GI-I to GI-II) to one of the products advertised in the magazine.

Recall: The recall measure used in this study is shown in section A.5 of Appendix A. Immediately after completing GI-II subjects briefly described the advertisements they could recall. Subjects were given as much time as they desired to complete this task.

Recognition: The 16 advertisements included in the magazine were randomly interspersed with 16 other liquor, jewelry and perfume advertisements. Section A.6 of Appendix A is a copy of the sheet used by the subjects to complete the recognition task. The subjects' task was to record whether or not each of the 32 advertisements were actually included in the magazine.

Procedure

Subjects reported to a waiting room and were informed they would review a magazine. The exact instructions received by the subjects are found in Section A.1 of appendix A. Subjects completed GI-I and were then escorted into the viewing room. The GI-I questionnaire was collected from the subjects prior to their viewing the magazine.

The viewing room was approximately ten by twelve feet in size and contained a slide projector, projection screen and a comfortable chair. Lighting of the room was controlled by rheostat allowing the slides to be viewed in dim light rather than total darkness. The subjects were

seated and controlled the forward/backward motion of the slide carousel from their chair. Subjects were told to relax, enjoy the slides, treat the magazine as they would any other and to get the experimenter (stationed in the next room) when they were finished. Every effort was made to create a relaxed atmosphere with no time pressure on the subjects.

After viewing the magazine, subjects were taken to a separate room where they competed the GI-II questionnaire and the recall task. Both instruments were completed at the subjects' own pace.

The recognition task was completed in another room. Subjects again had access to a remote control slide projector. The subjects completed the recognition task by moving through the 32 slides at their own pace. Subjects were instructed to not go back to slides they had already passed during the recognition task.

Following the recognition portion of the study the subjects were debriefed and reminded the experiment should not be discussed with other students.

RESULTS

Multivariate Analysis of Covariance

A multivariate analysis of covariance was conducted to determine if product advertised, subject gender and/or the advertisements' scores on the Evaluation, Potency and Activity dimensions were good predictors of the advertisements' persuasion, recall and/or recognition scores. Subject data was collapsed to create percentage persuasion, recall and recognition scores for each advertisement. This was done separately for male and female subjects so that gender differences in the persuasion, recall and recognition measures could be assessed. The design of the multivariate analysis of covariance was a sex by product (2 X 3) factorial with advertisement Evaluation, Potency and Activity scores as covariates. The percentage persuasion, recall and recognition measures were the dependent variables. Table 4.1 shows means and standard deviations for the three perceptual dimensions and the persuasion, recall and recognition measures.

Table 4.1
(Means and Standard Deviations of Covariates and Advertisement Effectiveness Measures)

	Mean	Std. Dev.
Evaluation	10.8	6.1
Potency	13.7	4.9
Activity	11.6	3.8
% Persuasion	6.0	4.7
% Recall	36.1	13.6
% Recognition	85.3	8.6

(n=32)

The overall multivariate tests were significant for the covariates and product main effect. The sex by product interaction and the sex main effect were not significant. A significant constant was found for the recognition measure. Table 4.2 summarizes the multivariate tests of significance for each effect. The percentage persuasion, recall and recognition measures computed for male and females corrects for unequal N between genders. However, product groups are not equal N. Liquor was represented by seven advertisements, Jewelry by four and perfume by five.

Table 4.2
(Multivariate Significance Tests)

Effect	Hotel.	App. F	df	Signif
Covariates	1.63	3.57	9,59	.001
Product	1.14	3.81	6,40	.004
Sex	.10	.69	3,21	.563
Sex X Prod.	.40	1.36	6,40	.254

Univariate F tests for product effects show significant differences between products for persuasion and recognition. There were no significant differences between products on the recall measure. In Stepdown F tests with persuasion entered first, both persuasion and recognition remain significant.

Table 4.3 shows mean values and post-hoc significance tests for each product across the dependent measures. The percentage measures shown in tables 4.1 and 4.3 represent the percent of the subjects (collapsed over gender) which

were persuaded by, recalled and recognized for each of the product categories. Using the Newman-Keuls post-hoc procedure, jewelry advertisements were significantly more persuasive than liquor advertisements. Jewelry advertisements were also recognized significantly more than perfume advertisements. None of the other product related post-hoc comparisons were significant.

Table 4.3
(Post-Hoc Significance tests)

Product	Persuasion	Recall	Recognition
	(Percentage of Subjects)		
Liquor	4.70	37.15	84.83
Jewelry	9.00*	40.90	90.13**
Perfume	5.41	30.65	82.11

* $p<.05$ different from liquor.
** $p<.05$ different from perfume.

The overall multivariate analysis of the constants associated with the dependent measures (corrected for product, gender and the covariates) is highly significant, Hotel.=12.84, $F(3,21)=89.8$, $p<.001$. The univariate F tests show a significant constant for only the recognition variable, $F(1,23)=237.2$, $p<.001$. The value of the constant for recognition is estimated at 90.7%.

Table 4.4 shows overall univariate and stepdown F analyses for the covariates (Activity, Potency and Evaluation). The three dimensions are shown to be significant for all the dependent In the Stepdown F tests

only the persuasion and recognition measures remain significant.

Table 4.4
(Univariate and Stepdown F-Tests)

Variable	R	RSQ	F	Sig	Stepdown Sig
Persuasion	.63	.39	5.02	.008	.008
Recall	.63	.39	4.97	.008	.285
Recognition	.58	.34	3.94	.021	.023

The canonical analysis of the covariates resulted in one significant canonical variate explaining 53% of the dependent measures' variance. The purpose of this analysis was to determine the relative contribution of the dependent and independent variables to the overall multivariate significance. Table 4.5 shows the standardized canonical coefficients for each of the dependent and irdependent variables, and their respective correlations with the canonical variable defined by the independent variables.

Table 4.5
(Canonical Variates)

Variable	Standardized Canonical Coefficients	Corr. with the Canonical Variable
Persuasion	.45	.78
Recall	.39	.76
Recognition	.55	.64
Evaluation	.14	.42
Potency	-.92	-.23
Activity	1.17	.62

The regression analyses of the three covariates is shown in table 4.6. This analysis shows individual dimensions regressed against single dependent measures allowing analysis of each of the independent variables with each of the dependent variables. The Activity dimension is related significantly to all three dependent measures. Potency is significantly related to recognition and evaluation shows no significant relationship to the dependent measures.

Table 4.6
(Regression Analysis of Covariates)

Dependent Measure	Dimension	Beta	T Value	Signif of T
Persuasion	Evaluation	.05	.02	.78
	Potency	-.39	-1.82	.08
	Activity	.77	3.65	.00
Recall	Evaluation	.25	1.45	.16
	Potency	-.29	-1.33	.19
	Activity	.65	3.06	.00
Recognition	Evaluation	-.02	.13	.89
	Potency	-.74	3.29	.00
	Activity	.52	2.34	.02

DISCUSSION

This study demonstrates that the perceptual dimensions are related to advertisement effectiveness measures of persuasion, recall and recognition. The Activity dimension was the best individual predictor of the effectiveness measures. The Potency dimension was also strongly related

to the dependent measures, but, its canonical coefficient was negative. This indicates high potency advertisements (status, elegance, power) have less impact on a viewer than low potency advertisements.

The Evaluation factor did not contribute significantly to predicting the dependent measures. This result is confusing given Evaluation's ability to predict attention in the pilot study.

The product advertised was shown to have a significant effect on the dependent measures. Given the luxury status of all the products studied, product effects might be significantly greater were a diverse set of products were tested.

Subject gender did not contribute significantly to the prediction of the persuasion, recall and recognition measures. This is interesting as perfume and jewelry advertisements, intuitively, were expected to impact more heavily on females. The design of the experiment, however, may have negated potentially significant gender effects. The persuasion questionnaires (GI-I & GI-II) were designed to force both sexes to choose an item from each product category. This was accomplished through wording which suggested the subject was definitely going to buy something, either for him/herself, or as a gift. Consequently, the male, who perhaps would never buy perfume, was coerced into choosing a brand. There is, however, no such confusion with

the recall and recognition measures which also show no significant gender effects.

The lack of a gender by product interaction suggests genderes react similarly to an advertisement, independent of the product advertised.

The results suggest a base recognition rate of approximately 90% after correcting for gender, product and perceptual dimension effects. This figure, however, is suspect given the viewing and testing circumstances. The corrected percentage (91%) is greater than the mean percentage for the overall analysis (85%) because the Potency dimension is negatively correlated with recognition.

The significance level of the constant (corrected for gender, product and the perceptual dimensions) for recall was $p<.07$, just above the cutoff of $p<.05$. The constant was estimated at 16%. The range of recall scores for the 16 advertisements was 16% to 56% with a mean of 36%. Taking into account the lack of a significant gender effect these results suggest differences in recall are primarily a function of product advertised and the advertisements' positions on the Evaluation, Potency and Activity dimensions.

There are numerous problems with the research setting used in this study. The "slide magazine" is visually much more dramatic than a regular magazine and a dimly lit room

is not similar to the normal magazine viewing environment. The subjects may have felt time pressure, or, they may have guessed the purpose of the research. Testing of the dependent measures was done immediately following viewing of the slides and no control was included for the order in which the dependent measures were tested.

There are also inherent sampling problems. College students cannot be considered representative of the population which views print advertisements, and, the three products included in the study are anything but a random sample of the product advertised in the print medium. This study must therefore be viewed as a first step toward considering the relationship between the Evaluation, Potency and Activity dimensions and an advertisement's ultimate impact on the viewer.

Although the study is not generalizable to print advertising as a whole, it certainly shows potential for further research in this area. In the sample of advertisements studied there were large correlations between the three perceptual dimensions and the persuasion, recall and recognition measures.

Chapter Five describes the last phase of this research. The relationship between an advertisement's physical characteristics and the advertisement's scores on the Evaluation, Potency and Activity dimensions was explored.

CHAPTER V

ANALYSIS OF PHYSICAL CHARACTERISTICS

ABSTRACT

A comprehensive coding scheme was developed to describe an advertisement in terms of its physical characteristics. The 16 advertisements included in the slide magazine and the 16 "filler" advertisements included in the recognition portion of Chapter Four were coded by a variety of judges. Inter-judge reliability was established for all subjective measures. The coding scheme was culled to eliminate items which did not vary significantly among the advertisements studied. The remaining variables were analyzed to determine their relationship to advertisement Evaluation, Potency and Activity scores. Separate analyses were conducted on the 16 "slide magazine" advertisements to determine the relationship between persuasion, recall and recognition scores and the advertisements' physical characteristics.

Results indicated the physical characteristic coding of advertisements should include scaled rather than categorical judgements. A scaling technique was therefore imposed on the data. The advertisements' physical characteristics were

factored intc seven dimensions which accounted for 72.9% of the total variation. The seven factors explained 48% of the variation in the advertisements' Evaluation, Potency and Activity scores. There was no direct relaticnship found between an advertisement's persuasion, recall and recognition scores and the seven physical characteristic factors.

INTRODUCTION

Previous chapters related an advertisement's impact on the viewer tc the advertisement's scores on the Evaluation, Potency and Activity dimensions. Chapter Five addresses the relationship between an advertisement's physical characteristics and the advertisement's scores cn the three perceptual dimensicns. It was hypothesized an advertisement's many physical characteristics would be perceptually funnelled into a small number of perceptual dimensions related to the advertisement's effect on the viewer. Support for this hypothesis is found throughout Chapters Two, Three and Four.

In this section of the research it was hypothesized a model could be built to describe the relaticnship between the three dimensicns and the advertisements' physical characteristics. It was also hypothesized that individual physical characteristics would not predict advertisement persuasion, recall and recognition scores as well as the composite variables constructed (i.e. Evaluation) in

Chapter Three of this research. To test these hypotheses, it was necessary to construct a Physical Characteristic Coding System. The system considers the physical aspects of copy and product presentation as well as the interpersonal interaction between the advertisement models and the reader. The relationship between the models included in the advertisement was also analyzed.

METHOD

Subjects: Subjects were enrolled in Introductory Psychology at the University of New Hampshire. Completion of this experiment provided partial credit toward the required laboratory experience. Twenty-two subjects participated in the study. Of the 22, 10 were male and 12 were female.

Stimuli

The 32 advertisements used in the recognition portion of the Advertisement Effectiveness (Ch. 4) research were chosen as the stimuli for physical characteristic coding. The 32 advertisements studied included the 16 advertisements from the "slide magazine" and the 16 "filler" advertisements used in the recognition task from Chapter Four. All 32 advertisements had been previously studied (Ch. 2) to determine their scores on the Evaluation, Potency and Activity dimensions. Persuasion, recall and recognition scores had been computed for each of the 16 "slide magazine"

advertisements in Chapter Three of the research. The Evaluation, Potency and Activity scores for the 32 advertisements, and the persuasion, recall and recognition measures for the 16 "slide magazine" advertisements were the dependent measures in this research.

Coding System

The advertisement coding scheme covers four basic areas of the advertisements' physical characteristics. These include:

1. Product Related
2. Copy Related
3. Setting Related
4. Person Related

Product Related coding included codes for type of product (i.e. liquor); the location of the product within the advertisement; and the area encompassed by the product within the advertisement. To code location and area encompassed, a template was constructed which divided the advertisements into nine sections (3 rows by 3 columns). Location was coded as the row, column combination which defined the center of the product's illustration in the advertisement. Area encompassed was defined in terms of the number of template rows and columns the product illustration covered.

Copy Related codes were defined by the Flesch Readership Ease and Human Interest Scores. These were calculated following Flesch's procedures as described in The Art of Readable Writing (Flesch, 1949). A code for total number of words was also included. Copy location and the area encompassed by copy were coded using the same template and criterea which defined the product related codes. As the product and copy codes were easily quantifiable, no reliability estimates were computed for these characteristics.

Setting Related codes were divided into four categories: General, Spokesperson, Dress and Personal Relationships. The General category defined an advertisement's basic setting in terms of lighting level, indoors/outdoors, city/rural, etc. The Spokesperson category defined characteristics of the person or people (if any) who directly promoted the product to the reader. Dress codes were defined as Casual, Labor, Professional and Elegant. The apparent Personal Relationships (if any) of people within the advertisements included yes/no answers for relationship categories of Friends (same sex), Friends (opposite sex), Enemies, Acquaintances and Professional. The total number of people in the advertisement was coded as either zero, one, two or greater than two. The advertisements general pitch to the reader was defined by yes/no codes indicating if an advertisement was informational, presented positive emotional affect,

presented negative emotional affect and/or presented a humorous appeal to the reader.

The Person Related codes of the advertisement's physical characteristics defined interpersonal interaction using nonverbal body cue codes. Codes for relaxation and symmetry of hands, neck, face and body of advertisement models were included. Eye contact, proximity, body orientation, body lean, and smiling were coded both for interaction between people within the advertisement and for interaction with the reader.

Setting and Person Related codes were analyzed for coder reliability in judging each of the measures. A complete coding scheme is included in Appendix A, section A.7.

Coding Procedure

The 32 advertisements were spaced equally around a large room and then taped to the walls. Ten "test" advertisements were taped to the front blackboard in the room.

In a 90 minute instructional session, subjects were informed of the purpose of the research and trained in the use of the coding scheme using the ten test advertisements. Subjects were randomly divided into two groups, each of which coded one-half of the 32 advertisements. Subjects

coded advertisements at their own pace.

Coding sheets were assigned a value to define the person who coded the advertisement. All sheets were then key punched and read onto the disc area of a DEC 1090 computer for analysis.

RESULTS

Analysis of Physical Characteristic Codes

Scaling of Codes: The physical characteristic coding scheme was constructed to provide judgements defining each advertisement's physical composition. Product codes (type, location, area) and Copy codes (Flesch scores, location, area) were computed from the ratings of a single judge. As these jugements were clearly defined through the use of templates and counting procedures, there was no concern for reliability.

The remainder of the variables coded were subjective in nature and required multiple judges to form a reliable assessment. It was believed the advertisements would be reliably coded across the majority of the variables. This was found to be the case as demonstrated by the reliability coefficients (dichotomous variables), and the percentage agreement measures (categorical variables), found in the last column of the coding scheme shown in Appendix A, section A.7. The reliability estimates provided for the

dichotomous variables, however, ignore "don't know" and "not applicable" responses, which in many instances represented significant portions of the judges ratings. For many of the setting variables, the judges use of "don't know" and "not applicable" was inconsistent. This appeared to be a function of the judges willingness to infer what the setting was like, even though the advertisement did not clearly present a setting. There also appeared to be some figure-ground influences in that some judges would ignore settings which weren't obvious. As more judges chose "don't know" or "not applicable" on a variable it was apparent the advertisements became more ambiguous on the particular variable in question. This indicated the coding scheme was forcing dichotomous and categorical scales on stimuli which should have been judged using interval scales.

The phenomenon of judges inferring an advertisement's setting wher the advertisement was ambiguous made scaling the data possible. Advertisements which clearly presented specific codes, were coded in the correct fashion by close to 100% of the judges. Similarly, when an advertisement obviously did not deserve to be coded in a particular fashion the judges avoided those codes. As advertisement ambiguity varied, the percentage of judges picking a code tended to decrease as the ambiguity of the code increased. This being the case, a post-hoc scaling technique was imposed on the data where possible.

The majority of the variables were coded either yes, no, don't know or not applicable. These variables were scaled by recording the percentage of judges who chose "yes" as their response. This provided an interval scale from 0% to 100%. As more judges chose "yes," an advertisement's score on that particular varible increased. "Don't knows," "not applicables" and "no" responses were treated as non-yes answers. Conceptually, the new scaled variables are different from the original dichotomous variables in that only absolute "yes" answers contribute to an advertisement's score. The assumption is that as more judges answer "yes", an advertisement should be scored more highly on the particular variable in question.

Setting Related codes based on pairs of adjectives were recoded to provide scaled data. In these instances, one of the adjectives from each pair was arbitrarily picked as most representative of the variable. For example, the scene-portrait dichotomy was turned into a scale defining the percentage of judges who felt the advertisement portrayed a scene. This was done by coding the percentage of judges who picked "scene" for each of the 32 advertisements. The remainder of the setting variables were coded similarly where the technique was applicable. Adjectives chosen for scaling included: scene, background, outdoors, invited in, rural, busy, private, moving, hard focus and high lighting.

Similar scales were constructed for the Body Orientation and Smiling variables. Variables which could not be scaled due to their inherent categorical nature included age and sex of the spokesperson, the proximity variables (required a not applicable category) and many of the product and copy related codes.

Variable Reduction: It was necessary to eliminate a few of the coded variables because they exhibited no variation. Variables eliminated through this analysis included:

*familiarity of spokesperson
*expert versus non-expert spokesperson
*labor dress
*enemy relationship
*negative emotional affect
*spokesperson's age

As well as eliminating variables it was necessary to reduce the number of categories some of the variables were originally coded on. For example, sex of the spokesperson was coded as male in only two of the 32 advertisements and female in only four. The larger N cells included couples as spokespeople, and no spokesperson at all. Consequently, sex of spokesperson was coded into three categories which included: single (male or female); couples; or no spokesperson. Color was recoded to differentiate between those advertisements which exhibited a dominant color and those which did not.

Advertisement Data File

As ultimately the unit of analysis to be considered was the advertisement, it was necessary to construct a new data file from the numerous files which have been built throughout this project. This data file included the following variables for each of the 32 advertisements studied:

*Evaluation, Potency and Activity scores (Ch. 3).
*Persuasion, Recall and Recognition scores (Ch. 4). (magazine advertisements only)
*Physical Characteristics codes (Ch. 5).

Descriptive statistics for each of these variables can be found in the Chapters noted above.

Analysis of Scaled Variables

The initial analysis of the scaled physical characteristic variables consisted of creating a correlation matrix of the physical characteristics with the Evaluation, Potency and Activity dimensions, and, the Persuasion, recall and recognition measures. Table B.1 of Appendix B reports all significant correlations ($p<.05$). Correlations not reported in this table were non-significant.

Factor Analysis of Scaled Variables

A principal component factor analysis followed by Quartimax rotation was conducted in an attempt to reduce the number of physical characteristic variables. All of the scaled physical characteristic variables were entered into the analysis. Factors with an eigenvalue of greater than 2.0 were retained for rotation. Table 5.1 shows the initial factor extraction. The analysis resulted in the retention of seven factors which explained 72.9% of the total variation.

Table 5.1
(Initial Factor Extraction)

Factor	Eigen.	% of Var.	Cum. %
I	12.41	25.3	25.3
II	8.07	16.5	41.8
III	4.83	9.9	51.7
IV	3.30	6.7	58.4
V	2.79	5.7	64.1
VI	2.26	4.6	68.7
VII	2.08	4.2	72.9

The rotated factor matrix showed the variables included in Table 5.2 to be the prime contributors to each of their respective factors.

Table 5.2

Factor	Variable	Loading
I	*scene included in advt.	.91
	*acquaintance relationships	.88
	*background is evident	.86
	*number of people in advt.	.84
	*friends of opposite sex	.81

	*casual setting	.81
	*a moving setting	.80
	*people smiling at each other	.76
	*outdoors	.69
	*positive emotional affect	.64
	*area devoted to product	-.51
II	*spokesperson evident	.93
	*attractive spokesperson	.93
	*eye contact with reader	.89
	*spokesperson oriented to reader	.79
	*spokesperson smiling at reader	.75
	*relaxed neck	.72
	*reader invited into advt.	.71
	*relaxed face	.69
	*relaxed body	.67
III	*elegant setting	-.84
	*high lighting	.72
	*humor	.64
	*elegant dress	-.62
	*casual dress	.56
	*outdoors	.42
IV	*professional setting	.85
	*professional dress	.81
	*professional relationship	.76
V	*labor setting	.65
	*friends of same sex	.65
	*eye contact within advt.	.64
	*busy setting	.51
VI	*Informational appeal to reader	.84
	*total words	.76
	*area devoted to copy	-.65
VII	*symmetrical arms	.61
	*symmetrical hands	.60
	*invited in	-.33
	*area devoted to product name	.32
	*people smiling within advt.	.29
	*Flesch human interest score	-.29
	*elegant dress	.29

As it was of interest to determine the relationship of the factor scores to the three perceptual dimensions and the persuasion, recall and recognition measures, the SPSS Factor

procedure was instructed to output each advertisement's seven factor scores. These scores were added to the existing data file.

Analysis of Categorical Variables

There were a number of variables which could not be scaled. These variables were analyzed as categorical variables. These included:

*Product Type (liquor, jewelry, perfume)
*Product Row Location (top, middle, bottom)
*Product Column Location (left, middle, right)
*Product Row Name
*Product Column Name
*Theme Row Location
*Theme Column Location
*Copy Row Location
*Copy Column Location
*Color (dominant color vs. no dominant color)
*Spokesperson(s) Sex (single, couple, no spokes.)
*Proximity Within Ad. (touch to >84", not app.)
*Proximity to Reader (as above)

Each of the categorical variables were subjected to three separate manovs. The first used Evaluation, Potency and Activity measures as the dependent variables. The second used Persuasion, Recall and Recognition measures as the dependent variables, and the third used the seven physical characteristic factor scores as dependent measures. Each categorical variable had to be analyzed separately as the small number of advertisements studied did not allow for analysis of interaction terms.

There were no significant ($p<.05$) relationships between any of the categorical variables and the persuasion, recall and recognition measures. The proximity variables (within and with reader) and product row were significantly related to both the three pereceptual dimensions andthe seven physical characteristic factors. Table 5.3 describes the multivariate significance and Table 5.4 provides group means and post-hoc significance tests for variables whose stepdown F-tests were significant. All post-hoc comparisons were done using the Tukey HSD method and are significant at the $p<.05$ level.

Table 5.3
(Multivariate F-tests)

	Three Dimensions			Seven Factors		
	F	df	Sig.	F	df	Sig.
Prod. Row	3.07	6,52	.010	4.45	14,44	.001
Proximity						
within	9.69	9,74	.000	3.44	21,62	.001
reader	5.05	12,71	.001	3.79	28,78	.001

Table 5.4
(Post-Hoc Comparisons (means))

	Eval	Pote	Acti	Fac2	Fac4	Fac5	Fac7
Product Row							
Top	13.4			17.5	52.3		-7.3
Middle	7.6			52.6	57.8		45.3
Bottom	13.7			-37.3	-34.0		-22.7
Proximity Within							
Touch	15.6	13.4		-50.1		-20.0	-19.9
1-18"	16.2	19.1		40.0		5.8	-3.3
19-84"	10.9	18.3		-35.2		-33.5	-28.5
not app.	6.0	14.0		55.2		35.1	35.7
Proximity to Reader							
1-18"	8.9			71.5	-31.3	9.8	14.4
18-48"	14.8			-5.4	8.4	-36.0	-.5
49-84"	15.7			-37.8	-6.1	-9.3	-28.5
GT 84"	13.0			-84.3	-14.0	-6.2	-33.2
not app.	4.5			-18.4	70.1	63.8	53.4

Factor Relationship to Dependent Measures

Evaluation, Potency and Activity: To determine the seven factors relationship to an advertisement's scores on the three perceptual dimensions a multivariate regression analysis was conducted. The advertisements' seven physical characteristic factor scores were the independent variables and Evaluation, Potency and Activity scores for the advertisement's were the dependent measures. The overall multivariate test was significant, Hoetl.=2.22; $F(21,62)=2.16$, $p<.01$. Table 5.5 shows the dimensional reduction analysis and univariate and stepdown F tests for these analysis.

Table 5.5

Dimensional Reduction Analysis

Root	Wilks	F	df	Signif.
1 to 3	.21	2.22	21,64	.008
2 to 3	.45	1.77	12,66	.052
3 to 3	.80	1.12	5,66	.350

F-tests

	Univariate			Stepdown		
	R	F(7,24)	Sig.	F	df	Sig
Eval.	.73	3.93	.005	3.93	7,24	.005
Pote.	.48	1.04	.425	1.00	7,23	.454
Acti.	.52	1.32	.288	2.31	7,22	.053

The two significant canonical roots account for 48% of the variance among the Evaluation, Potency and Activity dimensions. The standardized canonical coefficients for the two significant roots are shown in Table 5.6. Root One loads heavily positive on Evaluation and slightly negatively on the Activity dimension. It also loads heavily negatively on Factors Two and Five. Root Two loads highly positively on Activity and highly negatively on the Potency measure. On the other side of the equation Root Two loads highly positively on Factor Two and highly negatively on Factor Seven. Factor Four also shows a considerable negative standardized canonical coefficient for Root Two.

Table 5.6
(Standardized Canonical Coefficients)

	Root One	Root Two
Eval.	.95	.31
Pote.	.29	-.97
Acti.	-.36	1.07
Fac. I	-.29	.30
II	-.53	.69
III	.18	-.29
IV	.09	-.48
V	-.59	-.22
VI	.18	.21
VII	.21	-.80

Persuasion, Recall and Recognition: An analysis identical to the one above was conducted substituting the persuasion, recall and recognition measures of advertisement effectiveness for the Evaluation, Potency and Activity measures. This analysis included the 16 advertisements which were part of the "slide magazine." There were no significant canonical roots found in this analysis ($p<.39$).

DISCUSSION

Coding Scheme

The physical characteristic coding scheme performed reasonably well in its trial run. However, it clearly requires substantial changes before it is used again. In hindsight, it is not surprising that the scaling of

variables became an issue. An advertisement is a complex stimulus which is perceived across a variety of dimensions. To force a judge to put advertisements into specific, well defined categories, was not a reasonable assignment. By scaling the variables wherever possible subtle distinctions were extracted from the data. These distinctions would have been lost in an analysis of categorical data. This increased the probability of finding the truly significant relationships in the data.

The variables included in the physical characteristic coding scheme were fairly comprehensive in nature. Once factored, they explained 48% of the variation in the advertisements' Evaluation, Potency and Activity scores. A large portion of the remaining 52% may be explained by the same variables once the training of judges is refined and scaling techniques are improved. It is likely that a large part of the unexplained variation in the Evaluation, Potency and Activity dimensions was the result of the crude measuring instruments and techniques applied to the coding of the advertisements' physical characteristics.

The necessity of eliminating some variables from study due to a lack of variation within the advertisements points to both the inadequacy of the advertisement sample, and the fact that some characteristics will never be seen in a commercial advertisement. For example, it is highly unlikely a liquor, jewelry or perfume advertisement will

display enemies as part of its presentation. It is also rare in these product categories to find spokespersons who are either under 20 or over 40 years of age. Consequently, some variables of theoretical interest do not exhibit enough variation to allow assessment of their effects. The solution to this problem is the creation of "laboratory" advertisements where the experimenter can vary the variables of interest at will. However, a finished print advertisement is time consuming and expensive to produce.

It is also important to note that the physical characteristic coding scheme employed in this research is not directly applicable to either television or radio advertising. The time component found in these other advertising mediums does not lend itself to being coded with a static system such as has been developed in this research.

Individual Physical Characteristics

Table B.1 of Appendix B show a number of significant correlations between individual physical characterisitics, the Evaluation, Potency and Activity dimensions, and, the persuasion, recall and recognition measures. The significant correlations (absolute value) between individual physical characteristics and the perceptual dimensions were between .32 and .78. The range of significant correlations between individual physical characteristics and the persuasion, recall and recognition measures was .30 to .51.

The categorical variables reported in Tables 5.3 and 5.4 showed significant relationships with the Evaluation, Potency and Activity dimensions, but not with the persuasion, recall and recognition measures.

The results of these analyses demonstrate the large number of individual physical characteristics which were related to the advertisements' perceptual dimension scores, and the advertisements' persuasion, recall and recognition scores. On the basis of number of significant relationships, and size of the correlation coefficients, it is possible tc argue that the physical characteristics predicted the advertisements' perceptual dimension scores to a greater degree than the advertisements' persuasion, recall and recognition scores. However, it must be noted the perceptual dimension analyses were based on sample sizes of 32, where as all analyses of the persuasion, recall and recognition measures were based on a sample of 16 advertisements. Thus, the analyses of the physical characteristics was biased toward showing a greater number of significant relationships for the three perceptual dimensions.

It is clear that the physical characteristics of an advertisement are determinants of both an advertisements Evaluation, Potency and Activity scores, and, the advertisments persuasion, recall and recogntion sccres. The number of significant relationships is so large, however, as

to be overwhelming and difficult to interpret. The factor analysis of the scaled data was designed to help reduce the number of physical characteristic items which had to be simultaneously evaluated.

Physical Characteristic Factors

The seven factors retained for rotation in the factor analysis explained 72.9% of the variation in the advertisements' physical characteristics. Other factors were extracted and could have been retained, but, they explained a very small percentage of the variation and were extremely difficult to interpret. The factor analysis included only the scaled variables. The categorical variables will be addressed in the next section of the Discussion.

The first factor extracted explained 25.3% of the total variation. It was named the "Interpersonal" factor on the basis of its loading pattern. Advertisements scoring highly on this factor exhibited people enjoying their surroundings, and each other. There was very little "push" given to selling the product in advertisements scoring highly on the Interpersonal factor. The Interpersonal factor differentiated advertisements primarily in terms of presentation of a happy, warm, fun, casual setting with people enjoying life.

The second factor explained 16.% of the total variance, or a little greater than one-half of the variance explained by the Interpersonal factor. The second factor was named the "Invite" factor based on its loading pattern and a subjective assessment of the advertisements in terms of their Invite scores. In advertisements scoring highly on the Invite factor the reader is obviously the point at which the advertisement is focused. High scoring Invite advertisements either displayed a product in the middle of the page, or had a spokesperson promoting the product directly to the reader. The spokesperson(s) in these advertisements tended to be perceived by the judges as being very close to the reader. High scoring Invite advertisements included people who were oriented towards the reader, had eye contact with the reader and were dressed non-casually. When no spokesperson was present, the product was prominently displayed on the page. With people present the product still remained in full view of the reader. Even though the product was clearly displayed in these advertisements there was no hint of "push" from the advertisements. High scoring Invite advertisements were fairly subdued in their approach to selling the product.

Factor Three explained 9.9% of the total variance and proved to be difficult to interpret. Based on its loading pattern the factor would appropriately be named "Deliberately Casual." The loadings suggest an avoidance of elegance with a stressing of humor and casualness. However,

in subjectively surveying the advertisements in terms of their scores on this factor I saw no "Deliberately Casual" thrust in the advertisements scoring highly on this factor. In fact, the advertisements appeared to be randomly ordered. Fortunately, however, this factor did not contribute substantially to the factors' ability to predict the Evaluation, Potency and Activity scores of the advertisements. Therefore, it is not critical that it be clearly interpreted. For descriptive purposes it will be named "Deliberately Casual".

Factor Four accounted for 6.7% of the variation and was named the "Professional" factor. The variables loading highly on this factor were professional setting, professional dress and professional relationships between people within the advertisement. A subjective viewing of the advertisements in terms of their Professional factor scores suggests something more than just a professional setting is involved in this factor. Advertisements scoring low on the Professional factor included "regular" people exhibiting eye contact with the reader. They were also perceived as being in close proximity to the reader.

The air exhibited by advertisements which scored low on the Professional factor was one of a peer relationship with the reader. Advertisements scoring high on the Professional factor either exhibit products (no people in advertisement), or well dressed persons putting a hard sell on the product.

In the high scoring Professional advertisement there is little evidence of fun or casualness. The factor might also be named the "superior" factor as advertisements scoring highly on the factor appear to be flaunting their products at those whc dc not have the product.

Factor Five explained 5.7% of the variance and was named the "Success" factor. The loadings would suggest a friendly work atmosphere. However, in subjectively viewing the advertisements in terms of their scores on this factor it is clear the dominant change from low to high scoring advertisements is in the presentation of success. Advertisements scoring high on the Success factor tend to have no people in them. They present a product and explain that a goal has been reached when you purchase the product. Not surprisingly, these advertisements tend to promote the expensive brands of their respective product categories. The difference between this factor and the Prcfessional factor is that the advertisements scoring highly on the Success factcr invite the reader into the advertisement or at least imply the reader has earned the right to purchase the product. While the Professional factor demonstrates superiority, the Success factor welcomes the reader to the club.

Factor Six explains 4.6% of the variance and has been named the "Theme" factor. As the negative loading on the area devoted to copy implies, there is little space devoted

to copy in advertisements scoring highly on this factor. The other prominent loadings indicate a large number of words with an informational appeal are characteristic of high scoring Theme advertisements. These loadings seem contradictory, but upon surveying the advertisements it was clear advertisements scoring highly on this factor all present a distinct theme to the reader. There were usually large amounts of copy associated with the theme but the copy was in very small print and in some out of the way location. The theme itself was in large print and only a few words in length. Examples of themes are: "A woman's never to young to wear Wedgewood" and "The French call such thoughts fantasy." The themes in these advertisements are usually carefully coordinated with the illustration portion of the advertisement.

Factor Seven explains 4.2% of the total variation and has been named "Direct Sell." Advertisments scoring high on this factor take the direct approach to selling the reader the product. The high scoring advertisements on the Direct Sell factor have one or no people, emphasize the product and do not provide much in the way of a background or scene. Persons (if any) in the high scoring Direct Sell advertisement stare directly at the reader and are perceived as being close to the reader. High scoring Direct Sell advertisements do little to encourage a warm interpersonal relationship between the advertisement and the reader. They depend very little on people for their impact.

The sever factcrs extracted from the data in this research ranqe from the highly personal Interpersonal factor to the hard sell Direct Sell factor. Given the luxury and personal status of the products studied in this research it is not surprising to see the more interpersonal factors account for larqer portions of the variance than the non-pesonal factcrs. Resea rch usinq less personal products and a less interpersonally oriented codinq scheme could result in very different factor structures.

Categorical Variables

Due to the inherent categorical nature of many of the product and ccpy variables they could not be included in the factor analysis. The relationship of these categorical variables tc the Evaluation, Potency and Activity dimensions, and their relationship to the seven physical characteristic factcrs discussed in the previous section, were analyzed separately. Categorical variables which were not signficicantly related to either the three dimensions or the seven factors were product type, locaticn cf product name, locaticr cf theme and location of copy.

Throughout this research, product type has not shown significant differences for various dependent measures. However, the question remains whether the three products included in this research are too narrow in scope. If a more diverse set of products was studied significant product

effects may result.

The location of a product's name, the location of an advertisement's theme and the location of the advertisement's copy showed no relationship with the three perceptual dimensions or the persuasion, recall and recognition measures. This suggests a substantial amount of leeway can be given to the person structuring the advertisement. This study, however, does not provide definitive proof that these variables are unimportant. The row by column measuring instrument was at best crude. Before any firm conclusions are reached concerning the impact of relocating themes, copy and product name, a much more detailed study must be undertaken.

The three categorial variables which did relate significantly to both an advertisement's three dimension scores and the seven factors were: row location of the product, proximity of people within the advertisement, and perceived proximity of the reader to people within the advertisement. The row location (top, middle or bottom) of a product was signficantly related to an advertisements Evaluation score and its scores on the Invite (II), Professional (IV) and Direct Sell (VII) factors. An advertisement which illustrated the product in the middle row of the illustration scored significantly lower on the Evaluation dimension than those with product illustrations either on the top or bottom of the advertisement. This

result is consistent with what one would expect as highly evaluative advertisements present sex, love, friendship and touching. If the product is occupying the center of the advertisement it is difficult to present a scene which depicts these interpersonal characteristics.

Conversely, a product positioned in the center of an advertisement is associated with higher scores on the Invite, Professional and Direct Sell factors. These three factors yield relatively higher scores to advertisements where the product is prominently displayed.

The proximity of people within an advertisement is significantly related to an advertisement's scores on the Evaluation and Potency dimensions, and on the Invite (II), Success (V) and Direct Sell (VII) factors. The interpretation of the between group differences for the Evaluation factor shows that if an advertisement is to score highly on Evaluation there must be at least two people in it. The mean Evaluation score for an advertisement with greater than or equal to two people is 14.3. The mean for an advertisement with less than two people is 6.0.

The Potency dimension analysis shows Potency was best displayed when people were less than 18 inches apart but not touching. This was logical given touching implies caring, but, being close without touching can certainly imply power (Potency).

The analysis of the proximity of people within an advertisement in relation to the Invite, Success and Direct Sell factors shows advertisements score high on these factors when there are less than two people included in the advertisement. If there are two or more people in the advertisement the highest scores on the Invite, Success and Direct Sell factors will be obtained if the people are less than 18 inches apart, but not touching each other. These results are consistent with the earlier factor interpretations in that if an advertisement scores high on these factors the reader is made to feel welcome. In advertisements where people are touching each other there is a tendency for the reader to feel uninvited.

The reader's perceived proximity to the people in an advertisement was significantly related to the advertisements' scores on the Evaluation dimension, and on the Invite (II), Professional (IV), Success (V) and Direct Sell (VII) factors. The highest Evaluation scores are obtained by advertisements where the reader feels he/she is between 19 and 48 inches from the people in the advertisement. Advertisements which do not include people in them demonstrate significantly lower Evaluation scores than advertisements which include people. It is interesting to note that relatively low Evaluation scores are obtained by advertisements where the reader perceives the person(s) in the advertisement is closer than 19 inches. This may be a result of the person in the advertisement invading the

personal space of the reader without an invitation. Or, it may be because advertisements which present persons close to the reader leave no room to present a highly evaluative setting.

The closer the reader perceives him/herself to be to the persons in an advertisement the higher the advertisement scores on the Invite factor. For the Professional, Success and Direct Sell factors significantly higher scores are obtained for advertisements in which there are no people.

The value of the categorical variables is considerable in helping to more clearly define the structure and true nature of the seven physical characteristic factors. From the categorical data analyses, it can be concluded the Professional, Success and Direct Sell factors are primarily non-people factors. Advertisements score highly on these factors when the product is illustrated in the middle of the page and when there are no people in the advertisement.

The unique interaction between reader and advertisement described by the Invite factor also becomes apparent. Advertisements score high on the Invite factor when the product is illustrated in the middle of the advertisement, or when there is one person included in the advertisement. However, advertisements score extremely high on the Invite factor when the reader perceives the person in the advertisement as close to him/her (the reader). The conclusion is that the reader can be "invited" into an

advertisement either by presenting the product directly to the reader, or by having a spokesperson for the product oriented directly at the reader.

Predicting Evaluation, Potency and Activity Scores

The multivariate analysis relating the seven factors' ability to predict an advertisement's Evaluation, Potency and Activity scores. yielded two signficant canonical roots. The two roots explained 48% of the Evaluation, Potency and Activity measure variance. The first root primarily describes high Evaluation scores in terms of low scores on the Invite and Success factors. This interpretation is consistent with conclusions reached in the previous section. As an advertisement's score decreases on the Invite and Success factors the advertisement begins to exhibit scenery, people, touching, etc. These are all characteristics assocciated with high Evaluation scores.

The second significant root relates increasing Activity dimension scores primarily with decreases in the Direct Sell factor and increases in the Invite factor. Decreases in the Professional factor are also associated with increases in Activity dimension scores but to a lesser degree than the influence exhibited by the Direct Sell and Invite factors.

Conversely, as Activity dimension scores were changing as a function of the factors noted above, similar but opposite changes occured in the advertisements' Potency

scores. As the Professional and Direct Sell factors increase so do Potency dimension scores. As Invite factor scores increase Potency factor scores decrease.

It can be concluded that the seven factors do significantly predict an advertisement's position on the three perceptual dimensions. Therefore, it may be possible to use this information to create advertisements with predetermined scores on the Evaluation, Potency and Activity dimensions. Given the population studied in this research, an effective advertisement is one which scores highly on the Activity dimension. This would suggest advertisements be created with emphasis on variables loading highly on the invite factor. At the same time, variables associated with the Direct Sell and Professional factors should be avoided.

To create an advertisement which scores highly on the Evaluation dimension you would simply avoid those variables which load highly on the Success and Invite factors. High Potency advertisements would be constructed by emphasizing variables which load highly on the Direct Sell and Professional factors, while avoiding variables associated with the Invite factor.

The above analysis is obviously an oversimplification of what must occur in the creation of an effective advertisement. It is, however, a step toward the scientific evaluation of advertisement components in terms of their ultimate effect on the viewer.

Predicting Persuasion Recall and Recognition

This study did not show a significant relationship between the seven physical characteristic factors and the persuasion, recall and recognition measures. However, the seven factors were significantly related to the Evaluation, Potency and Activity dimensions. This further suggests that the advertisements' physical characteristics may not directly effect advertisement persuasion, recall and/or recognition, but, that they influence effectiveness through manipulation of the Evaluation, Potency and Activity measures.

CHAPTER VI

SUMMARY/PROBLEMS/FUTURE RESEARCH

Research Summary

Considered together, the previous five chapters are the first steps towards the development of a comprehensive model of advertisement perception and effectiveness. The model predicts advertisement pesuasion, recall and recognition through a multi-stage process. The uniqueness of the model is in its inclusion of the three perceptual dimensions: Evaluation, Potency and Activity. Advertisement scores on the three dimensions were found to be better predictors of advertisement persuasion, recall and recognition than either the advertisement's physical characteristics or the viewers' personality profiles.

Throughout this research the three perceptual factors reported have been compared to Osgood et al.'s (1957) original Semantic Differential dimensions. It can be argued, especially in the case of the Activity dimension, that the comparisons between this research's factors and those reported by Osgood (1957) are tenuous. However, independent of the stimuli tested, three perceptual

dimensions explain the majority of peoples' perceptions (Osgood et al., 1957). These three dimensions are consistently reported in the literature as Evaluation, Potency and Activity. In this research, the same factor names were chosen. Whether these names best describe the factors is not nearly as important as the fact that three consistent, stable perceptual dimensions were found.

Advertisement Oriented research was defined earlier as research which explained advertisement persuasion, recall and recognition as a function of the advertisements' physical characteristics. Person Oriented research was defined by studies where viewer characteristics (i.e. personality) are assumed to be responsible for an advertisement's effect. The model defined in this research is a combination of both the Advertisement and Person Oriented paridigms. Rather than consider viewer personality, however, the Person Oriented section of this research examines the way viewers' process information. Osgood (1957) and Mehrabian (1972) suggested complex stimuli are perceived across three dimensions: Evaluation, Potency and Activity. Chapter Two and Three of this research demonstrated print advertisements can be described by three similar dimensions. Given that viewers funnel perceptions of advertisements into three perceptual dimensions it was hypothesized an advertisement's score on the three dimensions should predict the advertisement's effect on the viewer. Chapter Four demonstrated the Evaluation, Potency

and Activity dimensions' ability to predict advertisement effectiveness measures of persuasion, recall and recognition.

Chapter Four's canonical analysis results showed the Evaluation, Potency and Activity dimensions acccunted for 53% of the persuasion, recall and recognition measure variance. This suggests a new approach to studying advertisement effectiveness. Rather than directly relating an advertisement's individual characteristics tc persuasion, recall and recognition, it may be possible to explain greater amounts of the dependent measure variance by using the three perceptual dimensions as an intermediary. If an advertisement's scores on the three perceptual dimensions are closely related tc the advertisement's effect on the viewer, it must be assumed the three perceptual dimensions intervene between an advertisement's physical characteristics and its ultimate impact. Advertisement Oriented research has ignored the intermediate step of cognitive processing.

The canonical analysis from Chapter five showed 48% of the variation in the advertisements' Evaluation, Potency and Activity dimension scores was explained by seven physical characteristic factors. This result further demonstrates the viability of considering an advertisement's physical characteristics in terms of their impact on the three dimensions rather than through directly relating physical

characteristics to persuasion, recall and recognition scores. In this research the inclusion of the three perceptual dimensions significantly increased the amount of persuasion, recall and recognition variance which was explained by the model.

Research Generalizability

There is no doubt that this research must be considered a pilot project toward the development of a comprehensive model of advertisement perception and effectiveness. The sampling and methodological restrictions of this research are such that the conclusions reached can at best be cautiously accepted. Sampling problems are inherent in the advertisements studied, and the subjects used in the research are anything but a random sample of the people who view print advertisements daily.

The advertisements were chosen from the liquor, perfume and jewelry product categories thus generalzing to other products is impossible. As well, the products themselves are all luxury items with little relationship to many of the day to day products we all purchase and see advertised. In this research, a conscious attempt was made to select products which were similar in nature. By choosing similar products, the relationship of the Evaluation, Potency and Activity dimensions to the persuasion, recall and recognition measures was emphasized. Products substantially

different in nature may result in highly significant product main effects. This is not denied, but, in this research it was controlled for. This was done to be certain the effects of the three perceptual dimensions would not be lost in a myriad of powerful product effects.

The number of advertisements studied was inadequate for reaching reliable conclusions. In the magazine testing procedure only 16 advertisements were measured to determine persuasion, recall and recognition. A much larger sample of advertisements must be studied before firm conclusions can be reached.

There is also the problem of the conditions under which the advertisement effectiveness testing was conducted. A slide magazine with 16 advertisements is not at all similar to the way in which an magazine is normally viewed. This casts serious doubt onto the external validity of the effectiveness measures (i.e. recall) used in this research.

The advertisements studied in the research were all print advertisements. Therefore, it is impossible to generalize this research to other advertising mediums such as television and radio. Although the basic model could be adopted in all other advertising mediums there was no attempt in this research to design instruments directly compatible with other advertising mediums.

All of the subjects included in this research were college students and the vast majority of them were between 18 and 20 years of age. This sample restriction severely limits the ability to generalize results to the population as a whole.

Methodologically, the analyses used were correct, but, in many cases there is some danger that the limited sample sizes employed in the research could have produced unreliable and unreplicable results. Consequently, as noted previously, all conclusions and results must be accepted cautiously. The physical characteristic coding scheme also raises some methodological issues. The scaling of many of the variables was conducted arbitrarily after it was determined that dichotomous and categorical data did not accurately represent the advertisements. As well, the scales were built from the data of only 11 judges. Future research should deal with this problem ad-hoc without convenient data manipulation at the time of the analyses.

Future Research

As is evident from the caveats noted above, there is much which can be done to improve on this piece of research. More product diversity and a larger number of advertisements is a must for future research. If this is impossible, it may be prudent to study only one product category at any point in time. This way a reliable data base could be built

product by product. Product differences could be determined as new products were added to existing knowledge. The addition of other products to the overall picture would provide reliable estimates of product effects, and large sample sizes will help in stabilizing the multivariate analyses.

The population of subjects used in future research should also be varied. It is possible that personality variables might significantly contribute to the model if the population studied exhibited widely diverse personalities. More interesting, however, would be the study of varied "lifestyle" segments of the population. For example, would today's young professional perceive and react to advertisements similar to University of New Hampshire college students? I would hypothesize that the perceptual dimensions would remain the same, but, would not be surprised to find the three dimensions contributed differently to advertisement effectiveness. In this study assertiveness, aggression and independence (Activity) were associated with advertisement pesuasion, recall and recognition. In a study of professional people it might be logical to expect Potency to contribute most to the advertisement effectiveness measures. In children, the Evaluation dimension may be the best predictor of advertisement persuasion, recall and recognition.

Ongoing research in this area will also have to improve the viewing conditions under which the subjects view the magazine. Ideally, a true print magazine would be developed and printed. The magazine would contain preselected advertisements and would be read in the privacy of one's own home. This would considerably raise the reliability of the effectiveness measures; would allow the assessment of large numbers of advertisements and product categories; and would remove any perceived time pressure from the viewer.

Future research must also revise the physical characteristic coding scheme so that judges are working with scales rather than absolute categories. This could be the most difficult problem of all. However, its solution is necessary if the relationships between an advertisement's physical characteristics and its scores on the three dimensions are to be proven valid.

The research should also be expanded into other advertising mediums. The most logical medium for expansion is television. Any technique which improves the cost/benefit relationship of a television advertisement will be greatly valued in the advertising industry. Radio advertising is also an interesting medium to which this line of research could be applied. Radio would be interesting in that it would only deal with auditory perceptions. An analysis of Radio advertising would nicely complement any work done in the television medium. The basic model

(advertisement to perceptual dimensions to effect) developed in this research is applicable to either of these mediums, however, the instruments used in this research are not. All of the measurement instruments would have to be redesigned to include the time dimension. Time is irrelavent in the print medium but is a definite and significant factor in television and radio advertising.

Critical at this point, however, is to decide if the research should continue at all. The model develcped shows great promise cf develcping into a useful tool. However, to develop the model will require tremendous amcunts of resources, time and capital. It would be impossible to pursue the research correctly without the support cf a large consumer goods ccmpany or advertising agency.

In this initial attempt at building the model the three perceptual dimensions accounted for 53% of the persuasion, recall and recognition measures of advertisement effectiveness. The analysis of the physical characteristics of the model showed 48% of the variation in the three dimensions was explained by seven physical characteristic factors. These figures are encouraging and indicate the research should be pursued.

APPENDIX A

SUBJECT RATING SHEETS

Adjective Rating Sheets (Ch2 and Ch3)

Exhibit A.1 is a reproduction of the adjective rating task completed by subjects in Chapters three of the research. It is similar to the task completed in the pilot work (Ch. 2) except that the assertiveness measure has been added and the scale has been enlarged to ten points in width. Subjects rated each of the advertisements across each of the nine (eight in the pilot research) adjectives. Ratings were coded directly by subjects onto optical scan data sheets.

(Exhibit A.1) The Rating Task

All of the advertisements will be rated with the following scale for each of the nine measures.
The larger the number you assign to an advertisement the more you feel the advertisement presents that measure.

```
   !----!----!----!----!----!----!----!----!----!
   1    2    3    4    5    6    7    8    9   10
minimum                                      maximum
```

TO WHAT EXTENT DOES THIS ADVERTISEMENT PRESENT:

1. Friendship	2. Elegance	3. Power
4. Love	5. Sex	6. Independence
7. Aggression	8. Status	9. Assertiveness

Advertisement Effectiveness (Ch. 4)

Exhibit A-2 is a copy of the instructions given to subjects as they entered the magazine testing portion of the research. Subjects entered the waiting room and were given the instruction sheet (Exhibit A.2) and General Information I (Exhibit A.3). Following the completion of General Information I subjects were taken to the viewing room where they perused the slide magazine. General Information I was collected by the experimenter prior to viewing of the magazine. Upon finishing the magazine subjects entered another room where they completed General Information (Exhibit A.4) and the recall task (Exhibit A.5). Subjects then entered another room where the recognition task was administered (Exhibit A.6).

(Exhibit A.2) Subject Instructions

Today you will be asked to review a "new magazine". For convenience, and to prevent wear and tear the magazine has been photographed and and placed on slides. As we are only interested in your general overview the magazine includes only the title pages from sample articles and advertisements from a few sample products.

When you view the magazine we ask only that you act as if you were glancing through any other periodical. Feel free to take as much or as little time as you wish to browse through the slides. Most important to this study is that you treat our magazine as you would any other.

NOTE: For this study to remain effective throughout the semester it is most important you do not reveal its objectives to your friends and/or classmates who at some point in time may take part. Please do not discuss this study with anyoe until the end of march at which time the data collection will be complete. Your cooperation is greatly appreciated. C.C.

(Exhibit A.3) General Information I

1. What is your sex? male female (circle one)
2. What is your age? _____years?
3. What sport, if any, do you enjoy watching most?
4. What sport, if any, do you most enjoy participating in?
5. If you were to purchase the automobile of your choice what would it be?
6. Do you drink alcoholic beverages? Yes/No (circle one)
7. What brand of liquor (not wine or beer) will you purchase next, either for yourself or as a gift?
8. How many hours per week do you watch T.V.? _____hrs
9. What is your favorite T.V. program?
10. Where would you like to live?
11. What type of music do you enjoy most?
12. Do you drink beer? yes/no If yes, what brand?_____
13. If you were to buy perfume for yourself or as a gift what brand would it be? _____
14. What is your favorite magazine? _____
15. Do you smoke cigarettes? yes/no What brand?_____
16. What brand of jewelry will you buy next? _____
17. What is your favorite radio station?_____
18. How many hours per week do you listen to radio? _____hrs
19. How many hours per week do you exercise? _____hrs
20. How many hours per week do you read? _____hrs
21. How many brothers and sisters do you have? _____

(Exhibit A.4) General Information II

A. When you leave here today what will you do?

B. If you were going to buy a magazine immmediately after leaving here what would it be?

C. If you were to buy a bottle of liquor immediately after leaving here what would it be? (brand?)

E. If you went home and listened to radio what station would you listen to ?

F. If you were to exercise after leaving here what would you do?

G. If you were to buy perfume for yourself or as a gift what brand would you buy?

H. If you were to buy a car immediately after leaving here what would it be?

I. If you were to buy a piece of jewelry for yourself or as a gift what would it be?

(Exhibit A.5) Recall Task

In the space provided below please describe all the advertisements (not articles) which you remember from the slide magazine. Include the product advertised, name of the product and a description of the setting in which the product was presented.

(Exhibit A.6) Recognition Task

The scale below will be used to rate all of the slides shown in this section of the experiment.

Definitely WAS NOT IN magazine.	Not Sure	Definitely WAS IN magazine.

SLIDE NUMBER		SLIDE NUMBER	
1)	1 ---- 2 ---- 3	17)	1 ---- 2 ---- 3
2)	1 ---- 2 ---- 3	18)	1 ---- 2 ---- 3
3)	1 ---- 2 ---- 3	19)	1 ---- 2 ---- 3
4)	1 ---- 2 ---- 3	20)	1 ---- 2 ---- 3
5)	1 ---- 2 ---- 3	21)	1 ---- 2 ---- 3
6)	1 ---- 2 ---- 3	22)	1 ---- 2 ---- 3
7)	1 ---- 2 ---- 3	23)	1 ---- 2 ---- 3
8)	1 ---- 2 ---- 3	24)	1 ---- 2 ---- 3
9)	1 ---- 2 ---- 3	25)	1 ---- 2 ---- 3
10)	1 ---- 2 ---- 3	26)	1 ---- 2 ---- 3
11)	1 ---- 2 ---- 3	27)	1 ---- 2 ---- 3
12)	1 ---- 2 ---- 3	28)	1 ---- 2 ---- 3
13)	1 ---- 2 ---- 3	29)	1 ---- 2 ---- 3
14)	1 ---- 2 ---- 3	30)	1 ---- 2 ---- 3
15)	1 ---- 2 ---- 3	31)	1 ---- 2 ---- 3
16)	1 ---- 2 ---- 3	32)	1 ---- 2 ---- 3

Physical Characteristic Coding (CH. 5)

Exhibit A.7 is a sample of the coding scheme used by judges to define the advertisements' physical characteristics. The scheme included in this exhibit is not an exact copy of the sheets used by the judges. For all ratings, judges were given the opportunity to answer either "don't know" or "not applicable".

The coding scheme has been broken into two sections. The first defines codes for which only one judge rated the advertisements. Consequently there are no reliability or % aggreement scores provided in this section. The second section represents the physical characteristics which were coded by a variety of judges. For each of these ratings a KR-20 reliability estimate is provided. This estimate excludes "don't know" and "not applicable" answers. Where the variable could not be dichotomized the KR-20 coefficient is replaced with a percentage agreement score.

(Exhibit A.7) Physical Characteritic Coding Scheme

SINGLE JUDGE RATINGS

PRODUCT RELATED CODING

a. Type 1=liquor 2=jewelry 3=perfume

b. Location Row, Column (product itself)
Row, Column (product name)

NOTE: the center of the product and product name was measured to define the above codes.

c. Area Encompassed Product Itself
Product Name

Note: the total number of squares were counted (row, column combinations) for each of the above categories.

COPY RELATED CODING

a. Flesch Readership Ease score.
b. Flesch Human Interest score.
c. Total number of words.

d. Location Row, Column (theme of ad.)
Row, Column (actual copy)

e. Area Encompassed Row, Column (theme)
Row, column (copy)

MULTIPLE JUDGE RATINGS

SETTING RELATED CODING			KR-20 Reliability Coeff. or % agreement score.
a. Dominant color? _____			83%
b. General			
1. Is the ad a:	scene	portrait	.96
2. Is there:	background	no background	.98
3. Is the ad:	indoors	outdoors	.99
4. Is reader:	invited in	intruding	.90
5. Is the setting:	city	rural	.99
6. Is the setting:	busy	quiet	.88
7. Is the setting:	private	public	.85
8. Is the setting:	moving	static	.90
9. Camera Focus:	soft	hard	.86
10. Lighting:	high	low	.93
11. Casual Setting:	yes	no	.90
12. Labor Setting:	yes	no	.95
13. Prof. Setting:	yes	no	.76
14. Elegant Setting:	yes	no	.91
c. Spokesperson (if no spokesperson "2-6" are coded n.a.)			
1. Is there one:	yes	no	.95
2. Age of:	<20	20-40	>40 87%
3. Sex of:	male	female	93%
4. Familiar person:	yes	no	.84
5. Expert:	yes	no	.38
6. Attractive:	yes	no	.95
d. Dress			
1. Casual	yes	no	.94
2. Labor	yes	no	.97
3. Professional:	yes	no	.92
4. Elegant:	yes	no	.96
e. Relationship of people within advertisement			
1. Friends (same sex)	yes	no	.98
2. Friends (opp. sex)	yes	no	.99
3. Enemies	yes	no	.99
4. Acquaintances	yes	no	.99
5. Professional	yes	no	.86

Coder: _____

f. Interaction WITHIN ADVERSTISEMENT

	1	2	3	4	5	
1. Eye Contact		yes	no			.91
2. Proximity touch		<18"	18-48"	49-84"	>84"	78%
3. Body Orient.		0-45	46-90	>90		.78
4. Body Lean	erect	toward	away	sideways		.89
5. Smiling	yes	no	?yes	?no		.91

g. Interaction WITH READER

	1	2	3	4	5	
1. Eye Contact		yes	no			.99
2. Proximity touch		<18"	18-48"	49-84"	>84"	81%
3. Body Orient.		0-45	46-90	>90		.92
4. Body Lean	erect	toward	away	sideways		.83
5. Smiling	yes	no	?yes	?no		.92

h. Appeal to Reader

1. Informational:	yes	no	.87
2. Positive Emotional:	yes	no	.86
3. Negative Emotional:	yes	no	.72
4. Humorous:	yes	no	.62

i. Body Cues

1. Relaxed hands:	yes	no	.90
2. Relaxed neck:	yes	no	.94
3. Relaxed face:	yes	no	.88
4. Relaxed body:	yes	no	.91
5. Symmetrical arms:	yes	no	.84
6. Symmetrical hands:	yes	no	.78
7. Symmetrical legs:	yes	no	.85

j. Number of people in Ad? 0 1 2 >2 .99

Coder:_____

Note: On the original coding sheets "don't know" and "not applicable" codes were included for each of the variables.

APPENDIX B

PHYSICAL CHARACTERISTIC ANALYSIS

Table B.1

Significant Correlations with
Three Perceptual Dimensions

Variable	Eval.	Pote.	Acti.
% of area devoted to product	-.54		
Total number of words			-.39
Scene included	.68		
Background included	.65		
Outdoors	.51		
Rural setting	.42		-.36
Busy setting	.35		
Private setting	.56		
Moving setting	.60		
Hard Focus			.30
High lighting		-.39	
Casual setting	.69	-.47	-.31
Professional setting			.40
Elegant setting		.73	
Attractive Spokesperson	.35		.39
Casual dress	.43	-.73	-.47
Elegant dress	.36	.49	.38
Friends opposite sex	.80		
Aquaintances	.85		
Professional reltionship	.34		
Eye contact within Advert.	.38	-.31	
Direct body creintation (within)	.53		
Forward body lean (within)	.44		
Smiling (within)	.71		
Eye contact with reader			.33
Criented toward reader	.37		
Forward lean to reader	.47		.32
Informational Appeal			-.31
Positive Emoticnal	.68		
Humorous		-.51	
Relaxed Hands	.71		
Relaxed Neck	.53		

Relaxed Face	.66	
Relaxed Body	.73	
Symmetrical Legs	.31	
Symmetrical Arms		-.32
Number of People in Advert.	.78	

Note: All correlations reported are significant at the $p<.05$ level. Correlations not reported can be assumed to be non-significant.

Significant Correlations with
Persuasion, Recall and Recognition

Variable	Pers.	Recl.	Rcgn.
% area given to product name	.52		
Flesch Readership Ease Score	-.40	-.33	-.37
Flesch Human Interest Score	-.33	-.33	-.36
Busy Setting	.32		
Hard Focus	.31	.39	.36
High Lighting	.42	.39	.31
Labor Setting		.33	
Elegant Dress	-.29	-.31	
Friends Opposite Sex		-.32	-.33
Eye Contact (within ad.)	.40	.50	.39
Humorous Appeal	.44	.30	

Note: All correlations reported are significant at the $p<.05$ level. Correlations not reported can be assumed to be non-significant.

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