

THE ATTITUDINAL IMPACT OF
SEXUAL EMBEDDING IN
PRINT ADVERTISING

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Scope and Method of Study: The main objective of this study was the investigation of the attitudinal effects of embedding of sexual stimuli in print advertising. It differs from past efforts, in that it concerns itself with figure and ground embeds rather than subliminal stimuli. Because there has been little research in this area, a theoretical basis for the study was drawn from a review of three separate, relevant areas: (1) Subliminal stimulation, (2) Attention and perception, and (3) Figure and ground manipulation. The hypothesis drawn from this basis was that the figural embedding will have no effect on viewers of these ads. The experiment performed to test this hypothesis used 74 undergraduate students in a posttest only control group design. The students were randomly divided into groups, with males and females equally apportioned. They were then shown the embedded ads or the control ads with the embeds removed. The order of presentation was also varied. Seven point semantic differential scales provided the measurement of attitudes along four components: affective, cognitive, behavioral, and sexual. Eight 2 x 2 x 2 analysis of variance were used to analyze the data. The factors were version, sex, and order of presentation.

Findings and Conclusions: The hypothesis was supported in that no significant relationship was found between attitudes and embedding. These findings are contrary to certain advertiser's current practices of engaging in the liberal use of figural embedding. The implication of this study is that of a "warning flag" to advertisers to examine this practice carefully and to call for more critical research. There is also an ethical issue to be considered in this attempted manipulation of mass audiences without their conscious awareness. Is this figural embedding of sexual images worth the possible social outcry? The evidence from this study says no.

ADVISER'S APPROVAL

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PREFACE

This study is concerned with the attitudinal effects of embedding of sexual stimuli in print advertising. The main objective is to determine the impact of these embeds upon the viewer's attitudes and buying behavior. This paper differs from past efforts in that it concerns itself with figure and ground embeds rather than subliminal stimuli. Based on the literature review, the hypothesis advanced is that the figural embeds would make no difference upon viewer's attitudes. These attitudes are measured by a questionnaire utilizing semantic differential scales. The scales measure attitude along four components: cognitive, affective, sexual and behavioral. The experiment performed to test the hypothesis involved 74 undergraduate students in a posttest control group design. Eight 2 x 2 x 2 factorial analysis of variances are used to analyze the data collected from viewers of two selected advertisements. The factors included are version (presence or absence of embed), sex of respondent, and order of presentation of the ads.

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CHAPTER I

INTRODUCTION

With a few exceptions, interest and experimentation by the marketing profession in the field of subliminal stimulation has been virtually nonexistent since the brief flurry of publicity and experiments in 1957-59. This is probably the result of two factors: (1) The somewhat overwhelming evidence in support of the position that such methods lack effectiveness in stimulating action and (2) The public outcry and admonishment of the use of subliminal techniques in attempting to manipulate mass audiences.

One notable exception to this lack of interest in subliminal stimulation has been the work of Wilson Bryan Key, who in 1972, published the first of a series of three books exposing the prolific use of subliminal stimulation in advertising. Citing numerous examples of what he refers to as subliminal embeds, he provides clear, irrefutable evidence that at least some advertisers have embedded symbols of sex and death in their print advertising. Though many of the ads cited used the stimuli in a symbolic manner which might be subject to many interpretations, other ads use explicit figures which once noted, leave little symbolic interpretation to the viewer.

Such embeds as female breasts, male and female genitals, and nude images have been found in several ads. It should be reasserted that this does not refer to symbolic stimuli but rather to the actual anatomical images which can be seen and identified by viewers once they know where and how to view the ads. This brings up a significant theoretical

distinction between the proposed study and previous research in subliminal stimuli. By the accepted definition of subliminal perception and subception (Murch, 1964), these stimuli are not subliminal since subliminal implies being incapable of being consciously perceived in a certain percentage (usually 50%) of the observations by individuals. Thus, even if the respondent was aware that subliminal messages were being presented, he could still not consciously perceive them. This is clearly not the case with the stimuli being referred to as subliminal embeds. Once the respondent is aware of the existence of the stimulus, it is clearly perceptible to him. A more appropriate paradigm would be the Gestalt psychologist's manipulation of figure and ground. It is this distinction that provides the justification for this study.

To provide the theoretical basis for this study, the literature review will be broken down into three sections. First, the general topic of subliminal perception will be defined and the important studies in the area reviewed. Even though the present study does not deal directly with subliminal stimuli, it is important to have a sound knowledge of the subject in order to support the given hypothesis. Second, this review will focus on a discussion of attention and perception. These concepts will be related to the present research and the theories upon which this study is based will be reviewed. Finally the concept of figure ground manipulation and its relationship to embedding in advertising will be discussed.

After this review, the hypothesis for this study will be made clear. Throughout this discussion we will be attempting to set up the theoretical basis to answer the problem at hand: What is the attitudinal effect of figure and ground embeds upon viewers of print advertisements?

CHAPTER II

LITERATURE REVIEW

Subliminal Perception

Subliminal perception is not a new phenomenon. The existence of the human subconscious has been documented over many centuries by composers, artists, poets, philosophers, and scientists. This term, subliminal perception, will be used here to describe sensory inputs into the human nervous system that circumvent or are repressed from conscious awareness - more simply, inputs that communicate with the subconscious. The term is, of course, popular implications which suggest brainwashing, manipulation, and other unsavory practices. Other, possibly more scientifically defensible names for the phenomenon are subliminal reception, threshold regulation, unconscious perception, and subception (Murch, 1964).

Data provided from studies in neurology and psychology strongly support the conclusion that all senses operate on at least two perceptual levels. Information is collected at what might be called a cognitive conscious level, a level where each human is consciously aware of what is going on. Information is also collected simultaneously and continuously at a subliminal level, a level at which there is no conscious awareness of data entering the brain. There could be many other levels between conscious and subconscious perception, but for purposes of illustration, the discussion will be limited to only these two - conscious and subconscious

The first recorded mention of subliminal perception may be in the writings of Democritus (400 B.C.) who mentioned "much is perceptible which not perceived by us." Aristotle discussed subliminal awareness thresholds in his Parva Naturalia nearly two thousand years ago and appears to have been the first to suggest that consciously unperceived stimuli could affect behavior.

The study of subliminal perception again came to public attention in the late 1950's. In 1957 one American market researcher, James Vicary, demonstrated the tachistoscope, a machine for flashing on a screen invisible messages which could be seen by the subconscious. After the publication in 1958 of Vance Packard's book, The Hidden Persuaders, motivation researchers Ernest Dichter and Louis Cheskin were publicly admonished for their scientific contributions which had supported advertisers' attempts to manipulate mass audiences (Key, 1973:20).

The initial experiments with mechanically induced subliminal perception were based upon the tachistoscope which is simply a film projector with a high speed shutter which flashes messages every five seconds at 1/3,000 a second.

At the time, legislators and the public were shocked at the implications involved in subliminal or subaudial perception. Legislation was introduced, though never passed, in half a dozen state legislatures and in the U.S. Senate to prohibit legally the use of subliminal techniques in the public communication media (Key, 1973:21).

Obviously, the notion that one may influence the behavior of another individual without the individual knowing about it is a fascinating one. Usually obvious is the need for a clarification of the issues surrounding the application of subliminal perception. The current literature pertaining to this subject will now be reviewed. The reader should keep in

ind that the reason for this clarification is to point out the difference in the past research of subliminal stimulation and figure-ground manipulation.

While the advertising possibilities of subliminal stimulation were recognized by Hollingworth as early as 1913, most of the work was done in the late 1950's (Lazarus, McCleary, Murch, Ericksen, and Packard). All of these studies failed to find any connection between subliminal perception and purchase behavior.

The work of experimental psychologists in subliminal stimulation dates from Suslowa in 1863, as reported by Baker (1937). Suslowa's experiments concerned the effect of electrical stimulation upon subjects' ability to make two-point threshold discriminations. He found that, even when the intensity of the electrical stimulation was so low that the subjects were not aware of its presence, their ability to discriminate one from two point stimulation was somewhat reduced.

Pierce and Jastrow (1963) were able to show that subjects could discriminate differences between weights significantly better than chance would allow. Several experiments have provided further support for Pierce and Jastrow's initial conclusions (Baker, Miller, and Blackwell). Several other supporting studies are available which show essentially the same results, namely that even when subjects have zero confidence in their judgements, they can discriminate reliably (though not perfectly) between stimuli.

In his review, Adams (1959) points out certain general weaknesses inherent in studies of this type, but agrees with other researchers that discrimination can occur under certain conditions. However, it is interesting to note that, in nearly all studies reporting relevant data, the reliability of the subjects' judgements increase directly with the intensity of the stimuli. If a valid extrapolation can be drawn from this finding,

it would be that accuracy of perception increases as the stimulation approaches a supraliminal level.

While these studies are not unequivocal in their findings, nor generally rigorous in their methodology, they do seem to support the contention that behavior of a sort can be influenced by subliminal means. However, they require cautious interpretation, since the degree of the subject's attention to the stimuli seems clearly to be a factor. Further, these studies reveal a somewhat less pronounced effect of subliminal stimulation upon the subjects' behavior. This is in contrast to those studies where the subject is actually aware in advance of the general nature of the subliminal stimulation.

While the studies reported seem to indicate that discrimination without awareness may occur, it may reasonably be asked whether stimulation below the level of conscious awareness can produce any but the most simple modifications in behavior. A series of studies beginning with Newhall and Sears (1933), have attempted to show that it is possible to condition subjects to subliminal stimuli (Baker, McCleary and Lazarus, Back and Rein).

Whatever the possibility that subliminal stimulation may significantly alter behavior, there is excellent evidence that certain inner states of the organism, as well as externally induced conditions, may significantly alter the recognition threshold of the individual. This has important implications for the susceptibility of the individual to the effects of subliminal stimulation and figure - ground embedding. It is well known that physiological factors, such as fatigue, visual acuity, or satiation, may change the threshold of an individual for various kinds of stimuli (Connell, 1963).

Recent evidence has accumulated to show that, in addition to these

physiological factors, certain "psychological states," such as psychological needs, value, conflict, and defense, may also significantly influence thresholds, as well as other aspects of the perceptual process (George and Jennings, 1975). Rees and Israel (1976) showed that emotional factors were important determiners of the perception of the magnitude of need-relevant objects. Other studies bearing upon the issue of perceptual defense are reported by Carter and Schooler (1958), Cowen and Bier (1970), and Stein and Murphy (1971).

More specifically related to the issue of altered perceptual thresholds is a study by McGinnis (1960) which demonstrated that emotionally toned words had generally higher thresholds than neutral words. Blum (1961) has shown that subjects tend to be less likely to choose conflict-relevant stimuli from a group presented at subliminal speeds than to choose neutral stimuli. Again, this could be applied to sexual embeds. While many writers have contended that the variations in threshold can be accounted for more easily than by introducing "motivational" factors such as need and value, and while the issue of the degree to which need states influence perceptions is still unresolved, it is apparent that the recognition threshold is not a simple matter of intensity nor speed of presentation.

From this review it can be safely concluded that under certain conditions, the phenomenon of subliminal perception does occur. But whether or not it is capable of altering more than the most simple kinds of behavior has never been proved. The work of Key indicates that some advertisers apparently believe that this type of perception does indeed alter behavior. But what theoretical basis does this belief have? To answer this question we must investigate the area of focused attention and perception.

Attention and Perception

Debate about the nature of selective attention has centered on tasks that require the subject to select inputs, or filter information. The classic example of input selection is the situation that Cherry (1968) described as the cocktail-party problem: A guest at a cocktail party usually listens to one conversation and ignores all others, regardless of how loud they may be. In general, a person is said to select inputs when he focuses attention exclusively on stimuli that originate from a particular source or share some other characteristic feature.

The performance of a respondent who selectively attends to a relevant message in the presence of an irrelevant message can be evaluated by two sets of questions: (1) How effective is the processing of the relevant message? Is comprehension impaired relative to a control situation in which that message is presented alone? (2) How effective is the rejection of the irrelevant message? In what ways, and at what stages, are the selected and rejected messages treated differently?

First, experimental findings in this area of attention will be summarized. Then several theories will be reviewed that have been proposed to explain these findings.

The studies reviewed (Zellicker, 1959; Moray, 1960; Henik, 1955; Kahneman, 1973; and Cherry, 1968) generally are consistent with predictions from Broadbent's filter theory. The theory assumes that a filter sorts simultaneous stimuli by obvious physical characteristics, such as position or color. Further perceptual analyses are applied only to stimuli which have the property that defines the relevant "channel" or message. This would certainly not include sexual embeds. Other stimuli are rejected and filtered out. Irrelevant sensory information is stored momentarily

s an "unanalyzed tape recording" but is permanently lost unless a shift of the filter retrieves it from sensory storage. Thus, the material presented to an irrelevant channel is not analyzed in perception, beyond a few tests on physical features.

Strong evidence was advanced against filter theory soon after it was formulated. Thus, although the theory accounts for the cocktail-party phenomenon of selective attention, it fails to explain another common experience of cocktail parties; the detection of one's own name as soon as it is mentioned in an otherwise ignored conversation. Neisser (1960), for example, developed a visual analogue for this situation. He required subjects to read coherent text aloud and to ignore words printed in red under each line of the selected text. Subjects can do this very well. The situation is very similar to ordinary reading, where the lines just above and below the attended line do not intrude. Neisser also showed that subjects do not recognize the words presented on the ignored lines, even when the same word is repeated several times. Two-thirds of his subjects, however, noticed their own name on a rejected line.

In summary, although the selection of inputs is highly effective, it is imperfect. A relevant input on which attention is focused can be processed effectively even in the presence of irrelevant stimulation. However, focusing attention on one message does not completely prevent the processing of stimuli on irrelevant channels. There is much evidence that at least some of these stimuli are analyzed for content. Thus stimuli for which there is high readiness will probably be recognized and for a stimulus for which there is not a high readiness, a high probability it will not be recognized.

A brief survey of the main theories advanced to account for these facts will now be presented.

Broadbent's filter theory is the natural starting point for any discussion of modern theories of attention. Some of the main features of this theory have already been noted, as well as some of the evidence that shows it to be incomplete. Briefly, Broadbent assumed a sequence of three elements: a short-term store (S system), a selective filter, and a limited capacity channel (P system). Concurrent stimuli enter into the S system in parallel, and they are analyzed there for physical features, such as location. There is no definite limit on the capacity of the S system. The selective filter allows those stimuli that arrive in the designated "channel" into the P system.

Filter theory interprets focused attention as setting the filter to select a certain class of stimuli and to reject all others. Irrelevant messages are simply allowed to decay in the S system without undergoing more advanced processing in the P system. Thus, messages would never even be processed because they would be filtered out of focused attention.

Filter theory implies that attention cannot be divided, because the system performs no parallel processing of discrete stimuli. This is not the entire picture, however. The evidence listed earlier demonstrates that the content of a subliminal message is identified, at least dimly and at least some of the time.

In an attempt to accommodate the evidence against filter theory, Treisman (1955) proposed a modification of that theory which Broadbent subsequently accepted. The modification was simply that filtering is not all-or-none: the rejected stimulus is merely attenuated, not eradicated.

According to Treisman, a sensory message activates hypothetical "dictionary units" in memory. Each unit has a threshold which must be exceeded for perception to occur. The thresholds for highly significant stimuli, such as one's name, are permanently lowered. Because of these

variations of thresholds, a word of high significance or high probability which is presented in an irrelevant channel can be perceived in spite of attenuation.

Treisman's modification of filter theory retained the essential idea that attended and unattended stimuli are treated differently from a very early stage of analysis. This differential treatment causes a reduction in sensitivity for unattended stimuli. In general, unattended items such as sexual embeds do not activate the corresponding dictionary units except when the threshold of one of these units is exceptionally low. Also, because sexual embeds are emotionally loaded, the respective dictionary units would have a high threshold.

These theories of attention form the basis for this study. According to this theory perception occurs only if the stimuli exceed a given threshold. This threshold varies according to the significance and expectability of the stimulus. Therefore, subliminal embeds in advertising containing sexual images would not be perceived because of their unexpected presence in an ad.

Before stating the conclusions that this literature review leads one to make concerning embedding in advertising, the specific concept of figure and ground manipulation is discussed.

Figure and Ground

Some of the differences between figure and ground were classified by Rubin (1934) as follows: (1) The figure has shape, while the ground is relatively shapeless. For example, in figure 1 one does not see the vase; in the black regions are the figures. (2) The ground seems to extend behind the figure's edge. (3) Thus, the figure has some of the character of a thing, whereas the ground appears like uniform material. (4) The figure

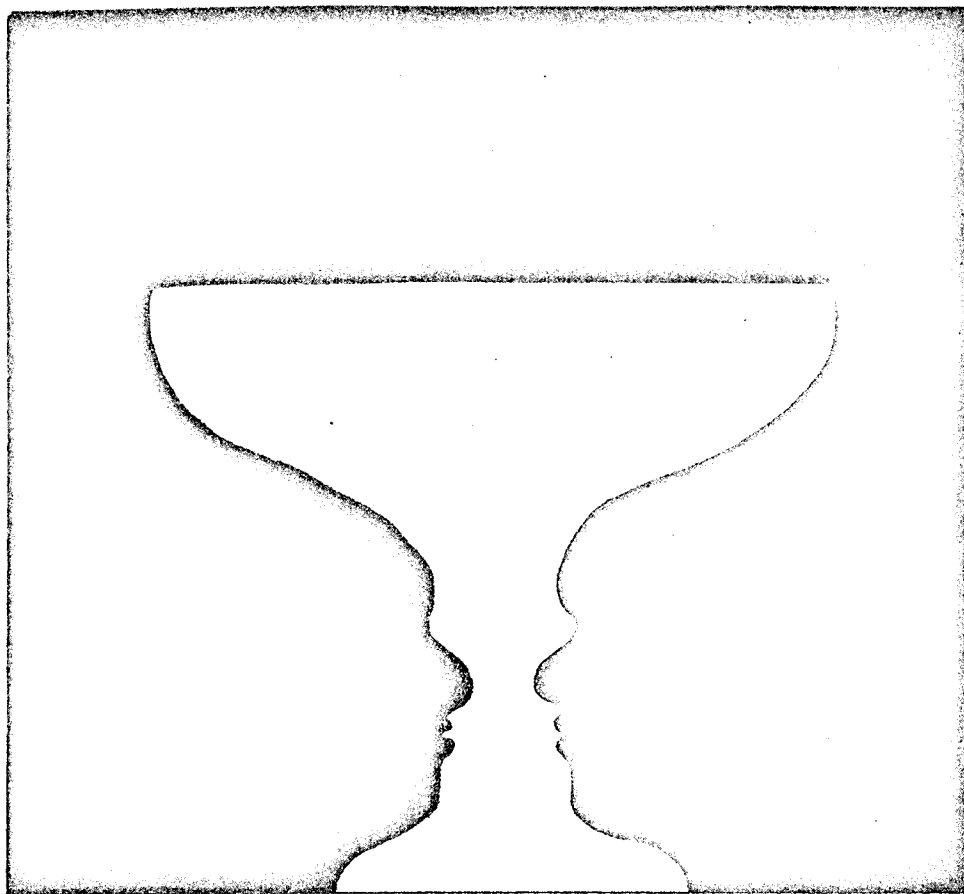


Figure 1. Reversible Goblet

usually tends to appear in front, the ground behind. (5) The figure is more impressive, more apt to suggest meaning, and better remembered. The first and last points are particularly important for this study. To the limited extent that they are true, an area that is not a figure becomes in effect invisible, and even though it is "objectively" present and in the retinal image, it does not appear to provide a stimulus to which the subject can respond. It is this theory that has significance for this study.

An important concept to be gained from this classification is that what is perceived as figure and what is perceived as ground do not have shape in the same way. In a certain sense, the ground has no shape.

field which had previously been experienced as ground can function in a surprising way when experienced as figure. This effect depends on the new aspect, which previously had not been in awareness, and which is now experienced for the first time. This is the fundamental difference between subliminal stimuli and figure and ground manipulation. In subliminal, the selected stimulus is not consciously perceived, although as we have seen, it may be subconsciously attended to. Figure and ground manipulation, however, entails the reversing of the selected stimulus from the ground to figure where it is now experienced for the first time.

To characterize the fundamental difference between figure and ground it is useful to consider the contour, which is defined as the common border of the two fields. One can then state as a fundamental principle: when two fields have a common border, and one is seen as figure and the other as ground, the immediate perceptual experience is characterized by a shaping effect which emerges from the common border of the fields and which operates only on one field, or operates more strongly on one than on the other. The field which is most affected by the shaping process is figure, the other is ground (Rubin, 1934).

As a rule, there is a further difference when an area is seen as figure or as ground, in that when it is experienced as figure it is intrinsically more impressive than when it is experienced as ground. It dominates consciousness; consequently in descriptions, the figure is usually mentioned before the ground.

In comparison judgements between two fields, each of which contains figure and ground, subjects report that the figures are similar or different but they do not talk about the grounds (Beardslee, 1965). This is true of judgements of differences. A natural explanation of why this is also true of judgements of similarity (In addition to the factor that figures in

eral are more impressive than grounds) is that the grounds in general not seem as different as the figures. In consequence, statements of similarity between two grounds are practically meaningless.

Thus, the figure is as a whole, more impressive and dominates conscious is also implies that everything about the figure is recalled better than characteristics of the ground. For that matter, it is not easy to decide whether the fact that details about the ground are difficult to reproduce is due to nothing about such details ever having been in consciousness to something having been there but forgotten. In any event it is evident from this discussion of figure and ground manipulation that as long as an embed is presented in the ground of an advertisement, it will not be perceived. However, when this embed is pointed out to the viewer, it becomes a figure and the rest of the ad becomes "invisible."

Conclusions

Because of a lack of relevant literature on the sexual type of figure and ground embeds discussed here, I have attempted to formulate a theoretical basis for research using three separate areas that have been well researched throughout these three areas (subliminal stimulation, attention and perception and figure and ground) there runs a central and overriding theme.

The first hint of this central theme was given in the review of subliminal perception. The work shows that this perception does, under certain conditions, take place, but that it has never been proven to alter anything but the most simple kinds of behavior. These negative findings would seem to invalidate the apparent beliefs held by certain advertisers that subliminal stimulation can alter buying behavior.

The next clue comes from the discussion of attention and perception theories. These theories would lead us to believe that unexpected stimuli

uch as sexual embeds would not stand much chance of being filtered into recognition. Attention theory, therefore, would suggest that these embeds in advertising would not be effective.

The last piece of the puzzle comes from the discussion of the concept of figure and ground. This discussion leads to the same conclusion: a sexual embed would not likely be perceived because it is part of the "ground" and not the "figure."

The overriding theme of this review is that embedding in advertising would simply not be effective. The observer would not perceive it and therefore not change his attitudes.

This conclusion, drawn from three diverse areas of research, forms the theoretical basis for further work. Hence, the hypothesis for this study can now be stated:

H_A Figure and Ground Embeds in Print Advertising will have no Significant Attitudinal Effect on Viewers

In other words, the implication of this hypothesis is that advertising employing subliminal embeds will be ineffective in stimulating desired action. Although this hypothesis may seem to have a negative tone, it will have positive implications for advertisers if supported. If supported, a "warning flag" will have been given to advertisers signaling that such embedding may be ineffective and inefficient.

CHAPTER III

METHOD AND PROCEDURE

Sample

The sample for this study consisted of 74 undergraduate students selected from Oklahoma State University. The sample was equally divided between males and females. All of the subjects were enrolled in one of two consumer behavior classes. The subjects were randomly assigned to view either ads containing sexual embeds or control ads which did not.

The author recognizes the fact that the use of a pre-assembled group such as OSU undergraduates does not represent the optimal sampling strategy; however, due to the limited resources available, and taking into account the time and monetary constraints, this sampling strategy allowed for an adequate initial study. If the results of this initial study warrant further investigation, the sample will be expanded to include a random sample of households from the Stillwater and surrounding areas.

Measurement of Variables

dependent Variables (Figure and Ground Embedding)

The stimuli for this study were ads taken from national print magazines such as Good Housekeeping and Time. The ads selected are such that each includes an overt embed related to sex. It should be noted that the embeds are not chosen for any symbolic content but rather for overt manifestations of sexual stimuli. There were two ads used in the study:

Marlboro Cigarettes - This ad portrays the familiar masculine Marlboro Cowboy riding in a rugged mountain setting. Embedded in the mountain range is the image of a penis. This embed is easily recognized after being pointed out and leaves little symbolic content to the viewer's imagination.

Chevis Regal Whiskey - This ad contains a bottle of Chevis Whiskey. Upon closer examination the bottle also contains the figure of a nude woman. The woman's buttocks form the curve below the neck of the bottle. Again, this embed becomes evident after being pointed out.

A matched set of each ad constituted the control. These ads were identical to the experimental ads except the embed had been airbrushed out. The only difference between the test and control ads was the sexual embed. Once this airbrushing was completed 16mm. slides were prepared for each ad. These slides were what the respondents viewed. There were then four different slides:

- Slide No. 1 - Marlboro ad containing embed
- Slide No. 2 - Marlboro ad without embed
- Slide No. 3 - Chevis ad containing embed
- Slide No. 4 - Chevis ad without embed

Dependent Variables (Attitudinal Effect)

Several item statements were used in a questionnaire form to measure the attitudinal effect of the ads (See Appendix). The items were chosen so as to measure attitudes along four scales (cognitive, affective, behavior and sexual).

Each item was measured on a seven-point semantic differential scale. Initially it was thought that (1) the cognitive component would be measured by the trustworthy, informative, and believable items. (2) The affective or liking component would be tapped effectively by the items appealing, attractive, and impressive. (3) The sexual component would be measured by

the sensual, erotic, and exciting items, and (4) that the behavioral component would be captured by the three behavioral intention items at the bottom of the questionnaire, (try product, buy product, actively seek out product).

These initial expectations were almost all confirmed. Once the data collection task was complete, coefficient alpha was calculated for each component, a total score for the component was generated by adding the scores for the items initially defining the component, and the item-to-total correlations were calculated for each item and each of the four total scores. These item-to-total correlations were calculated for each ad and are shown in Tables I and II.

Table I shows the item-to-total correlations of items composing the final scales used in the Marlboro ad. The item "exciting" was found to be somewhat ambiguous, having only a .546 correlation with the affective scales and a .569 correlation with the sexual scales.

Using the Chevis scales, however, the "exciting" item correlated much better with the other sexual scores, (.788). These item-to-total correlations calculations suggest that the item pools for each component were indeed relatively homogeneous and were related strongly to the total score on the components.

The 12 items used in the questionnaire were thus judged to provide reasonable measures of the four selected attitude scales. Each respondent completed two questionnaires, one for each slide he or she viewed. Each questionnaire contained the same set of semantic differential scales.

In order to derive a measure of internal consistency, coefficient alpha was calculated for each component of the questionnaire. Coefficient alpha for the cognitive scales was calculated to be .476, alpha for the affective scales was .631, the sexual scales were then calculated

TABLE I
ITEM TO TOTAL CORRELATIONS OF ITEMS COMPOSING FINAL MARLBORO SCALES

	Cognitive Score	Affective Score	Sexual Score	Behavioral Score
rustworthy	.718*	.191	.128	.233
informative	.790*	-.005	.232	.191
believable	.754*	.360	.211	-.005
appealing	.279	.746*	.157	.219
attractive	.064	.740*	.047	.035
impressive	.296	.720*	.395	.010
sensual	.099	.217	.793*	.139
erotic	.185	-.174	.742*	.091
exciting	.290	.515	.546*	.107
ry	.203	.086	.112	.892*
ly	.172	.182	.145	.923*
ek Out	.140	.054	.178	.932*

These items were used to generate the total score for that component.

TABLE II
ITEM TO TOTAL CORRELATIONS OF ITEMS COMPOSING FINAL CHEVIS SCALES

	Cognitive Score	Affective Score	Sexual Score	Behavioral Score
trustworthy	.730*	.395	.180	.392
informative	.745*	.397	.343	.486
believable	.748*	.428	.283	.296
appealing	.506	.851*	.448	.558
attractive	.443	.876*	.485	.538
impressive	.464	.833*	.517	.485
unsual	.425	.442	.768*	.319
otic	.091	.194	.699*	.064
exciting	.297	.659	.788*	.375
y	.508	.648	.348	.798*
ly	.409	.450	.264	.891*
ek Out	.444	.509	.252	.895*

These items were used to generate the total score for that component.

have a coefficient of .454 and the behavioral scales had a coefficient of .702.

These coefficients are used to measure the reliability of the questionnaire different components. The affective and behavioral components had relatively high alpha coefficients. The cognitive and sexual components, however, had lower coefficients. These lower scores indicate that the cognitive and sexual scales were not calculated to be as internally consistent as the behavioral and affective items. The coefficients are not low enough as to affect the results of the study.

In future studies involving these scales, the sexual and cognitive scales should be reevaluated in order to raise the internal consistency of the questionnaire.

Research Design

The hypothesis in this study was tested in a posttest only control group design. A pretest wasn't utilized because of the attitudinal nature of the experiment. A pretest would unnecessarily sensitize the respondents to the advertisements before viewing the experiment itself. Therefore, this experiment was constructed as if the respondents were viewing the advertisement for the first time, just as if they were reading them in a magazine.

Two consumer behavior classes were used in the study. The experiment was performed in a separate room during the regularly scheduled meeting. The classes were broken into groups so as to equally divide the number of males and females that viewed each version of the ads. The four groups allow for any possible interference resulting from the order of presentation. These four groups are:

- Group 1 Marlboro with embed - Chevis with embed
- Group 2 Marlboro without embed - Chevis without embed
- Group 3 Chevis with embed - Marlboro with embed
- Group 4 Chevis without embed - Marlboro without embed

Therefore all sources of extraneous variance such as order of presentation, measurement, history, maturation, and regression were controlled for.

Each group was informed that they were participating in an experiment which they would be asked to evaluate advertisements taken from current issues of national magazines. Each respondent was given two sets of scales relating to the first ad seen and one to the second. The respondents filled out each questionnaire completely before the second ad was shown.

After the completion of the experiment the respondents were debriefed to the nature of the experiment in which they participated.

Analysis of Data

Eight $2 \times 2 \times 2$ factorial analysis of variances were performed on the data collected. The factors were version (embed or not), order (Chevis Marlboro shown first), and sex of respondent (male or female). From the seven-point semantic differential scales a total score was computed for each subject with respect to affective, cognitive, behavioral, and sexual dimensions of attitude by summing the appropriate semantic differential items. These total scores were used as the criterion variables in a series of analysis of variance tables with each component of attitude serving to name two tables (one for each type of ad). There are four components and two ads, hence eight ANOVA tables.

Tables III through VI show the means using the four scales. The means were calculated by summing the various seven-point semantic scales comprising the attitude. Means were also calculated using the differences in order and sex as a basis.

TABLE III
MEANS USING COGNITIVE SCALES

Source of variance	Number	Cognitive Marlboro	Cognitive Chevis
<u>Version</u>			
bed	36	12.083	10.500
Embed	39	12.538	10.871
<u>Order</u>			
Chevis First	40	12.200	10.775
Marlb. First	35	12.457	10.660
<u>Sex</u>			
Male	38	12.368	11.342
Female	37	12.270	10.027

TABLE IV
MEANS USING AFFECTIVE SCALES

Source of variance	Number	Affective Marlboro	Affective Chevis
<u>Version</u>			
Isolated	36	15.222	13.416
Embedded	39	15.179	13.743
<u>Order</u>			
Chevis First	40	14.900	13.925
Marlboro First	35	15.542	13.200
<u>Sex</u>			
Female	38	15.289	15.236
Male	37	15.108	11.891

TABLE V
MEANS USING SEXUAL SCALES

Source of variance	Number	Sexual Marlboro	Sexual Chevis
<u>Version</u>			
bed	36	11.472	10.361
Embed	39	11.743	11.307
<u>Order</u>			
chevis First	40	11.175	10.775
marlb. First	35	12.114	10.942
<u>Sex</u>			
male	38	10.605	11.736
female	37	12.648	9.994

TABLE VI
MEANS USING BEHAVIORAL SCALES

Source of variance	Number	Behavioral Marlboro	Behavioral Chevis
<u>Version</u>			
bed	36	8.611	11.250
Embed	39	7.820	11.897
<u>Order</u>			
chevis First	40	8.250	12.075
marlb. First	35	7.828	11.028
<u>Sex</u>			
female	38	8.052	12.710
male	37	8.351	10.432

In each table presented (cognitive, affective, sexual, and behavioral) the presence or absence of the sexual embed did not result in a significant difference in the mean score. For example in Table III (cognitive scales) the difference in mean scores between those who saw the ads containing the embeds and those who did not was only .455 in the Marlboro ad and .371 in the Chevis. The same is true in the other tables. Indeed, the largest difference in mean scores came from the sex factor. The male respondents seemed to rate the Chevis ad higher and the females rated the Marlboro ad higher. This will be discussed further in the next section.

The tables indicate that the hypothesized relationship between embedding and the various attitudinal scales is supported. There seems to be no difference in respondent's attitudes about the control ads and the experimental ones.

The analysis of variance performed on the data collected is designed to highlight significant differences due to the experimental manipulation of figural embedding. This type of statistical analysis also has the advantage of allowing the experimenter to study the interactive effects of the independent variables on the dependent variables. This advantage allows for control of such possible confounding variables as sex and order of presentation by incorporating them into the research design. Not only can they be controlled they can yield information of possible value and significance.

Because of the small sample size, a particularly low alpha level (.01) has been chosen to indicate statistical significance. This low alpha level decreases the possibility of making a type II error, which is accepting the null hypothesis when in fact the null hypothesis is false and some alternative to the null hypothesis is true. In further studies with a larger sample, the alpha level could be increased to .05 without

reduction in the power of the test.

TABLE VII
ANALYSIS OF VARIANCE USING COGNITIVE SCORES AS CRITERION
MARLBORO AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
ersion	3.9	1	.39	0.53
nder	1.3	1	.13	0.72
ersion x Order	5.9	1	.59	0.44
ex	0.1	1	.01	0.92
ersion x Sex	0.8	1	.08	0.77
nder x Sex	3.8	1	.39	0.53
x O x S	0.2	1	.02	0.88
ror	662.3	67		
otal	678.3	74		

The analysis of variance table using cognitive scores as criterion is shown in Table VII. As expected there is no significant difference arising from the version viewed by the respondents. There was also no difference arising from the order of presentation, sex of respondent or any of the cross products.

The analysis of variance table using cognitive scores as criterion is shown in Table VIII. This table was calculated using data obtained from smokers of the Chevis ad. Again there is no statistically significant

ference arising from the presence or absence of the figural embed.

Thus, data collected from the cognitive scales about both the Marlboro and the Chevis ads indicates no relationship between embedding.

TABLE VIII
ANALYSIS OF VARIANCE USING COGNITIVE SCORES AS CRITERION
CHEVIS AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
rsion	2.6	1	0.25	.62
der	0.5	1	0.05	.82
rsion x Order	10.5	1	1.31	.31
x	32.1	1	3.11	.08
rsion x Sex	1.6	1	0.16	.69
der x Sex	2.1	1	0.20	.65
x O x S	0.1	1	0.00	.98
ror	692.4	67		
tal	742.0	74		

Tables IX and X show the analysis of variance tables using affective scales as criterion for the two types of ads.

As in the cognitive scales ANOVA tables, there was no significant variance found because of the version (embed or not) shown. However, the Chevis ad there was a statistically significant difference arising

TABLE IX
ANALYSIS OF VARIANCE USING AFFECTIVE SCORES AS CRITERION
MARLBORO AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
ersion	0.3	1	0.00	.95
rder	7.7	1	0.92	.34
ersion x Order	2.5	1	0.31	.58
ex	0.6	1	0.07	.78
ersion x Sex	8.7	1	1.04	.31
rder x Sex	13.0	1	1.67	.20
x 0 x S	6.6	1	0.78	.37
rror	561.8	67		
otal	601.2	74		

TABLE X.
ANALYSIS OF VARIANCE USING AFFECTIVE SCORES AS CRITERION
CHEVIS AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
Condition	2.0	1	0.16	.69
	9.7	1	0.77	.38
Condition x Order	12.4	1	0.99	.32
	207.6	1	16.53	.01*
Condition x Sex	10.3	1	0.82	.36
Order x Sex	6.6	1	0.53	.47
Condition x S	1.8	1	0.14	.70
	841.6	67		
	1092.0	74		

* Significant at the .01 level

om the sex of the respondent. The female respondents viewed the Marlboro more favorably, and the male respondents viewed the Chevis ad even more vorably as measured by the affective scales.

Tables XI and XII show the analysis of variance using sexual scores as iterion.

TABLE XI
ANALYSIS OF VARIANCE USING SEXUAL SCORES AS CRITERION
MARLBORO AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
rsion	1.4	1	0.14	.71
der	16.6	1	1.66	.20
rsion x Order	15.4	1	1.55	.21
x	82.4	1	8.27	.01*
rsion x Sex	3.1	1	0.32	.57
der x Sex	18.2	1	1.83	.18
x 0 x S	7.1	1	0.73	.40
ror	618.2	67		
tal	762.4	74		

Significant at the .01 level

Through these analyses it is evident that the presence or absence of ie embed made no attitudinal difference along the sexual scales. The only iriance that was significant was the sex factor. Again, the females viewe

the Marlboro ad more favorably than the males did and the males perceived the Chevis ad to be more sexually stimulating than the Marlboro ad.

TABLE XII
ANALYSIS OF VARIANCE USING SEXUAL SCORES AS CRITERION
CHEVIS AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
Version	11.4	1	1.60	.21
Order	6.6	1	0.06	.82
Version x Order	12.8	1	1.23	.27
Sex	65.2	1	6.27	.01*
Version x Sex	23.3	1	2.22	.14
Order x Sex	0.6	1	0.05	.82
Version x Order x Sex	0.8	1	0.08	.78
Error	701.4	67		
Total	822.1	74		

Significant at the .01 level

Tables XIII and XIV show the analysis of variance using behavioral scores as criterion. No significant variance was detected through these analyses because of the version seen by the subjects. Also, no statistical significant difference was found in any of the other factors or cross products included in the experiment.

TABLE XIII
ANALYSIS OF VARIANCE USING BEHAVIORAL SCORES AS CRITERION
CHEVIS AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
rsion	7.8	1	0.42	.52
der	20.2	1	1.07	.30
rsion x Order	0.9	1	0.05	.83
x	95.7	1	5.10	.02
rsion x Sex	4.2	1	0.22	.63
der x Sex	6.6	1	0.35	.55
x 0 x S	5.8	1	0.31	.58
ror	1258.9	67		
tal	1400.2	74		

TABLE XIV
ANALYSIS OF VARIANCE USING BEHAVIORAL SCALES AS CRITERION
MARLBORO AD

Source of Variance	Sum of Squares	Degrees of Freedom	F Value	Pr G.T. F
rsion	11.7	1	0.36	.55
der	9.3	1	0.28	.60
rsion x Order	1.9	1	0.06	.81
x	1.0	1	0.03	.86
rsion x Sex	1.2	1	0.04	.80
der x Sex	1.9	1	0.06	.54
x 0 x S	12.1	1	0.37	
ror	2186.8	67		
tal	2226.0	74		

As can be seen in each of the tables there was no significant difference between versions of the ad shown (presence or absence of embedding). Thus, the presence of a figural embed made no conscious difference to the respondents who viewed the ad. This analysis means the hypothesis of no difference cannot be rejected.

Also as expected, there was no statistical difference resulting from the order of presentation. Although there was a difference in how the two ads were perceived by the sexes regardless of the presence of the embed. This would seem to be more a function of the overall image of each ad and not anything to do with embedding.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

The objective of this study was to investigate the attitudinal impact of sexual embedding in print advertising. Through the work of such research, we have seen that advertisers do indeed engage in such embedding, especially through the use of figure and ground manipulation. Sexual images such as male genitals and nude female figures are used in such ads. Because of the relative lack of past research in this type of advertising manipulation, three related areas were reviewed in order to come up with a theoretical basis for the investigation of figural embedding.

In the related area of subliminal perception, past studies indicated that subliminal stimulation does take place under certain conditions. However, there is no evidence to indicate that it can alter attitudes or buying behavior. Although subliminal embedding is closely related to this study, it does not exactly define the type of subtle stimulation researched in this paper.

Another related area is the field of attention and perception. Through a review of this area, evidence is presented indicating that embeds might not be attended to or consciously perceived by the viewer. This evidence is based on various theories following Broadbent's filter theory. Embeds could simply be filtered out and not enter into conscious awareness.

The last area to be researched was figure and ground manipulation.

This concept relates to how the eye views objects, either as the figure or as the ground. The figure represents the main portion of perception while ground is ignored. Because the embeds are present in the ground there is reason to believe they would never be perceived.

The research hypothesis reflected the basis provided by these three areas: Figure and ground embeds in print advertisements would have no significant attitudinal affect on viewers. This hypothesis was then tested using a posttest only control group design. Attitudes were measured along four dimensions (affective, cognitive, behavioral, and sexual) using seven-point semantic differential scales. These scales provided the data for a $2 \times 2 \times 2$ factorial analysis of variance. The factors in this analysis were version, sex of respondent, and order of presentation. A separate analysis was run on each ad along each attitude component, thus generating eight ANOVA tables.

As a result of the analysis, the null hypothesis could not be rejected. There was indeed, in this study, no significant relationship between figure embedding and attitudes of respondents. Only two relationships were found to be significant at the .01 level, and both of these pertained to the sex of the respondent and the overall feeling about the ad itself, regardless of the embed. The Marlboro ad was rated much higher by the females, perhaps because of the "macho" image of the Marlboro Cowboy. The Chevis ad was rated much higher by the males, perhaps because of the words "Who could beat you" in the ad, reflecting a male-dominant theme. In any event, the presence or absence of the embed made no difference, the females always rated the Marlboro ad higher and the males always rated the Chevis ad higher.

Conclusions

The conclusions drawn from the data analysis are not intended to be

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a final word in such behavioral studies. This is only a preliminary report using a small sample. However, we can conclude that the research hypothesis has been supported by the data collected.

The analysis indicates that there is no attitudinal effect upon answers of ads containing figural embeds. This conclusion is noteworthy only for the fact that it seems to be in conflict with an abundance of advertising today. The public policy implications of this study are thus brought up: Is figural embedding of sexual images worth the possible moral and social outcry caused by this practice? Perhaps we will never know if the dollar return from such embedding warrants the continuation of the practice. It has been this study's objective to provide information in order to facilitate a decision for advertisers. Thus a "warning tag" has been issued. The evidence not only from this study, but in past related research, indicates advertisers should take a long hard look at this practice. Is this figural embedding really cost efficient? The results of this study indicate that it is not.

Suggestions for Further Research

Certainly this study should be expanded to include a larger sample and a more randomized sampling procedure. The research here could very well have been significantly affected by the use of a pre-assembled group. As stated before, this study was only intended to be a preliminary report, opening the door for further, more scientifically controlled work.

Another question that must be asked concerns the method used in reporting respondent's attitudes toward the experimental ads. The seven-point semantic differential questionnaire measures, of course, respondents' conscious feelings. But is this really what completely controls buying behavior? According to attention theory, all of what is perceived is not

unconsciously attended to. Perhaps what we need to do is measure the subconscious reactions. This could be done through various methods such as the galvanic skin response measures, wherein emotional changes can be detected through changes in skin conductivity. There are other methods such as pupil measurement that can also record reactions that are not so easily translated into conscious thought. This is certainly an area worth exploration and further research in order to develop an understanding of the phenomenon.

The subject that we have discussed in this report is one that usually arouses emotional reactions. Either you believe as Key does that "Sex is alive and embedded in practically everything," or you think that the whole matter is a product of overactive imaginations, hormones, or both. Whatever the case evidence has been advanced, in a limited concept, that suggests that advertisers may be overreacting to the "language within a language." It is this author's hope that this report serves to initiate new research and stimulate more argument in this fascinating field.

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APPENDIX

ations: The purpose of this study is to measure your reaction to a set of ads taken from national magazines. For each ad, you are to complete the corresponding set of scales. Each set of scales is labeled with the appropriate ad name.

To complete the scales, you would proceed as follows. If you believe that an ad is "very" good, you would place an "X" in the blank corresponding to "very" good as follows:

Extremely Very Moderately Neutral Moderately Very Extremely
d _____ X _____ _____ _____ _____ _____ Bad

If you thought the ad was "extremely" bad, you would place the "X" under the "extremely" closest to "bad". Each scale would be viewed as having the labels "extremely" "very" ---- "very" "extremely" associated with it. Please remember that it is your evaluation of the advertisement and not the product that is important.

Ad: Chevis Regal

	Extremely	Very	Moderately	Neutral	Moderately	Very	Extremely	
ing	_____	_____	_____	_____	_____	_____	_____	Unappealin
ive	_____	_____	_____	_____	_____	_____	_____	Informativ
ual	_____	_____	_____	_____	_____	_____	_____	Not sensua
thy	_____	_____	_____	_____	_____	_____	_____	Trustworth
tic	_____	_____	_____	_____	_____	_____	_____	Not Erotic
ive	_____	_____	_____	_____	_____	_____	_____	Attractive
ive	_____	_____	_____	_____	_____	_____	_____	Uninformat
ing	_____	_____	_____	_____	_____	_____	_____	Unexciting
ive	_____	_____	_____	_____	_____	_____	_____	Unimpressi
ble	_____	_____	_____	_____	_____	_____	_____	Believable

ould you like to try this product?

Ext. Very Mod. Neu. Mod. Very Ext.
Definitely Not _____ _____ _____ _____ _____ _____ Yes, Definitely

ould you buy this product if you happened to see it in a store?

Yes, Definitely _____ _____ _____ _____ _____ _____ No, Definitely Not

ould you actively seek out this product in a store and purchase it?

Yes, Definitely _____ _____ _____ _____ _____ _____ No, Definitely Not

ex: Male _____ Female _____

o you consume alcoholic beverages? Yes _____ No _____

ctions: The purpose of this study is to measure your reaction to a set of ads taken from national magazines. For each ad, you are to complete the corresponding set of scales. Each set of scales is labeled with the appropriate ad name.

To complete the scales, you would proceed as follows. If you believe that an ad is "very: good, you would place an "X" in the blank corresponding to "very" good as follows:

	Extremely	Very	Moderately	Neutral	Moderately	Very	Extremely	
ad	_____	<u>X</u>	_____	_____	_____	_____	_____	Bad

If you thought the ad was "extremely" bad, you would place the "X" under the "extremely" closest to "bad". Each scale would be viewed as having the labels "extremely" "very" ---- "very" "extremely" associated with it. Please remember that it is your evaluation of the advertisement and not the product that is important.

Ad: Marlboro Cigarettes

	Extremely	Very	Moderately	Neutral	Moderately	Very	Extremely	
ing	_____	_____	_____	_____	_____	_____	_____	Unappealing
ative	_____	_____	_____	_____	_____	_____	_____	Informative
ual	_____	_____	_____	_____	_____	_____	_____	Not Sensual
orthy	_____	_____	_____	_____	_____	_____	_____	Trustworthy
tic	_____	_____	_____	_____	_____	_____	_____	Not Erotic
ative	_____	_____	_____	_____	_____	_____	_____	Attractive
ative	_____	_____	_____	_____	_____	_____	_____	Uninformative
ing	_____	_____	_____	_____	_____	_____	_____	Unexciting
sive	_____	_____	_____	_____	_____	_____	_____	Unimpressive
able	_____	_____	_____	_____	_____	_____	_____	Believable

ould you like to try this product?

	Ext.	Very	Mod.	Neu.	Mod.	Very	Ext.	
Definitely Not	_____	_____	_____	_____	_____	_____	_____	Yes, Definitely

ould you buy this product if you happened to see it in a store?

Yes, Definitely _____ No, Definitely Not _____

ould you actively seek out this product in a store and purchase it?

Yes, Definitely _____ No, Definitely Not _____

ex: Male _____ Female _____

o you smoke? Yes _____ No _____

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